58th IEEE Conference on Decision and Control

Final Program
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Welcome from the President of the IEEE Control Systems Society

Je vous souhaitez la bienvenue sur la Côte d’Azur.

The IEEE Conference on Decision and Control, CDC, is the Control Systems Society’s largest and longest running conference; 58 years strong and the premier broad-spectrum annual event in the control calendar. This is CDC’s first visit to France and promises an extraordinary location and stellar programs: technical, social, students and workshops. I am truly excited and delighted to be in Nice – about 25 years ago I lived in Antibes, roughly 20 km up the road on the opposite side of Baie des Anges. General Chair Carlos Canudas de Wit and Program Chair Rodolphe Sepulchre lead a super team of high-performance researchers and organizers. So I am even more enthralled to witness the conference content and events. CDC provides a splendid opportunity to refresh both friendships and technical skills. It also allows one to meet new people especially the up-and-comer wizards.

For all of CDC’s professionalism and intellectual clout, it relies on a volunteer base of individuals who each has a day-job. This welcome message also allows me to proffer sincere thanks to every one of them for their sterling efforts operating under deadlines to put together the event in all its complexity and color. Being part of IEEE, the Control Systems Society and therefore CDC are run by volunteers for the benefit of the members, conference attendees and publications audience. The multi-layered and sophisticated organization of CDC has been honed from years of experience of these volunteers but definitely leaving sufficient room for local innovation and imagination. Naturally, the leaders of CDC 2019 have a great background and knowledge of prior events. But so too they have personal views and values which they bring to the planning and execution. This helps make CDC a rewarding experience for all. Clicking on the Committees link from the main website brings up the first tranche of the organization. There are many others at the next level, such as the Conference Editorial Board which garner reviews for every submission. The reviews are created by another group of volunteers – even including your President, who reviewed five papers. I think that they keep the really tough ones for me. Local arrangements are another multi-faceted endeavor. To some extent, good conference organizers are like control systems; nobody notices them when they work well. So, please make a concerted effort to track down and congratulate some of the volunteers.

I was pressganged by then CSS History Committee Chair, Mike Polis, into making an historical review of the first fifty CDCs in 2011. David Castañon, General Chair of CDC number 46 in Cancun, and I, from CDC 39 in Sydney, had the unique opportunity to scan the written and oral histories of CDC for the memorable activities, technical and social. It was a difficult proposition to squeeze this into a fifty-minute presentation. It is with this tremendous fondness for CDC and hindsight of so many events that I truly welcome you to CDC 58 in Nice. I am certain that our hardworking organizers and French hosts have a remarkable conference in store for us. I have every expectation that we all will gain new friends, new expertise and new stories, each of which augurs well for our future growth. Allons-y!

Robert Bitmead

President, IEEE Control Systems Society
Welcome from the 2019 CDC General Chair

Welcome to the 58th IEEE Conference on Decision and Control at Nice!

It is more than an honor to be the General Chair of the first CDC conference organized in France. We have selected Nice among others great locations because of its weather, luminosity and radiant beauty. Although the current Nice area has been populated since prehistoric times, the starting point of Belle Nice traces back to 350 BC, when the Greeks established a place on the shores of the Mediterranean Sea, called Nikaia, according to Nike, the Greek goddess of victory. The history of Nice is essentially characterized by being a border city, which has frequently changed its sovereignty. It was successively Ligurian, Greek and Roman, before becoming part of the Ostrogothic Kingdom of Italy, then of the Eastern Roman Empire and the Kingdom of Italy (888-1024), then becoming Genoese, Provençal, Savoyard, Piedmontese and finally definitively French in 1860. Nice is today a capital of the art of living as it is attested by its typical streets, the “piazzettas”, the beaches bathed in light, the shade of the wooded parks, the effervescence of the markets, the colorful gastronomy, the drinks on the terrace, and a walk on the harbor. We are confident that you will have a productive and enjoyable stay.

The genesis of the CDC organization in France goes back to one of those distracted days when some colleagues distractily asked: "did the CDC ever happen in France? ..." Then they fixed their eyes on you and you end up being GC. Together with Dominique Sauter (Financial Chair), we formed a force group supported by the CNRS to explore different possible locations and build a proposal that eventually got accepted. Dominique has been a pillar in the organization since the very earliest times. Besides his dedicated skills on financial aspects, he dedicated many efforts in setting the main pieces of the whole conference organization.

Rodolphe Sepulchre (Program Chair), together with Christophe Prieur (Program Vice-Chair), Karl Johansson (Tutorial Chair), Ilya Kolmanovsky (Workshop Chair), and Moritz Diehl (Invited Sessions Chair), with the help of Amir Aghdam (Conference Editorial Board Chair) made an extraordinary job in building a great scientific program that you will surely enjoy. Their dedication and rigor in setting the program were highly appreciated. Edouard Laroche, together with Alessandro Giua and Tarek Hamel, took care of the local arrangements. They carefully select the food for the Banquet and receptions. Their previous experience in organizing large conferences (CDC, ECC and IFAC) was very much welcome. Alessandro's skills in mastering Excel files for room allocations made our life easy.

Antonella Ferrara (Publication Chair) did an extraordinary work in setting the Final Program Booklet and dealing with publication aspects of the conference. Her rigor and enthusiasm were a continuum. Laura Menini (Registration Chair) was extremely proactive and efficient in taking care of the registration process in a timely manner. Thanks to her for this great effort. Isabelle Queinnec was responsible for the Exhibits and Sponsorship. She and the MCI (PCO) were able to bring new sponsors to our conferences. Antoine Chaillot took care with a lot of efficiency of the student activities. He did a great job in coordinating student travel awards and organizing the newcomers’ reception. Francesco Rossi puts a lot of enthusiasm in his job of publicity chair. He set the webpage and took care of the conference advertisement and news. Bob Judd did a great job in helping us during the negotiation phase with the Congress Palace.

Thanks also to Randy Beard and Edwin Chong for supporting the conference as part of the Conference Operation Chair. I wish to express my gratitude to Jeoffrey Roussey from the MCI company acting as our PCO, for the professional support and dedication during the whole organization process, and all other
volunteers that helped in the organization. Finally, a great thanks to Julie Perrin who assisted me during the whole organization process.

Enjoy the conference, Enjoy Nice!

As John Baillieul said: “It is nice to be in Nice”

Carlos Canudas de Wit
General Chair
Welcome to the 58th IEEE Conference on Decision and Control at Nice!

The quality of the CDC program is before everything else the result of your own work as an author, and I would like to thank you all for contributing so generously to the research presented at this conference. The CDC is the prime annual conference of our field and strikes an exceptional balance between the theory and applications of control, that keep spanning broader and broader horizons. I also want to offer a special thank to the organizers of invited sessions who play a key role in highlighting special topics of importance and inspiring new research directions in a coherent manner. A total of 2320 papers were submitted this year, out of which 1340 papers were accepted. The program features 25 parallel sessions, four semi-plenary lectures, our distinguished Bode lecture, and 14 pre-conference workshops. Additionally, the program includes four tutorial sessions and five special sessions.

A number of people have worked tirelessly on putting together the program and managing the submission and review process. It was a great pleasure to work with the three Program Vice-Chairs, Christophe Prieur (contributed papers), Kalle Johansson (tutorial papers), and Moritz Diehl (invited sessions). The program was mostly completed during the ECC in Naples. Of course the experience and professionalism of the Conference Editorial Board (CEB) Chair Amir Aghdam was key to assembling the program. His help and kindness were deeply appreciated throughout the process. Ilya Kolmanovsky did an outstanding job managing and organizing the pre-conference workshops. I also wish to thank the outstanding international program committee, who worked hard in June auditing all papers and reviews, and all the CEB members who volunteered so many hours to manage the review process. Finally, you also must be thanked as well as all reviewers who ultimately ensure the quality and fairness in the selection of papers.

It was a pleasure from the very start to work on the program of a conference organized by Carlos Canudas de Wit. Carlos has been a personal friend and a key European control figure for many years. We owe him this wonderful CDC in Nice with a guaranteed Mexican touch. I would also like to thank all the previous CDC general chairs and program chairs for facilitating the task of their followers. Magnus Engerstedt’s help and tips proved as efficient as you expect them to be from Magnus ... And last but not least, thanks to Antonella Ferrara for working so smoothly on the final program booklet and other publication related activities.

I hope that you will all find this year’s CDC program rich, attractive, and inspiring. I wish you a productive and enjoyable 2019 IEEE Conference on Decision and Control in Nice!

Rodolphe Sepulchre

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Coordinated by Joao Hespanha in his capacities of CSS Vice-President for Technical Activities, the Control System Society Technical Committees (TC) organizes focused events around a selected technical area. Typical activities include organizing invited sessions for conferences, special issues in journals, technical meetings (workshops and conferences), maintaining web sites for technical resources, and publishing electronic newsletters that focus on various technical areas.

The current list of technical committees is shown below. For more information, please consult the TC web sites


and contact the TC Chairs directly for additional information. All technical committee meetings are open. It is our hope that you will find the collaborations and resources useful.

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Abstract. Genetic circuits control every aspect of life and thus the ability to engineer them de-novo opens exciting possibilities, from revolutionary drugs and green energy, to bugs that recognize and kill cancer cells. The robustness of natural gene networks is the result of millions of years of evolution and is in contrast with the fragility of today’s engineered circuits. A genetic module’s input/output behavior changes in unpredictable ways upon inclusion into a larger system. Therefore, each component of a system is usually redesigned every time a new piece is added. Rather than relying on such ad-hoc design procedures, control theoretic approaches may be used to engineer “insulation” of circuit components from context, thus enabling modular composition through specified input/output connections. In this talk, I will give an overview of modularity failures in genetic circuits, focusing on problems of loads, and introduce a control-theoretic framework, founded on the concept of retroactivity, to address the insulation question. Within this framework, insulation can be mathematically formulated as a disturbance rejection problem; however, classical solutions are not directly applicable due to biophysical constraints. I will thus introduce solutions relying on time-scale separation, a key property of biomolecular systems, which we used to build two devices: the load driver and the resource decoupler. These devices aid modularity, facilitate predictable composition of genetic circuits, and show that control theoretic approaches may be suitable to address pressing challenges in engineering biology.

Biography. Domitilla Del Vecchio received the Ph. D. degree in Control and Dynamical Systems from the California Institute of Technology, Pasadena, and the Laurea degree in Electrical Engineering (Automation) from the University of Rome at Tor Vergata in 2005 and 1999, respectively. From 2006 to 2010, she was an Assistant Professor in the Department of Electrical Engineering and Computer Science and in the Center for Computational Medicine and Bioinformatics at the University of Michigan, Ann Arbor. In 2010, she joined Department of Mechanical Engineering at the Massachusetts Institute of Technology (MIT), where she is currently Professor and member of the Synthetic Biology Center. She is a recipient of the 2016 Bose Research Award (MIT), the Donald P. Eckman Award from the American Automatic Control Council (2010), the NSF Career Award (2007), the American Control Conference Best Student Paper Award (2004), and the Bank of Italy Fellowship (2000).
Abstract. The physical state of a robotic system naturally carries structure; the pose of rigid links can be written as elements of the Special Euclidean group, images taken by a camera of a planar scene can be related by homographies and mapped to elements of the special linear group, etc. Recent work has demonstrated that there is a rich collection of symmetry groups for different robotic problems above and beyond the classical Lie-groups. This talks shows how this structure can be exploited to design robust nonlinear observers for state estimation. The earliest results in this direction were nonlinear attitude estimators (2005-2010) that were an enabling technology in the aerial robotic vehicle industry. Pose estimation algorithms based on these ideas are built into the augmented reality headsets that are now ubiquitous in gaming. Recent symmetries have opened the door to new solutions for classical robotics problems such as visual odometry, visual inertial odometry, simultaneous localisation and mapping.

Biography. Robert Mahony is a Professor in the Research School of Engineering at the Australian National University. He received his BSc in 1989 (applied mathematics and geology) and his PhD in 1995 (systems engineering) both from the Australian National University. He is a fellow of the IEEE and was president of the Australian Robotics Association from 2008-2011. He was Director of the Research School of Engineering at the Australian National University 2014-2016. His research interests are in nonlinear systems theory with applications in robotics and computer vision. He is known for his work in aerial robotics, equivariant observer design, matrix subspace optimisation and image based visual servo control.
Abstract. The study of linear systems theory without exploiting linearity and time-invariance may pose challenges, yet it is highly rewarding. In truth, linearity and time-invariance, albeit powerful, are a curse: they are not conducive to an abstract understanding of concepts, tools and ideas and may often be misleading. On the other hand, notions such as manifold invariance, interconnection, coordinates transformations, decomposition, and the principle of optimality facilitate the enhancement of linear, time-invariant, systems theory methods and tools to far more general classes of systems. We illustrate this perspective by providing abstract and geometric definitions for eigenvalues, poles, moments, Loewner operators and derivative, and persistence of excitation; and by solving interpolation problems, adaptive and robust control problems, and optimal control and game theory problems, for general classes of nonlinear systems.

Biography. Alessandro Astolfi was born in Rome, Italy, in 1967. He graduated in electrical engineering from the University of Rome in 1991. In 1992 he joined ETH-Zurich where he obtained a M.Sc. in Information Theory in 1995 and the Ph.D. degree with Medal of Honor in 1995 with a thesis on discontinuous stabilisation of nonholonomic systems. In 1996 he was awarded a Ph.D. from the University of Rome "La Sapienza" for his work on nonlinear robust control. Since 1996 he has been with the Electrical and Electronic Engineering Department of Imperial College London, London (UK), where he is currently Professor of Nonlinear Control Theory and Head of the Control and Power Group. From 1998 to 2003 he was also an Associate Professor at the Dept. of Electronics and Information of the Politecnico of Milano. Since 2005 he has also been a Professor at Dipartimento di Ingegneria Civile e Ingegneria Informatica, University of Rome Tor Vergata. His research interests are focussed on mathematical control theory and control applications, with special emphasis for the problems of discontinuous stabilisation, robust and adaptive control, observer design and model reduction.
Abstract. The success of machine learning models is in part due to their capacity to train on large amounts of data. Distributed systems are the common way to process more data than one computer can store, but they can also be used to increase the pace at which models are trained by splitting the work among many computing nodes. In this talk, I will study the corresponding problem of minimizing a sum of functions which are respectively accessible by separate nodes in a network. New centralized and decentralized algorithms will be presented, together with their convergence guarantees in deterministic and stochastic convex settings, leading to optimal algorithms for this particular class of distributed optimization problems.

Biography. Francis Bach is a researcher at INRIA, leading since 2011 the SIERRA project-team, which is part of the Computer Science Department at Ecole Normale Supérieure, and a joint team between CNRS, ENS and INRIA. Since 2016, he is an adjunct Professor at Ecole Normale Supérieure. He completed his Ph.D. in Computer Science at U.C. Berkeley, working with Professor Michael Jordan, and spent two years in the Mathematical Morphology group at Ecole des Mines de Paris, he then joined the WILLOW project-team at INRIA/Ecole Normale Superieure/CNRS from 2007 to 2010. He obtained in 2009 a Starting Grant and in 2016 a Consolidator Grant from the European Research Council, and received the Inria young researcher prize in 2012, the ICML test-of-time award in 2014, as well as the Lagrange prize in continuous optimization in 2018. In 2015, he was program co-chair of the International Conference in Machine learning (ICML), and general chair in 2018; he is now co-editor-in-chief of the Journal of Machine Learning Research. Francis Bach is primarily interested in machine learning, and especially in graphical models, sparse methods, kernel-based learning, large-scale convex optimization, computer vision and signal processing.
Abstract. Feedback is a core concept of automatic control, a fundamental principle of systems and an indispensable mechanism in intelligent systems, which makes it possible for a dynamical system to perform well in the presence of various uncertainties. Although it is widely recognized that a comprehensive investigation of the quantitative relationship between feedback and uncertainty is a challenging task, considerable progress has been made in both theory and practice on the design and analysis of feedback systems. In this lecture, we will present some findings and theorems in the understanding of several basic problems. First, we will consider adaptive control of linear stochastic systems and explain the difficulties and techniques in establishing the global stability and optimality of the well-known self-tuning regulators (STR), designed by combining the least-squares estimator with the minimum variance controller. This natural and seemingly simple case had actually been a basic longstanding open problem in adaptive control, and its solution offers valuable insights necessary for more complicated problems. Next, we will discuss the theoretical foundation of the classical proportional-integral-derivative (PID) control, to understand the rationale behind its widespread successful applications in control practice where almost all of the systems are nonlinear with uncertainty, by presenting some theorems on the global (semi-global) stability and asymptotic optimality of the closed-loop systems, and by providing a concrete design method for the PID parameters. Finally, we will consider more fundamental problems on the maximum capability and limitations of the feedback mechanism in dealing with uncertain nonlinear systems, where the feedback mechanism is defined as the class of all possible feedback laws (which are not restricted to a certain particular subclass). We will present some “critical values” and “impossibility theorems” about the maximum capability of the feedback mechanism for several basic classes of uncertain nonlinear systems. Experiences, extensions and expectations will also be shared during the lecture.

Biography. Lei Guo received his B.S. degree in mathematics from Shandong University in 1982, and Ph.D. degree in control theory from the Chinese Academy of Sciences in 1987. He was a postdoctoral fellow at the Australian National University (1987-1989). Since 1992, he has been a Professor of the Institute of Systems Science at the Chinese Academy of Sciences (CAS). From 2002 to 2012, he was the President of the Academy of Mathematics and Systems Science, CAS. He is currently the Director of the National Center for Mathematics and Interdisciplinary Sciences, CAS. He has worked on problems in adaptive control, system identification, adaptive signal processing, and stochastic systems. His current research interests include control of nonlinear uncertain systems, PID control theory, distributed filtering and estimation, capability of feedback, multi-agent systems, game-based control systems, and complex systems, among others.
Special Sessions

There will be five special sessions at the conference on the following topics:

- NASK Special Session
- MERL Special Session
- Meet the Faculty Candidates Poster Session
- ERC Session: ERC Funding Opportunities
- MathWorks Special Session

Title: NASK Special Session: Secure and efficient with adaptive control - a story of one equation that brought new perspectives for Linux servers and cybersecurity systems
Speaker: Michał Karpowicz (National Research Institute for Cybersecurity & AI)
Time and Location: Wednesday, December 11, 12:15 – 1:15 pm, Galliéni 5

Abstract: As a National Research Institute executing governmental cybersecurity tasks on one hand and providing commercial IT services on the other, NASK is in constant need of technological solutions that prove to be both secure and efficient. Rapidly changing patterns of cyberattacks and ever-growing demand for computing capacity result in excessive costs of network services. Therefore, we are focused on developing solutions for cybersecurity and energy-efficient data center management.

Our recent findings show that challenges arising in these areas call for the application of adaptive control theory. And it all started with one equation...

Michał Karpowicz is assistant Professor of Computer Science and Head of IT Systems Engineering Department at NASK National Research Institute for Cybersecurity & AI. He received his B.S., M.S., and Ph.D. from the Institute of Control and Computation Engineering at the Warsaw University of Technology. His research interests include control theory, signal processing, and game theory.

Title: MERL Special Session: An overview of research activities at MERL (Mitsubishi Electric Research Laboratories), Control and Dynamical Systems Group
Speakers: Karl Berntorp (MERL), Uroš Kalabić (MERL), Rien Quirynen (MERL)
Time and Location: Wednesday, December 11, 12:15-1:30 pm, Risso 8

Abstract: Mitsubishi Electric Research Laboratories (MERL) is a leading research organization located in Cambridge, Massachusetts, USA that conducts fundamental research for industrially-motivated problems. In this talk, we will present an overview of research activities at MERL, including fundamental controls research and the application of state-of-the-art control techniques to a variety of products. We will focus on fundamental research topics including model predictive control and the control of constrained systems, estimation and motion planning for autonomous systems, and learning for control.

In addition, we will describe how these fundamental research areas have impacted applications such as autonomous vehicles, energy-efficient HVAC systems, high-precision manufacturing, traffic control, and spacecraft guidance and control.

Karl’s Berntorp research is on statistical signal processing, motion planning, sensor fusion, and optimization-based control, with applications to automotive, aerospace, transportation, and
communication systems. His work includes design and implementation of nonlinear estimation, constrained control, and motion-planning algorithms.

Uroš Kalabić works on advancements in the theory of predictive control and constrained control, as well as its applications to the control of automotive and aerospace systems. His dissertation dealt with theoretical developments and practical applications of reference governors. Prior to joining MERL, Uroš interned at MERL and at Ford Motor Company.

Rien’s Quirynen research interests are in model predictive control and moving horizon estimation, numerical algorithms for (nonlinear) dynamic optimization and real-time control applications. His doctoral research was focused on numerical simulation methods with efficient sensitivity propagation for real-time optimal control algorithms.

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**Title:** Meet the Faculty Candidates Poster Session  
**Organizer and moderator:** Antoine Chaillet (Centrale Supelec)  
**Time and Location:** Wednesday, December 11, 6:30-8:30 pm, Rhodes Exhibition Area

**Abstract:** Building on the success of the past several events, the 2019 CDC will feature the "Meet the Faculty Candidates" poster session. This poster session provides a great opportunity for faculty, search committee members, and recruiters to speak directly with current graduate students and postdoctoral researchers who are seeking faculty positions. The session will be held on Wednesday, December 11th, from 6:30pm to 8:30pm at the Acropolis Convention and Exhibition Center. Space will be available on a first-come first-serve basis. Presenters are asked to bring a poster no larger than 3ft x 4ft (A0 format) along with pushpins to attach the poster. Presenters will likely be more successful providing high-level discussions of their work such as motivation, strategies, unique insights, rather than narrow mathematical detailed discussions, unless asked specifically for those details. Presenters are also encouraged to bring copies of their CV for distribution.

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**Title:** ERC Session: ERC Funding Opportunities  
**Speakers:** Marios Polycarpou (University of Cyprus), Sandra Hirche (TUM Munich, Germany), Telma Carvalho (ERC Executive Agency)  
**Time and Location:** Thursday, December 12, 12:15 – 1:15 pm, Galliéni 5

**Abstract:** ERC grants support individual researchers of any nationality and age who wish to pursue frontier research in any field of science. The ERC encourages in particular proposals that cross the disciplinary boundaries, pioneer ideas that address new and emerging fields and applications that introduce unconventional and/or innovative approaches. The ERC Session presents the current funding opportunities and discusses the evaluation and submission process from the perspective of a grantee and panel member. In particular, grantee experiences on writing an ERC proposal and implementing the ERC project will be shared. Furthermore, a panel member will report the experiences on common mistakes and faults in the proposal and the interview.
Title: MathWorks Special Session
Speaker: Craig Buhr (MathWorks)
Time and Location: Thursday, December 12, 12:15-1:45 pm, Hermès

Abstract: Reinforcement learning is getting a lot of attention lately. People are excited about its potential to solve complex problems in areas such as robotics and automated driving, where traditional control methods can be challenging to use. In addition to deep neural nets to represent the policy, and algorithms to train them, reinforcement learning requires repeated exploration of the environment. As such exploration is time consuming and potentially dangerous when done with the hardware, a simulation model is often used to represent the environment, at least for the initial training.

In this talk, we will discuss reinforcement learning and contrast it with traditional control methods. We will go through the steps needed to set up and solve a reinforcement learning problem. We will then talk about relevant MathWorks capabilities and resources and will show an example of developing a robot controller using reinforcement learning. Topics include:

- Creating MATLAB and Simulink environment models and provide observation and reward signals for training policies
- Training of policies using various reinforcement learning algorithms
- Parameterizing policy and value functions using deep neural networks, linear basis functions, and look-up tables
- Parallelizing environment simulations and gradient calculations on GPUs and multicore CPUs for policy training
- Deploying trained policies to embedded devices through automatic code generation for CPUs and GPUs
- Implementing controllers using reinforcement learning for automated driving and robotics applications.
### Tutorial Sessions

There will be four tutorial sessions at the conference on the following topics:

- **Cybergenetics: Control of Living Cells**
- **Self-Tuning and Reinforcement Learning**
- **Autonomous Vehicles and Traffic Control in Mixed Autonomy Environments**
- **Payoff Dynamics and Higher-Order Learning in Population Games**

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**Title:** Cybergenetics: Control of Living Cells  
**Organizers:** Mustafa Khammash (ETH Zurich), Mario Di Bernardo (University of Naples Federico II), Diego Di Bernardo (Telethon Institute of Genetics and Medicine)  
**Speakers:** Mustafa Khammash (ETH Zurich), Diego Di Bernardo (Telethon Institute of Genetics and Medicine), Mario Di Bernardo (University of Naples Federico II), Filippo Menolascina (University of Edinburgh)  
**Time and Location:** Wednesday, December 11, 10:00-12:00, Apollon  
**Abstract:** This tutorial session presents an overview of the theory and design tools for the real-time control of living cells. The theoretical, computational, and experimental tools and technologies utilized for achieving such control make up a new and exciting area of study at the interface between control theory and synthetic biology—one we refer to as Cybergenetics. The session is intended to introduce control scientists and engineers to the different ways living cells can be controlled, and to the many opportunities for future developments, both theoretical and practical, that such control brings about.

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**Title:** Self-Tuning and Reinforcement Learning  
**Organizers:** Nikolai Matni (University of Pennsylvania) and Anders Rantzer (Lund University)  
**Speakers:** Anders Rantzer (Lund University), Nikolai Matni (University of Pennsylvania), Alexandre Proutiere (KTH Royal Institute of Technology), Stephen Tu (University of California, Berkeley)  
**Time and Location:** Thursday, December 12, 10:00-12:00, Apollon  
**Abstract:** Machine and reinforcement learning are increasingly being applied to plan and control the behavior of autonomous systems interacting with the physical world. Examples include self-driving vehicles, distributed sensor networks, and agile robots. However, when machine learning is to be applied in these new settings, the algorithms had better come with the same type of reliability, robustness, and safety bounds that are hallmarks of control theory, or failures could be catastrophic. Thus, as learning algorithms are increasingly and more aggressively deployed in safety critical settings, it is imperative that control theorists join the conversation. The goal of this tutorial session is to provide a starting point for control theorists wishing to work on learning related problems, by covering recent advances bridging learning and control theory, and by placing these results within an appropriate historical context of system identification and adaptive control.
Title: Autonomous Vehicles and Traffic Control in Mixed Autonomy Environments
Organizers: Maria Laura Delle Monache (Inria Grenoble Rhône – Alpes), Jonathan Sprinkle (University of Arizona), Ramanarayan Vasudevan (University of Michigan), Daniel B. Work (Vanderbilt University)
Speakers: Daniel B. Work (Vanderbilt University), Ramanarayan Vasudevan (University of Michigan), Jonathan Sprinkle (University of Arizona), Maria Laura Delle Monache (Inria Grenoble Rhône – Alpes)
Time and Location: Thursday, December 12, 16:30-18:30, Apollon

Abstract: This tutorial session provides an overview of the converging areas of control for autonomous vehicles, and control of the larger transportation system in which a small number of autonomous vehicles serve as actuators of traffic flow. The overview begins by describing the verification techniques and realistic sensor and control interfaces for safe real-time control of autonomous vehicles. Shifting towards a period when autonomous vehicles are present in large numbers, the session reviews classical traffic modeling, estimation, and control techniques, and then considers new methods available to model and use these autonomous vehicles to actuate bulk traffic flow composed primarily of human-piloted vehicles.

Title: Payoff Dynamics and Higher-Order Learning in Population Games
Organizers: Shinkyu Park (Princeton University), Nuno C. Martins (University of Maryland), Jeff S. Shamma (KAUST)
Speakers: Jeff S. Shamma (KAUST), Nuno C. Martins (University of Maryland), Shinkyu Park (Princeton University)
Time and Location: Friday, December 13, 10:00-12:00, Apollon

Abstract: Population games model the strategic interactions among vast numbers of decision-making agents. In this context, the evolutionary dynamics of a population describes how the proportions of agents adopting each available strategy evolve in response to the payoff (or fitness) ascribed to each strategy by the game. This session begins with a review of the basic tenets of population games and evolutionary dynamics. Subsequently, it overviews recent methods that hinge on passivity-based techniques to characterize the stability of the evolutionary dynamics when a dynamical system (more general than a population game or a dynamically modified version thereof) governs the payoff.
Pre-Conference Workshops

The CDC 2019 is offering 11 full-day and 3 half-day pre-conference workshops on Tuesday, December 10, 2019. The workshops address topics of current and future interest in control theory and applications, and are delivered by renowned experts from academia, research institutions, and industry.

Half-day Workshops (8:30 am - 12:30 pm, except Half-Day Workshop no. 3: 1:00 - 5:30 pm)

1. Uncertainty Synthesis
2. Learning, Decision and Control over Networks
3. Computational Optimal Transport for Applications in Control and Estimation

Workshop Title: Uncertainty Synthesis
Organizers and Speakers: Efstathios Bakolas (Univ. of Texas at Austin), Yongxin Chen (Georgia Institute of Technology), Tryphon Georgiou (Univ. of California, Irvine), and Panagiotis Tsiotras (Georgia Institute of Technology)
Time and Location: 8:30 am - 12:30 pm, Galliéni 6

Abstract: All dynamical systems are prone to exogenous disturbances, and the uncertainty introduced by these exogenous disturbances propagates along with the system states. More often, the amount of uncertainty in the system grows with time as the system evolves and, consequently, controlling the uncertainty is of paramount interest to maintain a certain level of performance. This is especially true when one needs to design optimal controllers, which are known to be susceptible to modelling errors. Recent advances have it possible to directly quantify and control the uncertainty of a dynamical system. Controlling the uncertainty of a dynamical system implies the ability to control the state distribution over time, a problem that has many applications, including image segmentation, ensemble and swarm control, control of particle beams, neuronal ensembles, and many others — in addition to just reducing the uncertainty in a feedback system. The objective of this workshop is twofold: the first objective is to report on current advances in the area of uncertainty quantification and control to enable resilient and robust operation of dynamical systems and swarms of robots; the second objective is to bring together - in the same room - outstanding researchers from leading institutions who have contributed on this topic over the years. Please see http://uncertainty-synthesis-workshop.ae.gatech.edu/ for additional information.

Workshop Title: Learning, Decision and Control over Networks
Organizers: Vaibhav Srivastava (Michigan State University) and Fabio Pasqualetti (Univ. of California, Riverside)
Additional Speakers: Jorge Cortes (Univ. of California at San Diego), Sonia Martinez (Univ. of California at San Diego), Giuseppe Notarstefano (Univ. of Bologna), Ketan Savla (Univ. of Southern California), Stephen L. Smith (Univ. of Waterloo), and Shaunak D. Bopardikar (Michigan State University)
Time and Location: 8:30 am - 12:30 pm, Méditerranée A3

Abstract: From electric power grid to biological systems to massive transportation systems, socio-technological networked multi-agents systems are ubiquitous across scientific disciplines. In the era of big data, understanding the interplay of learning, decision-making, and control in distributed control of such network systems in vital. Such understanding will empower the future technology to leverage the plethora of data in a systematic and efficient fashion. To this end, a half day workshop is organized that will bring together experts in this area to present the state-of-the-art and discuss future research directions. Space permitting, the workshop will also feature an interactive poster session to facilitate
deeper discussions on the topics. This half-day workshop will feature presentations and discussions from experts in the areas of networked multiagent systems. Please see https://www.egr.msu.edu/~vaibhav/cdc2019workshop.html for more information.

**Workshop Title:** Computational Optimal Transport for Applications in Control and Estimation  
**Organizers and Speakers:** Yongxin Chen (Georgia Institute of Technology), Tryphon Georgiou (Univ. of California, Irvine), Johan Karlsson (KTH Royal Institute of Technology), Axel Ringh (Hong Kong University of Science and Technology), and François-Xavier Vialard (University Paris-Est Marne la Vallée)  
**Time and Location:** 1:00 pm - 5:30 pm, Méditerranée A3

**Abstract:** The optimal mass transport problem is a classical problem in mathematics, and dates back to 1781 and work by Gaspard Monge where he formulated an optimization problem for minimizing the cost of transporting soil for construction of forts and roads. Historically the optimal mass transport problem has been widely used in economics in, e.g., planning and logistics, and was at the heart of the 1975 Nobel Memorial Prize in Economic Sciences. In the last two decades there has been a rapid development of theory and methods for optimal mass transport and the ideas have attracted considerable attention in several economic and engineering fields. These developments have lead to a mature framework for optimal mass transport with computationally efficient algorithms that can be used to address problems in the areas of systems, control, and estimation. This workshop is being organized in order to introduce optimal transport to a larger audience in the CDC community. The main goal of this workshop is to give a tutorial of it, regarding both theoretical and computational aspects, and to present some applications in the areas of control and estimation. Please see https://people.kth.se/~johan79/Workshops/OMT_CDC_2019/ for more information.

**Full-day Workshops (8:30 am - 5:30 pm)**

1. **Verifiable Adaptive Control Systems and Learning Algorithms**
2. **Mathematical Theory of Control and Signal Processing in the Digital World: A workshop dedicated to Yutaka Yamamoto's 70th birthday**
3. **Model Predictive Control: From the Basics to Reinforcement Learning**
4. **Learning, Games and Control for Security of Cyber-physical Systems**
5. **Resilience and Controllability of Large Scale Systems: A Network-theoretic Approach**
6. **Spatio-Temporal Reasoning for Control of Cyber-Physical Systems**
7. **Neuroscience and Control: the Emerging Intersection**
8. **Model Predictive Control of Hybrid Dynamical Systems**
9. **Lagrangian Control for Traffic Flow Smoothing in Mixed Autonomy Settings**
10. **Finite-, Fixed-, and Prescribed-Time Stabilization and Estimation**
11. **Systems and Control for Smart Society and Cyber-Physical and Human Systems**

**Workshop Title:** Verifiable Adaptive Control Systems and Learning Algorithms  
**Organizers and Speakers:** Tansel Yucelen (Univ. of South Florida), Anuradha Annaswamy (Massachusetts Institute of Technology), Warren Dixon (Univ. of Florida), K. Merve Dogan (Univ. of South Florida), Jonathan A. Muse (Air Force Research Lab), and Frank Lewis (Univ. of Texas at Arlington)  
**Time and Location:** 8:30 am - 5:30 pm, Galliéni 4
Abstract: A fundamental problem in the design of feedback control architectures is to achieve closed-loop system stability, performance, and robustness against exogenous disturbances and system uncertainties. Unlike fixed-gain control architectures, adaptive control systems offer the capability to deal with exogenous disturbances and system uncertainties, in an online fashion, through learning. This implies that they are not tuned to a worst-case scenario and they continuously improve their performance in real-time. These two appealing aspects make adaptive control systems and learning algorithms important candidates for a wide array of physical systems. Although government and industry agree on their potential in providing vehicle safety and reducing vehicle development costs, a major issue is the lack of system-theoretic methods for their verification, due to their nonlinear nature. Motivated by this standpoint, the objective of this full-day workshop is to cover the state-of-the-art verifiable system-theoretic approaches in adaptive control systems and learning algorithms for their safe and reliable real-world applications. Specifically, the presenters of this workshop will cover topics addressing how to implement adaptive control systems with verifiable transient and steady-state performance guarantees, how to address the presence of actuator and unmodeled dynamics when adaptive control systems are in feedback loops, how to design and analyze adaptive control systems for physical plants with switching modes, and how to advance adaptive control systems with system-theoretic guarantees using tools and methods from machine and reinforcement learning. This workshop will be relevant to practicing professionals from electrical, mechanical, and aerospace industries. It also intends to cultivate new future research directions under a panel discussion involving organizers and expected workshop attendees. Finally, this workshop is expected to be a great value to experts and students in the adaptive control systems and learning algorithms fields. Please see http://lacis.eng.usf.edu/page6/index.html for additional information.

Workshop Title: Mathematical Theory of Control and Signal Processing in the Digital World: A workshop dedicated to Yutaka Yamamoto’s 70th birthday
Organizers: Masaaki Nagahara (The Univ. of Kitakyushu), Hideaki Ishii (Tokyo Institute of Technology), Kenji Kashima (Kyoto University), Kenji Sugimoto (Nara Institute of Science and Technology)
Additional Speakers: Please see http://www.sc.dis.titech.ac.jp/yy_workshop_cdc19/
Time and Location: 8:30 am - 5:30 pm, Méditerranée A1

Abstract: This workshop is organized to celebrate Professor Yutaka Yamamoto’s 70th birthday and honor his long-lasting contributions to mathematical theory of control and signal processing. This workshop will bring together his colleagues who will present a broad range of topics related to control and signal processing for the digital world. In particular, the speakers will present talks on robust control, stochastic systems, signal processing, and system identification. The goal of this workshop is to inspire a future generation of researchers. Please see http://www.sc.dis.titech.ac.jp/yy_workshop_cdc19/ for additional information.

Workshop Title: Model Predictive Control: From the Basics to Reinforcement Learning
Organizers and Speakers: Alberto Bemporad (IMT Lucca) and Mario Zanon (IMT Lucca)
Time and Location: 8:30 am - 5:30 pm, Galliéni 7

Abstract: In spite of its long tradition of success as a very powerful and versatile advanced control technique, the interest of industry and academia in model predictive control (MPC) is strongly growing, and MPC is spreading to a large variety of application domains. While most of the attention has been focused so far on computational efficiency and closed-loop performance, as the use of MPC in industrial production is increasing the time required to develop an MPC solution has also become of strong importance. Development time is mainly due to constructing suitable prediction models and to
calibrating the resulting controller. Reinforcement learning, and more generally data-driven synthesis of MPC laws, has recently attracted a lot of attention to possibly reduce such development time. This workshop aims at providing an overview of several techniques for practical use of MPC, covering linear, hybrid, and nonlinear MPC formulations and various computational methods that can be used to effectively compute the MPC action in real-time. The workshop also aims at bringing the attendees towards understanding emerging reinforcement learning and policy search methods for tuning MPC controllers directly from data for reduced design and calibration effort. Emphasis will be given to understanding the necessary theoretical background that leads to the successful implementation of MPC in practice, addressing advantages and potential difficulties. During the workshop pointers towards dedicated software will be given, so that the attendees will be able to not only properly formulate the problem, but also to solve it using state-of-the-art tools. The workshop is organized as a tour, starting from the most basic and standard formulations based on deterministic linear systems with quadratic costs, and following the road towards more advanced formulations, including hybrid, stochastic, nonlinear, and economic MPC. The last part of the workshop will be dedicated to presenting promising results in data-driven learning of control laws that have a great potential of use in MPC, with the intention of also triggering further research ideas in the audience. A few practical case studies will be described so as to also motivate the practical and industry-oriented flavor of the workshop. Please see http://dysco.imtlucca.it/mpc-cdc19 for additional information.

**Workshop Title:** Learning, Games and Control for Security of Cyber-physical Systems  
**Organizers:** Quanyan Zhu (New York University) and Radha Poovendran (University of Washington)  
**Additional Speakers:** Tamer Basar (UIUC), Joao Hespanha (UCSB), Linda Bushnell (Univ. of Washington), Hideaki Ishii (Tokyo Institute of Technology), Karl Johannsson (KTH), and others.  
**Time and Location:** 8:30 am - 5:30 pm, Méditerranée 1

**Abstract:** The topic of this workshop is the control and secure operation of cyber-physical systems (CPSs) using perspectives from game theory and machine learning. Cyber-physical systems are complex entities where the working of a physical system is governed by its interactions with computing devices and algorithms. These systems are ubiquitous. Examples range from medical devices and robots on a small scale, to power systems and connected communities on a large scale. CPSs are expected to operate in dynamically changing environments, which could result in them being the target of malicious attacks that aim to prevent them from accomplishing a goal. Strategies to mitigate the effect of an attack must take into consideration the fact that adversaries are often stealthy, intelligent, and persistent. This workshop will feature talks by leading experts whose recent work uses game theory and data-driven approaches to model and analyze the security of CPSs. The workshop also plans to feature a presentation by a representative from a funding agency, and a panel discussion in order to identify open research problems that will be of interest to the broader community. Please see https://wp.nyu.edu/quanyan/cdc-2019-workshop/ for additional information.

**Workshop Title:** Resilience and Controllability of Large Scale Systems: A Network-theoretic Approach  
**Organizers:** Mohammad Pirani (Univ. of Toronto), Shreyas Sundaram (Purdue University), and Victor Preciado (Univ. of Pennsylvania)  
**Additional Speakers:** Sonia Martinez (Univ. of California, San Diego), Nader Motee (Lehigh University), Stacy Patterson (Rensselaer Polytechnic Institute), Sergio Pequito (Rensselaer Polytechnic Institute), Iman Shames (Univ. of Melbourne), Shreyas Sundaram (Purdue University), Joshua Taylor (Univ. of Toronto), and Daniel Zelazo (Technion-Israel Institute of Technology)  
**Time and Location:** 8:30 am - 5:30 pm, Méditerranée 2
Abstract: Large-scale systems play a central role in a multitude of applications, from power grids and smart buildings to aerospace systems, swarm robotics, social networks, and intelligent transportation systems. As the scale of networked control systems increases and interactions between different subsystems become more sophisticated, questions of controllability, observability, and resilience of such networks increase in importance. The need to redefine classical system and control theoretic notions into the language of networks has recently started to gain attention as a fertile and important area of research. A key challenge for the controls community is thus to understand how to leverage network theory along with systems and control to analyze the controllability, observability, and resilience of large-scale interconnected systems. The IEEE Conference on Decision and Control, as one of the premier annual gatherings of researchers in the field of systems and control, is a perfect venue for a workshop on network-theoretic approaches to controlling large scale systems. The goal of this workshop is to present the challenges in this area, together with tools and approaches that have been recently developed to address this problem. In particular, the key emphasis of this workshop will be on the use of graph-theoretic approaches to large-scale systems analysis, which will differentiate it from other workshops on control and security of centralized systems. The target audience is students, researchers and practitioners from academia and industry who are interested in learning about (and contributing to) the emerging field of network control systems. The workshop will be highly interactive and will feature tutorial-style talks by leading experts in the field, giving the audience a perspective of how network theory plays a role in the resilience and control of large scale systems, and how to best combine different perspectives to develop efficient, reliable and resilient systems. Please see https://cdc2019.ieeecss.org/workshops.php#w2430 for additional information.

Workshop Title: Spatio-Temporal Reasoning for Control of Cyber-Physical Systems
Organizers: André de Matos Pedro and Laura Nenzi
Additional Speakers: Calin Belta (Boston University), Michel Loreti (Univ. of Camerino), Ezio Bartocci (TU Wien), Jane Hillston (Univ. of Edinburgh), Roman Kontchakov (Univ. of London), Jana Tumova (KTH Royal Institute of Technology), Necmiye Ozay (Univ. of Michigan), Christos Tsigkanos (TU Wien), and Martin Leucker (Univ. of Lübeck)
Time and Location: 8:30 am - 5:30 pm, Méditerranée C4
Abstract: This workshop aims to present the most recent advances in the development of logic-based procedures for the analysis and control of spatially distributed Cyber Physical Systems (CPS), with particular emphasis on the combination of temporal and spatial behaviors. Spatially distributed CPS, such as robotic swarms and smart environments, often exhibit multiple and unpredictable behaviors that increase the efforts needed in their analysis. Studying and controlling such systems requires a growing demand for efficient tools capable of dealing with such complex behavioral patterns. Spatio-temporal logic is an innovative way to reason and face such challenges. This workshop has the dual objective: (1) showing the usefulness of spatio-temporal logic to the control community in the context of spatially distributed CPS and (2) highlighting what are the main important challenges in the analysis of such systems that logic community can help to solve in the near future. Several case studies will be considered to discuss the real usefulness of these methodologies. This will lay the foundations for a verification framework of spatially distributed CPS as well as fill the gap between theory and practice of CPS design, deployment and testing, with particular emphasis in the decision procedures and monitoring mechanisms. Please see http://strcc.isp.uni-luebeck.de for additional information.
Workshop Title: Neuroscience and Control: the Emerging Intersection
Organizers: Sergio Pequito (Rensselaer Polytechnic Institute) and Alexander Medvedev (Uppsala University)
Additional Speakers: Erfan Nozari (Univ. of California, San Diego), John Doyle (CalTech), Arian Ashourvan (Univ. of Pennsylvania), Tim Denison (Oxford University), and Miroslav Pajic (Duke University).
Time and Location: 8:30 am - 5:30 pm, Méditerranée A2

Abstract: The last years have witnessed a fast development of models, tools, and experiments aimed at understanding neural circuitry and brain dynamics. This workshop brings together researchers from different backgrounds to demonstrate how the theory of dynamical systems and control engineering successfully enable new insights into neuroscience and emerging neural technology. More specifically, the scope of the talks covers such topics as mathematical modeling and analysis of neural populations, intracranial electrical stimulation in rehabilitation technology and prosthetics, brain-machine interfaces, and uncovering the drivers of brain activity. We propose to not only present and address some of the fundamental problems in this research area but also to raise more questions for future research within the controls community. Subsequently, we believe that these sessions will have a profound effect on our understanding of brain dynamics and actuation mechanism. A healthy mixture of theoretically oriented talks with more applied ones will take place, thus maximizing the relevant audience, and attracting new researchers in these exciting problems, creating a larger yet focused community. Please see https://sites.google.com/site/neurocontrolcdc19/home for additional information.

Workshop Title: Model Predictive Control of Hybrid Dynamical Systems
Organizers: Berk Altın (Univ. of California, Santa Cruz) and Ricardo G. Sanfelice (Univ. of California, Santa Cruz)
Additional Speakers: Francesco Ferrante (Univ. Grenoble Alpes), Mohamed A. Maghenem (Univ. of California, Santa Cruz), and Sean Phillips (Air Force Research Laboratory)
Time and Location: 8:30 am - 5:30 pm, Galliéni 1

Abstract: Hybrid systems model the behavior of dynamical systems where the states can evolve continuously as well as instantaneously. Such systems arise when control algorithms that involve digital devices are applied to continuous-time systems, or due to the intrinsic dynamics (e.g. mechanical systems with impacts, switching electrical circuits). Hybrid control may be used for improved performance and robustness properties compared to conventional control, and hybrid dynamics may be unavoidable due to the interplay between digital and analog components of a system. This workshop is a complete course on the analysis and design of model predictive control (MPC) schemes for hybrid systems. It presents recently developed results on asymptotically stabilizing MPC for hybrid systems based on control Lyapunov functions. The workshop provides a detailed overview of the state of the art on hybrid MPC, and a short tutorial on a powerful hybrid systems framework (hybrid inclusions) that can model hybrid dynamics described in other frameworks (e.g. switched systems, hybrid automata, impulsive systems). Key analysis tools in this setting are demonstrated, along with several advantages over other frameworks. This background is then used to lay the theoretical foundations of a general MPC framework for hybrid systems, with guaranteed stability and feasibility. The ideas are illustrated in several applications. The workshop targets a broad audience in academia and industry, including graduate students, looking for an introduction to an active area of research and some modern mathematical analysis tools; control practitioners interested in novel design techniques; researchers in dynamical systems in pursuit of relevant applications; and researchers in industry and labs applying hybrid predictive control methods to engineering systems. The required background is basic familiarity
with continuous- and discrete-time nonlinear systems. The lectures are closely related to each other and not meant to be independent research presentations. Please see https://hybrid.soe.ucsc.edu/hybridmpccdc19 for additional information.

**Workshop Title:** Lagrangian Control for Traffic Flow Smoothing in Mixed Autonomy Settings  
**Organizers:** Alexandre Bayen (UC Berkeley), George J. Pappas (Univ. of Pennsylvania), Benedetto Piccoli (Rutgers University), Daniel B. Work (Vanderbilt University), Jonathan Sprinkle (University of Arizona), Maria Laura Delle Monache (INRIA), Benjamin Seibold (Temple University), Cathy Wu (MIT), Abdul Rahman Kreidieh (UC Berkeley), Eugene Vinitsky (UC Berkeley), Yashar Farid (UC Berkeley)  
**Time and Location:** 8:30 am - 5:30 pm, Galliéni 2

**Abstract:** The field of transportation is undergoing profound and rapid disruptions, led in part by revolutions in automation, electrification, and data science / machine learning. In particular, the rapid emergence of autonomous vehicle (AV) technology and its potential as a means of Lagrangian control has led many to ask the question: How can AVs in the presence of human-driven vehicles improve the flow of traffic? In order to shed some light on this topic, this workshop discusses the mathematical, engineering, and technological advances in a group of fields that are steadily enabling vehicle automation as a viable means of traffic flow control:

1. **Means Field Models and Traffic Aggregation:** The complexity of the traffic flow dynamics (e.g. multi-lane dynamics, merges, ramps, non-FIFO assumptions) necessitates the use of abstraction models to overcome the complexity of the dynamics of single agents (vehicles), which make full analytical approaches nearly intractable. We present advances in systematic approaches to aggregate (human-driven) traffic flow actuated by Lagrangian controllers (AVs), via mean field equations and coupled PDE-ODE systems.

2. **Deep Reinforcement Learning (RL):** Recent years have seen RL emerge as a promising framework for control of complex dynamical systems. This is particularly appealing in the context of traffic, which itself exhibits the rich, complex behaviors. We present techniques for applying scalable RL techniques to mixed-autonomy traffic. This includes topics such as decentralization, and methods for generating policies that are transferable to actual networks.

3. **Verification of Deep Neural Networks (DNNs):** The rise of deep RL as a means of control has been treated with some skepticism, attributed in part to the black-box nature of DNNs. In a setting where humans and actuated devices are expected to interact with one another, this serves as a significant barrier to deployment. In response to this, we present techniques for verifying the safety properties of DNNs using algorithms for satisfiability modulo convex optimization.

Please see https://flow-project.github.io/tutorial.html#cdc2019 for additional information.

**Workshop Title:** Finite-, Fixed-, and Prescribed-Time Stabilization and Estimation  
**Organizers:** Denis Efimov (INRIA), Miroslav Krstic (UC San Diego), Wilfrid Perruquetti (Centrale Lille), Andrey Polyakov (INRIA), and Drew Steeves (UC San Diego)  
**Time and Location:** 8:30 am - 5:30 pm, Galliéni 3

**Abstract:** The goal of this workshop is to present recent advances in the design and analysis of control and estimation algorithms with accelerated convergence rates. The focus is to exhibit algorithms which ensure finite-, fixed- or prescribed-time convergence. The associated approaches and related properties that will be covered include: homogeneity, the implicit Lyapunov function method, time-varying
damping, and discretization tools for highly nonlinear systems. Recent interest in these more demanding types of stability is due to emerging applications (e.g., flying robots, cyber-physical systems) which have strict performance requirements regarding convergence rate, robustness and scalability. Conventional control and estimation methods fail to meet these demands. As such, the aforementioned approaches have been developed or extended to meet these strict targets and will be at the forefront of this workshop. Please see https://team.inria.fr/valse/fr/full-day-workshop-finite-fixed-prescribed-time-stabilization-and-estimation-ieee-cdc-2019/ for additional information.

**Workshop Title:** Systems and Control for Smart Society and Cyber-Physical and Human Systems  
**Organizers:** Toru Namerikawa (Keio University), Masaaki Nagahara (The University of Kitakyushu), Takeshi Hatanaka (Osaka University)  
**Additional Speakers:** Pramod Khargonekar (UC Irvine), Anuradha Annaswamy (MIT), Rong Su (Nanyang Technological University), Dario Bauso (Univ. of Groningen), and Scott J. Moura (UC Berkeley)  
**Time and Location:** 8:30 am - 5:30 pm, Méditerranée 5

**Abstract:** Many nations are promoting projects to realize smart society through tight intertwining between cyber and real-physical components. To this end, the framework of Cyber-Physical Systems (CPS) has successfully enabled multidisciplinary research that involves control systems, communications, networking, sensing and computing to develop new theoretical foundations/tools as well as major technological applications, including transportation, aerospace, health and medicine, robotics, manufacturing, energy management, and environment and sustainability. Construction of smart society requires not only to design these individual smart systems but also to coordinate these systems in a stable, optimal, and economically enabled fashion. A goal of this workshop is to discuss how the global perspective inherent in systems and control could contribute to designing such smart systems. Another main issue of this workshop is how to design Cyber-Physical & Human Systems (CPHS). In smart society, human factors must be naturally involved in the overall system and they must interact with the CPS in various ways at various levels. It is thus evident that the ultimate societal outcomes of future CPHS technologies will depend crucially on deeper understanding of the interactions between cyber-physical systems and humans, and on how to integrate the human factors and their models into the CPS design in order to bring the best outcomes for individuals, organizations, and the society. Revolutionary advances in data science, machine learning, and artificial intelligence technology have opened up new possibilities of rigorously analyzing/modeling humans, not necessarily obeying any physical law, under interaction with CPS. We believe that now is an opportune time to discuss how to best consider human factors in the control loop. This workshop presents state-of-the-art research outcomes on CPHS in some key application fields including intelligent transportation, aerospace systems and robotics. Please see http://is.eei.eng.osaka-u.ac.jp/hatanaka/CDC/index.php for additional information.
## Social Program

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
<th>Time</th>
<th>Location</th>
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<tbody>
<tr>
<td><strong>Welcome Reception:</strong></td>
<td>Tuesday, December 10th</td>
<td>6:30-8:30 pm</td>
<td>Agora 3</td>
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<tr>
<td><strong>Women in Control Luncheon Meeting:</strong></td>
<td>Wednesday, December 11th</td>
<td>12:00-1:30 pm</td>
<td>Agora 3</td>
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<tr>
<td><strong>Newcomers' Reception:</strong></td>
<td>Wednesday, December 11th</td>
<td>6:30-8:30 pm</td>
<td>Lounge Bar Mikonos</td>
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<td><strong>CSS Awards Ceremony:</strong></td>
<td>Thursday, December 12th</td>
<td>6:45-8:15 pm</td>
<td>Hermès</td>
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<tr>
<td><strong>Conference Banquet:</strong></td>
<td>Thursday, December 12th</td>
<td>8:15-11 pm</td>
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<tr>
<td><strong>Farewell Reception:</strong></td>
<td>Friday, December 13th</td>
<td>6:30-8:30 pm</td>
<td>Agora 3</td>
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<tr>
<td><strong>Coffee Breaks:</strong></td>
<td>Wednesday-Friday, December 11-13</td>
<td>9:30-10 am and 4:00-4:30 pm</td>
<td>Rhodes Exhibition Area</td>
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### Women in Control Luncheon Meeting

**Time and Location:** Wednesday, December 11th, 12:00-1:30 pm, Agora 3

The IEEE CSS Women in Control committee is responsible for, but not limited to, promoting membership, gathering and disseminating appropriate information about women in IEEE CSS and the profession, and facilitating the development of mentoring and programs to promote the retention, recruitment, and growth of women IEEE CSS members. The IEEE WiC invites all CDC women to join us for our traditional luncheon on the first day of the conference, Wednesday, December 11th, 2019.
Conference Information

Registration

All conference attendees must register. Personal badges are provided to identify registered participants. Packet pick-up for advanced registrants and on-site registration are available at the Welcome Desk, which will be open from the afternoon of Monday, December 9 through the morning of Friday, December 13. Hours of operation of the Welcome Desk are as follows:

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<tr>
<td>Monday, December 9</td>
<td>16:30 – 18:30</td>
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<tr>
<td>Tuesday, December 10</td>
<td>7:30 – 20:00</td>
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<td>Wednesday, December 11</td>
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<td>Thursday, December 12</td>
<td>7:30 – 18:30</td>
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<tr>
<td>Friday, December 13</td>
<td>7:30 – 15:00</td>
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All registered participants receive full access to the technical sessions, coffee breaks, opening and closing receptions, and one set of conference proceedings on a USB flash drive. Full rate registrations (Member or Non-member) also include one banquet ticket.

Registration fees are shown in the table below. Please note that only conference attendees who have registered for the conference can register for the workshops.

<table>
<thead>
<tr>
<th>Category</th>
<th>Advance Rate</th>
<th>Standard Rate</th>
<th>Number of paper uploads</th>
<th>Conference Banquet</th>
<th>Electronic Proceedings</th>
<th>Workshop Registration Fee</th>
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<tr>
<td></td>
<td>Till Oct. 1</td>
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<tr>
<td>Member</td>
<td>550 EUR</td>
<td>700 EUR</td>
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<td>Till Oct. 1</td>
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<tr>
<td>Non-member</td>
<td>700 EUR</td>
<td>850 EUR</td>
<td>3 Included</td>
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<tr>
<td>Life member</td>
<td>300 EUR</td>
<td>400 EUR</td>
<td>3 Included</td>
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<td>Student/Retiree Member</td>
<td>275 EUR</td>
<td>350 EUR</td>
<td>1 Included</td>
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<tr>
<td>Student/Retiree Non-member</td>
<td>350 EUR</td>
<td>400 EUR</td>
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For all categories, the cost of extra paper uploads is 200 EUR per paper. The cost of an additional 7th or 8th page in the final paper is 200 EUR per page. Extra banquet tickets can be purchased for 120 EUR. Extra proceedings (USB) can be purchased for 50 EUR.
**Conference Venue**

The conference will be held at the Acropolis Convention centre located in the city-centre of Nice. Conference activities are spread over the three levels of the building.

**Room Plan**
### Important Information

- Conference rooms are located on first, second and third floor.
- Workshops will be held in Méditerranée (Level 1) and Galliéni (Level 2) rooms.
- Plenary Sessions will be held on the second level (Athéna and Apollon rooms).
- Coffee Breaks will take place in the Rhodes Exhibition Area (Level 2).
- The building will be open from 7:30 am.
- The Registration Desk is located in front of the main entrance.
- Cloakrooms are available at the entrance.
- Security checks at the entrance may cause delays. Please, come early to be sure to be on time.

### Meetings at Novotel

Some technical meetings will be held in “Novotel Nice Centre Vieux Nice”, which is reachable on foot in about 8 minutes from the congress venue Acropolis (see map). The Novotel rooms are Chagall, Cheret, Matisse and Garibaldi and are all located on the first floor of the hotel. See the access map on the right.
Local Attractions

With the sun present 300 days a year, its historical and cultural richness, the changing reflections of the sea, the peaks that dominate it, its brilliant beauty, its colourful accent, Nice is one the most beautiful city in France. With its special light, all those who have approached Nice keep in them the memory of a rare and precious moment.

In the “piazzettas” which are the typical streets, on the beaches and the wooded parks, with the markets and the colourful gastronomy, for a drink on the terrace or a walk around the harbour, you will love this city... Nice to be in Nice, which is also the capital of the art of living.

The history of Nice dates back to 350 BC, when the Greeks established a place on the shores of the Mediterranean Sea, called Nikaia, according to Nike, the Greek goddess of victory. On the other hand, in order to obtain an adequate image of the site's historical past, it should be mentioned that the current Nice area has been populated since prehistoric times. Also, thanks to its luminosity and its beauty, Nice have always inspired the greatest masters in different fields as architecture, painting, music and cinema. To attest, there is of course the old Nice, ambassador of Sardinian architecture, the palaces and castles with Baroque style, the concentration of museums and art galleries. But beyond the visible, there is this little extra soul, this particular atmosphere, capable of inspiring you with authentic emotions, and at the crossroads of cultures.

Walk through the old part of town is very pleasant and has a good vibe both by day and night. By strolling through the little lanes, walkers discover the city’s history and a lot of small boutiques and restaurants. On the street corner, you can hear Nissart being spoken, a dialect derived from the Oc language. The City of Nice has several parks and gardens, such as the Jardin Albert 1er, the Hanging Gardens of Paillon, the Cimiez Monastery Gardens and the gardens at the Cimiez Arenas… You can also walk in the park at the Château de Nice and the Mont-Boron forest park. Finally, you mustn’t miss Parc Phoenix. This area is home to one of the largest tropical greenhouses in the world. There are also botanical gardens and temporary exhibitions.

In addition to the Old Nice District, a place where you absolutely must visit the small regional stores; Rue Jean Médecin also has many boutiques of all kinds. Halfway down the road, one comes across the large «Nice Etoile» shopping center. Near Place Masséna, next to Rue Jean Médecin, there is a pedestrian precinct: Rue de France has several shops and some restaurants. Other "musts" to visit are the "Marché aux Fleurs" (flower market) and the Cours Saleya (fruit, vegetable and fish market).

Nice is also a capital of gastronomy. In addition to its delicate dishes based on olive oil, garlic, and vegetables, Nice is famed as the home of socca, a small pancake made with chick pea flour, not forgetting the famous ratatouille, the little Farcì Niçois or stuffed vegetables, pissaladière (a savoury tart), tourte de blettes (sweet or savoury pies), zucchini flower fritters, and the famous «salade niçoise». On the sandwich side, the Pan Bagnat is the king. As for dessert, apart from ice-cream from Old Nice, there are whole candied fruits, specialities from certain confectioneries, such as Florian and Auer, which can also be found at the Cours Saleya Market.
Nice offers more than fifteen museums, with rich collections. Nice is an exceptional city, featuring a rich cultural and artistic heritage. The pace of cultural life is regulated by the exhibitions in the museums and galleries, events in the theatres and shows at the Nice Opera House.

Nice is distinguished by a wide variety of architectural styles, originating from different periods. Over the centuries of its history, Nice has retained the imprint of each age. More information at www.nicetourisme.com.

**TRANSPORTATION.** Looking for a fast, easy and affordable way to check out Nice’s amazing attractions? Mobil’azur offers several public transportation options. With the two lines of the tramways, you can easily cross Nice. T2 “Ouest-Est” crosses the city from east to west, to connect the city center to the airport (via the future eco-valley station) in 20 minutes.

Nice offers a dense and very extensive bus network (get a map), with frequent connections! You can reach all the districts of Nice by bus, up to the hills. Buses from Nice operate every day. For night trips, 5 Nocbus lines are available: tram line T1 until 1:35 am and from 4:25 am and 5 bus lines from Jean-Claude-Bermond station, to Cimiez, Madeleine, Nice-East, West and North, run from 21:10 to 1:10 am.

**VéloBleu** also operate to discover Nice by bicycles. 1 750 self-service bicycles available every day at 175 stations throughout the city.

To learn more about public transportation options, visit [https://www.lignesdazur.com/en](https://www.lignesdazur.com/en)

**HOP-ON HOP-OFF BUSES TRANSPORTATION.** Nice Le Grand Tour [https://www.nicelegrandtour.fr/en/](https://www.nicelegrandtour.fr/en/)

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**NATURE, PARKS & GARDENS.** Visit stunning botanical gardens, greens areas or explore our parks.

- **Monastère de Cimiez Garden**
  Place du Monastère de Cimiez
  [en.nicetourisme.com/parks-and-gardens](en.nicetourisme.com/parks-and-gardens)

- **Phoenix Park**
  405 Promenade des Anglais, Nice
  +33 4 92 29 77 00

**MONUMENTS AND CHURCHES.** Baroque-style palaces and churches, colourful facades and narrow streets.

- **Cadran Solaire**
  Quai Rauba Capeu
  [en.nicetourisme.com/nice/75-le-cadran-solaire](en.nicetourisme.com/nice/75-le-cadran-solaire)

- **Sainte-Jeanne d’Arc Church**
  11 rue Grammont, Nice
  +33 4 93 86 33 07
HISTORIC LANDMARKS. From Pre-Neanderthal to now, discover the historic landmarks which built Nice.

Cours Saleya
Rue Saint-François-de-Paule, Nice
en.nicetourisme.com/nice/45-cours-saleya

Place Masséna
City Center
en.nicetourisme.com/nice/63-la-place-massena

Place Rossetti
City Center
en.nicetourisme.com/nice/57-la-place-rossetti

Promenade des Anglais
Nice
en.nicetourisme.com/nice/64-la-promenade-des-anglais

Old Nice
City Center

MUSEUMS. Nice offers more than fifteen museums with an exceptional collection through a universal museum route.

Masséna Museum
65 rue de France, Nice
+33 4 93 91 19 10
en.nicetourisme.com/nice/186-musee-massena

National Marc Chagall Museum
Avenue Dr Ménard, Nice
+33 4 93 53 87 20
https://it.musees-nationaux-alpesmaritimes.fr/chagall/

Matisse Museum
164 Avenue des Arènes de Cimiez, Nice
+33 4 93 81 08 08
musee-matisse-nice.org/?_locale=en

MAMAC Museum
1 Place Yves Klein, Nice
+33 4 97 13 42 01
Flower Market  
Cours Saleya, Nice

Fruit and Vegetables Market  
Avenue Malausséna, Place du Général de Gaulle

Book Market  
Place du Palais de Justice, Nice

Art-filled Market by Night  
Cours Saleya, Nice

Fish Market  
Place Yoja, Nice

Archeologic Museum  
160 Avenue des Arènes de Cimiez, Nice  
+33 4 93 81 59 57  
en.nicetourisme.com/nice/185-musee-d-archeologie-de-nice-cimiez

History Natural Museum  
60 Boulevard Risso, Nice  
+33 4 97 13 46 80  
http://mhnice.org
Sponsors and Exhibitors

Exhibition Hours: 
- Wednesday, December 11: 8:30 am - 6:30 pm
- Thursday, December 12: 8:30 am - 6:30 pm
- Friday, December 13: 8:30 am - 4:00 pm

Exhibition Location: Rhodes Exhibition Area

Booth occupation

D-ICE ENGINEERING - Booth n° 6
MATHWORKS - Booth n° 4-5
MITSUBISHI ELECTRIC RESEARCH LABORATORIES - Booth n° 9-10
NASK National Research Institute - Booth n° 11-12
NOW PUBLISHERS - Booth n° 2
PRINCETON UNIVERSITY PRESS - Booth n° 3
SOCIETY FOR INDUSTRIAL AND APPLIED MATHEMATICS (SIAM) - Booth n° 1
SPRINGER NATURE - Booth n° 7
Gold Sponsors

The French National Centre for Scientific Research is Europe’s largest public research institution. It produces knowledge for the benefit of society, innovates and creates companies. With some 32,000 employees, a budget of 3.4 billion euros in 2018 and offices throughout France, the CNRS is present in all scientific fields through its 1100 laboratories. With 22 Nobel laureates and 12 Fields Medal winners, the organisation has a long tradition of excellence. It carries out research in mathematics, physics, information sciences and technologies, nuclear and particle physics, Earth sciences and astronomy, chemistry, biological sciences, the humanities and social sciences, engineering and the environment. [http://www.cnrs.fr/en](http://www.cnrs.fr/en)

MERL is the North American Research and Development organization for Mitsubishi Electric Corporation, a $40B global leader in electrical products including building systems (elevators, HVAC), transportation systems (automotive and train mechatronics), space systems (satellites, telescopes), factory automation (robots, servo systems, laser processing), optical systems, and energy systems (power generation, photovoltaics). Researchers at MERL collaborate with Mitsubishi Electric's corporate R&D laboratories & business units and academic partners around the world to develop technologies that extend the performance envelope of these systems. Research projects at MERL typically address industrially motivated fundamental problems, and involve the development of novel control theory and technology that is transferred to the corporate R&D laboratories for subsequent product development. MERL is an open laboratory that intends to publish all of its research once appropriate patents are secured. More information at [www.merl.com](http://www.merl.com).

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the Internet to Poland, and today is offering innovative ICT solutions for research institutions, as well as financial, business and administration clients. NASK also keeps the .pl domain name registry. See more on: eng.nask.pl.

Silver Sponsors

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Society for Industrial and Applied Mathematics

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Copper sponsor

ANT-X provides a complete laboratory facility for research and education in multi-agent systems, flight robotics, flight control and aerospace control in order to satisfy the need for a ready to use and customizable platform for research and education. The ANT-X laboratory will enable academic researchers to achieve a fast transition to practice of advanced design methods for GNC systems and enrich the students’ experience in flight robotics and UAV control through hands-on experimental activities. See more at https://antx.it.

Check the conference app and webpage for an updated list of sponsors and exhibitors.
Every year the IEEE and the Control Systems Society recognize the outstanding contributions of individuals belonging to our technical community by giving a number of awards. The Society is very appreciative of the work each corresponding committee or subcommittee devotes to the selection process.

The 2019 IEEE CSS Awards Chair is Tryphon T. Georgiou, and the subcommittee Chairs are:

- Kirsten Morris  George S. Axelby Outstanding Paper Award
- Alessandro Astolfi  Antonio Ruberti Young Researcher Prize
- Jan Tommy Gravdahl  IEEE Trans. on Control Systems Technology Outstanding Paper Award
- Sonia Martinez  IEEE Control Systems Magazine Outstanding Paper Award
- Reza Moheimani  Control Systems Technology Award
- Shah Shirish  Control Systems Society Transition to Practice Award
- Paulo Tabuada  Transactions on Control of Network Systems Outstanding Paper Award
- Graziano Chesi  Conference on Decision and Control Best Student Paper Award
- George Pappas  IEEE Control Systems Letters Outstanding Paper Award
- Thomas Parisini  Roberto Tempo Best CDC Paper Award
- Kevin Wise  Technical Excellence in Aerospace Control Award

More details about the IEEE CSS awards, the nomination process and past winners can be found on the IEEE CSS web site [http://ieeecss.org/awards/awards-program](http://ieeecss.org/awards/awards-program).

**CSS Distinguished Member Awards**

CSS also annually confers Distinguished Member Awards to selected members of our community who have made significant technical contributions as well as having provided outstanding long-term service to the Control Systems Society. The 2019 award went to Daniel Eduardo Rivera “for outstanding long-term service to the Control Systems Society most notably for leadership of the CSS Outreach Program” and Venkataramanan Balakrishnan “for outstanding long-term service to the Control Systems Society through governance and leadership in the CSS Board of Governors and Executive Committee”.

**Outstanding Chapter Award**

The Outstanding Chapter Award recognizes a chapter for demonstrating a high level of activity, innovation, or growth. The Vice-President of Member Activities, Magnus Egerstedt, was responsible for this award. The 2019 Award went to the Chile Section Chapter, chaired by Gaston Lefranc, “for its technical events focused on the promotion and advancement of Control Systems during 2018”.

**CDC Outstanding Student Paper and Best Student Paper Awards**

The CDC Outstanding Student Paper and Best Student Paper Awards recognize excellence in a paper presented at the IEEE Conference on Decision and Control whose primary author is a student member of the IEEE. One of the Outstanding Student Paper awardees will be selected as the winner of the Best Student Paper award and will receive that award in lieu of the Outstanding Student Paper award. The awards are based on the paper’s originality, clarity, and potential impact on practical applications or
theoretical foundations of control. The CDC Outstanding Student Paper Award winners and finalists for the Best Student Paper Award are:

**Finalist:** Lars Lindemann ([llindem@kth.se](mailto:llindem@kth.se))  
**Advisor:** Dimos V. Dimarogonas ([dimos@kth.se](mailto:dimos@kth.se))  
**Paper title:** Control Barrier Functions for Multi-Agent Systems under Conflicting Local Signal Temporal Logic Tasks  
**Paper authors:** Lars Lindemann, Dimos V. Dimarogonas  
**Session:** ThA25.3

**Finalist:** Jin-Won Kim ([jkim684@illinois.edu](mailto:jkim684@illinois.edu))  
**Advisor:** Prashant G. Mehta ([mehtapg@illinois.edu](mailto:mehtapg@illinois.edu))  
**Paper title:** What is the Lagrangian for Nonlinear Filtering?  
**Paper authors:** Jin-Won Kim, Prashant G. Mehta, Sean P. Meyn  
**Session:** WeB19.1

**Finalist:** Michael W. Fisher ([fishermw@umich.edu](mailto:fishermw@umich.edu))  
**Advisor:** Ian A. Hiskens ([hiskensg@umich.edu](mailto:hiskensg@umich.edu))  
**Paper title:** Numerical Computation of Critical System Recovery Parameter Values by Trajectory Sensitivity Maximization  
**Paper authors:** Michael W. Fisher, Ian A. Hiskens  
**Session:** FrC14.1

**Finalist:** Shiba Biswal ([sbiswal@asu.edu](mailto:sbiswal@asu.edu))  
**Advisor:** Spring Berman ([spring.berman@asu.edu](mailto:spring.berman@asu.edu))  
**Paper title:** Fastest Mixing Markov Chain on a Compact Manifold  
**Paper authors:** Shiba Biswal, Karthik Elamvazhuthi, Spring Berman  
**Session:** WeA16.2

The winner of the IEEE 2019 CDC Best Student Paper award will be announced at the Award Ceremony.

**CSM Outstanding Paper Award**

The IEEE Control Systems Magazine Outstanding Paper Award is given for an article or column published during the two calendar years prior to the year of the award and is based on impact and benefit to CSS members. The 2019 Award was not assigned.

**TCNS Outstanding Paper Award**

The IEEE Transactions on Control of Network Systems is given for a paper published during the two calendar years prior to the year of the award and is based on originality, potential impact on the foundations on network systems, importance and practical significance in applications, and clarity. The 2019 Award was given to Erfan Nozari, Pavankumar Tallapragada, and Jorge Cortés for the paper “Differentially Private Distributed Convex Optimization via Functional Perturbation”, IEEE Transactions on Control of Network Systems, Vol. 5, No. 1, pages 395-408, 2018.
TCST Outstanding Paper Award

The IEEE Transactions on Control Systems Technology Outstanding Paper Award is given for an outstanding paper published during the two calendar years prior to the year of the award, and is based on originality, relevance of the application, clarity of exposition, and demonstrated impact on control systems technology. The 2019 Award was given to Alberto Leva, Federico Terraneo, Irene Giacomello, and William Fornaciari for the paper “Event-Based Power/Performance-Aware Thermal Management for High-Density Microprocessors”, IEEE Transactions on Control Systems Technology, Vol. 26, No. 2, pages 535-550, 2018.

George S. Axelby Outstanding Paper Award

The George S. Axelby Outstanding Paper Award is given for an outstanding paper published in the IEEE Transactions on Automatic Control during the two calendar years prior to the year of the award, and is based on originality, clarity, potential impact on the theoretical foundations of control, and practical significance in applications. The 2019 award was given to Gunther Reissig, Alexander Weber, Matthias Rungger for the paper “Feedback Refinement Relations for the Synthesis of Symbolic Controllers,” IEEE Transactions on Automatic Control, Vol. 62, No. 4, pages 1781-1796, 2017.

Control Systems Letters Outstanding Paper Award


Roberto Tempo Best CDC Paper Award

This award is given in honor of Roberto Tempo, 44th President of CSS. The Tempo Award Committee selects the best paper from the previous year’s CDC based on originality, potential impact on any aspect of control theory, technology, or implementation, and for the clarity of writing. The 2019 award was given to Takuya Ikeda and Kenji Kashima for the paper “Sparsity-constrained controllability maximization with application to time-varying control node selection”, published in IEEE Control Systems Letters, Volume 2, No. 3, pages 321-325, 2018.

Award for Technical Excellence in Aerospace Control

The Award for Technical Excellence in Aerospace Control recognizes an outstanding paper or patented idea based on originality of technical innovation, significance/relevance to the aerospace community, aerospace application and potential impact on the practice of aerospace engineering. The award can be conferred on an individual or a team. The winner of the 2019 Award for Technical Excellence in Aerospace Control is Behçet Açıkmeşe “for outstanding contributions to convex optimization-based control and its transitions and applications to aerospace applications”. 

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Control Systems Technology Award

The Control Systems Technology Award recognizes outstanding contributions to control systems technology either in design and implementation, or in project management. This award can be conferred on an individual or a team. The 2019 Award was given to the team formed by: Warren Dixon, Nitin Sharma, Matthew J. Bellman, Alan Hamlet, Christian Cousin, Courtney Rouse, Ryan Downey, Victor Duenas “for closed-loop functional electrical stimulation control methods leading to successful commercialization and personalized rehabilitative treatment options”.

Transition to Practice Award

The Transition to Practice Award recognizes outstanding collaborative scientific interactions between industry or research laboratories and academic communities that transition basic controls and system theory to practical systems for the benefit of society at large. The winner of the 2019 CSS Transition to Practice Award is Alberto Bemporad “for lasting contributions to theory and advanced applications of Model Predictive Control (MPC) culminating in mass production introduction of MPC for powertrain control in the automotive industry”. The Transition to Practice Award comes with an invitation to deliver a plenary lecture at the IEEE Conference on Control Technology and Applications CCTA 2020.

Antonio Ruberti Young Researcher Prize

The Antonio Ruberti Young Researcher Prize recognizes distinguished cutting-edge contributions by a young researcher to the theory or application of systems and control. The 2019 Ruberti prize was given to Aaron Ames, California Institute of Technology, “for fundamental contributions to the nonlinear control of hybrid and safety-critical systems, with application to walking robots and robotic assistive devices that restore mobility”.

Aaron D. Ames is the Bren Professor of Mechanical and Civil Engineering and Control and Dynamical Systems at the California Institute of Technology. He received a B.S. in Mechanical Engineering and a B.A. in Mathematics from the University of St. Thomas in 2001, and he received a M.A. in Mathematics and a Ph.D. in Electrical Engineering and Computer Sciences from UC Berkeley in 2006. Dr. Ames served as a Postdoctoral Scholar in Control and Dynamical Systems at Caltech from 2006 to 2008, and began his faculty career at Texas A&M University in 2008. Prior to joining Caltech, he was an Associate Professor in Mechanical Engineering and Electrical & Computer Engineering at the Georgia Institute of Technology. At UC Berkeley, he was the recipient of the 2005 Leon O. Chua Award for achievement in nonlinear science and the 2006 Bernard Friedman Memorial Prize in Applied Mathematics. Dr. Ames received the NSF CAREER award in 2010, and is the recipient of the 2015 Donald P. Eckman Award recognizing an outstanding young engineer in the field of automatic control. His research interests span the areas of nonlinear, safety-critical and hybrid control systems, with a special focus on dynamic robotic systems—both formally and through experimental validation. His lab designs, builds and tests novel bipedal robots, prostheses, and exoskeletons with the goal of achieving human-like legged locomotion and translating these capabilities to robotic assistive devices. The application of these ideas range from increased autonomy in robots to improving the locomotion capabilities of the mobility impaired.
Hendrik W. Bode Lecture Prize

The Hendrik W. Bode Lecture Prize recognizes distinguished contributions to control systems science or engineering. The recipient delivers a plenary lecture at the CDC, evaluating a significant contribution to control systems science or engineering. The 2019 Bode Lecture prize was awarded to Lei Guo, Institute of Systems Science, Chinese Academy of Sciences, “for contributions to the field of adaptive control, system identification, adaptive signal processing, stochastic systems, and applied mathematics”.

Lei Guo received his B.S. degree in mathematics from Shandong University in 1982, and Ph.D. degree in control theory from the Chinese Academy of Sciences in 1987. He was a postdoctoral fellow at the Australian National University (1987-1989). Since 1992, he has been a Professor of the Institute of Systems Science at the Chinese Academy of Sciences (CAS). From 2002 to 2012, he was the President of the Academy of Mathematics and Systems Science, CAS. He is currently the Director of the National Center for Mathematics and Interdisciplinary Sciences, CAS. He has worked on problems in adaptive control, system identification, adaptive signal processing, and stochastic systems. His current research interests include control of nonlinear uncertain systems, PID control theory, distributed filtering and estimation, capability of feedback, multi-agent systems, game-based control systems, and complex systems, among others.

IEEE Control Systems Award

The IEEE Control Systems Award is given for outstanding contributions to control systems engineering, science or technology. The 2019 Control Systems Award was given to Pramod P. Khargonekar, University of California, Irvine, “for contributions to robust and optimal control theory”.

Pramod Khargonekar received B. Tech. in electrical engineering in 1977 from the Indian Institute of Technology, Bombay and M.S. in mathematics in 1980 and Ph.D. in electrical engineering in 1981 from the University of Florida. He was on faculty at the University of Minnesota from 1984 to 2989. He was Chairman of the Department of Electrical Engineering and Computer Science from 1997 to 2001 and also held the position of Claude Shannon Professor at the University of Michigan. From 2001 to 2009, he was Dean of Engineering and Eckis Professor of Electrical and Computer Engineering at the University of Florida till 2016. After a brief role as Deputy Director of Technology at ARPA-E, he served as Assistant Director of the National Science Foundation from 2013 to 2016. He is currently Vice Chancellor for Research and Distinguished Professor of Electrical Engineering and Computer Science at the University of California, Irvine. His research has spanned robust and H-infinity control, control of manufacturing processes/systems, smart electric grids. He is currently exploring the confluence of machine learning and control. He is a recipient of the IEEE W. R. G. Baker Prize Award, the CSS Axelby Best Paper Award, the Hugo Schuck ACC Best Paper Award, NSF Presidential Young Investigator Award, the AAAC Donald Eckman Award, Web of Science Highly Cited Researcher, and the Distinguished Alumnus and Distinguished Service Awards from IIT Bombay. He is a Fellow of IEEE, IFAC, and AAAS.
IEEE Fellows

The grade of Fellow recognizes unusual distinction in the profession and is conferred only by invitation of the IEEE Board of Directors on a person with an extraordinary record of accomplishments in any of the IEEE fields of interest. The accomplishments honored by the grade of Fellow contribute significantly to the advancement of engineering science and technology. In 2019, the following individuals were elected Fellows as evaluated by the Control Systems Society:

- **David Castanon**, for contributions to discrete time stochastic control and information fusion
- **Bart de Schutter**, for contributions to optimization-based control of discrete-event systems, hybrid systems, transportation networks, and infrastructure networks
- **Santosh Devasia**, for contributions to feedforward control of non-minimum-phase systems
- **Nicola Elia**, for fundamental contributions to Networked Control Systems
- **Emilia Fridman**, for contributions to time-delay systems and sampled-data control
- **Keum-shik Hong**, for contributions to adaptive estimation and brain-computer interface techniques using near-infrared light
- **Mihailo Jovanovic**, for contributions to modeling, optimization, and control of large-scale and distributed systems
- **Antonis Papachristodoulou**, for fundamental contributions to theory and applications of Sum of Squares Programming and networked control systems
- **Maurizio Porfiri**, for contributions to networked control systems and biomimetic robotics
- **Murti Salapaka**, for enabling nano-science using control and systems technology for enabling nano-science using control and systems technology
- **Maarten Steinbuch**, for contributions to Advanced Motion Control, Mechatronics, Medical Robotics, and Electric Driving
- **Mario Sznaier**, for outstanding contributions to Multiobjective Robust Control, Robust Identification, and Dynamic Vision
- **Panagiotis Tsiotras**, for fundamental contributions to the application of nonlinear and optimal control to aerospace systems
- **Benjamin Van Roy**, for contributions to the theory and practice of reinforcement learning and approximate dynamic programming
- **Min Wu**, for contribution to the field of advanced control and intelligent automation for complex systems

In addition, the following members of the Control Systems Society were evaluated by other societies and elected fellows of IEEE in 2019: Bassam Bamieh, Jiming Chen, Jie Chen, Dimitar Filev, Emilio Frazzoli, Qing-Long Han, Zeng-Guang Hou, Mark Lantz, Brett Ninness, Evangelos Papadopoulos, Fuchun Sun, Donghua Zhou.
CDCs: Past, Present and Future

The annual IEEE Conference on Decision and Control (CDC) is internationally recognized as the premiere scientific and engineering conference dedicated to the advancement of the theory and practice of systems and control. It brings together an international community of experts to discuss the state-of-the-art, new research results, perspectives of future developments, and innovative applications relevant to decision making, control, automation, and related areas. The CDC is hosted by the IEEE Control Systems Society (CSS) and is organized in cooperation with the Society for Industrial and Applied Mathematics (SIAM), the Institute for Operations Research and the Management Sciences (INFORMS), the Japanese Society for Instrument and Control Engineers (SICE), and the European Control Association (EUCA). Below is the complete list of CDCs (including the next one) with titles, chairs and locations. The proceedings of all past conferences can be found at the IEEE Library, 345 47th Street, New York, NY 10017.
59th IEEE Conference on Decision and Control
GC: Richard D. Braatz and Chung Choo Chung, PC: Jay H. Lee, International Convention Center, Jeju Island, Republic of Korea, December 8-11, 2020

58th IEEE Conference on Decision and Control
GC: Carlos Canudas-de-Wit, PC: Rodolphe Sepulchre, Palais des Congrès et des Expositions Nice Acropolis, Nice, France, 11-13 December, 2019

57th IEEE Conference on Decision and Control
GC: Andrew R. Teel, PC: Magnus Egerstedt, Fontainebleau Miami Beach, Miami, FL, 17-19 December, 2018

56th IEEE Conference on Decision and Control
GC: Rick Middleton and Dragan Nesic, PC: Mario Sznaier, Melbourne Convention Center, Melbourne, Australia, 12-15 December, 2017

55th IEEE Conference on Decision and Control

54th IEEE Conference on Decision and Control
GC: Yoshiito Ohta, PC: Mitsuj Sampe, Osaka International Convention Center, Osaka, Japan, 15-18 December, 2015

53rd IEEE Conference on Decision and Control
GC: Faryar Jabbari, PC: Andy Teel, J.W. Marriott Hotel, Los Angeles, CA, 15-17 December, 2014

52nd IEEE Conference on Decision and Control
GC: Thomas Parisini and Roberto Tempo, PC: André L. Tits, Palazzo dei Congressi, Firenze, Italy, 10-13 December, 2013

51st IEEE Conference on Decision and Control
GC: Jay Farrell, PC: Maria Elena Valcher, Grand Wailea, Maui, HI, 11-14 December, 2012

50th IEEE Conference on Decision and Control and Joint European Control Conference
GC: Edwin Chong, GVC: Jay Farrell, Eduardo Camacho, PC: Marios Polycarpou, Hilton Bonnet Creek, Orlando, FL, 12-15 December, 2011

49th IEEE Conference on Decision and Control
GC: Mark W. Spong, PC: Fathi Ghorbel, Hilton Atlanta, Atlanta, GA, 15-17 December, 2010

Joint 48th IEEE Conference on Decision and Control
Chinese Control Conference
GC: John Bailieul and Lei Guo, PC: Faryar Jabbari and Daizhan Cheng, Shanghai International Convention Center, Shanghai, China, 16-18 December, 2009

47th IEEE Conference on Decision and Control
GC: Chaouki Abdallah, PC: Thomas Parisini Fiesta American Grand Coral, Cancun, Mexico, 9-12 December, 2008

46th IEEE Conference on Decision and Control
GC: David Castanon, PC: James Spall, Hilton New Orleans Riverside, New Orleans, LA, 12-14 December, 2007

45th IEEE Conference on Decision and Control

Joint 44th Conference on Decision and Control, and 2005 European Control Conference
GC: Eduardo Camacho, GVC: Peter Fleming, Steve Yurkovich, PC: Roberto Tempo, Melia Seville, Seville, Spain, 12-15 December, 2005

43rd IEEE Conference on Decision and Control
GC: Christos Cassandras, PC: Wei-bo Gong, The Atlantis, Paradise Islands, The Bahamas, 14-17 December, 2004

42nd IEEE Conference on Decision and Control
GC: Frank Lewis, PC: Chaouki Abdallah, Hyatt Regency Maui, Maui, HI, 9-12 December, 2003

41st IEEE Conference on Decision and Control
GC: Umit Ozguner, PC: Kenneth Loparo, The Venetian Hotel, Las Vegas, NV, 10-13 December, 2002

40th IEEE Conference on Decision and Control
GC: Theodore E. Djaferis, PC: Kevin M. Passino, Hyatt Regency Grand Cypress, Orlando, FL, 4-7 December, 2001

39th IEEE Conference on Decision and Control
GC: Robert R. Bitmead, PC: Cheryl B. Schrader, Sydney Convention and Exhibition Centre, Sydney, NSW Australia; 12-15 December, 2000

38th IEEE Conference on Decision and Control
GC: Edward W. Kamen, PC: Christos Cassandras, Crowne Plaza Hotel and Resort, Phoenix, AZ, 7-10 December, 1999

37th IEEE Conference on Decision and Control
GC: J. Douglas Birdwell, PC: David Castanon, Hyatt Regency Westshore, Tampa FL, 16-18 December, 1998
36th IEEE Conference on Decision and Control  
GC: Anthony Michel, PC: Theodore E. Djaferis  
Hyatt Regency San Diego, San Diego, CA, 10-12 December, 1997

35th IEEE Conference on Decision and Control  
GC: Hidenori Kimura, Co-PCs: Katsuhsia Furuta, J. Douglas Birdwell, Portopia Hotel and International Conference Center, Kobe, Japan, 11-13 December, 1996

34th IEEE Conference on Decision and Control  
GC: Panos J. Antsaklis, PC: Edward W. Kamen,  

33rd IEEE Conference on Decision and Control  
GC: Michael K. Masten, PC: N. Harris McClamroch,  
Buena Vista Palace, Lake Buena Vista, FL, 14-16 December, 1994

32nd IEEE Conference on Decision and Control  
GC: Raymond A. DeCarlo, PC: Peter Ramadge,  
Marriott River Center, San Antonio, TX, 15-17 December, 1993

31st IEEE Conference on Decision and Control  
GC: Tamer Basar, PC: Sergio Verdu, Westin La Paloma, Tucson, AZ, 16-18 December, 1992

30th IEEE Conference on Decision and Control  
GC: Derek Atherton, PC: Panos J. Antsaklis,  
Metropole Hotel, Brighton, ENGLAND, 11-13 December, 1991

29th IEEE Conference on Decision and Control  
GC: Charles J. Herget, PC: Raymond A. DeCarlo,  
Hilton Hawaiian Village, Honolulu, HI, 5-7 December, 1990

28th IEEE Conference on Decision and Control  
GC: Leonard Shaw, PC: Tamer Basar, Hyatt Regency Tampa Hotel, Tampa, FL, 13-15 December, 1989

27th IEEE Conference on Decision and Control  
GC: Michael P. Polis, PC: William E. Schmitendorf,  
Hyatt Regency Austin on Town Lake, Austin, TX, 7-9 December, 1988

26th IEEE Conference on Decision and Control  
GC: William S. Levine, PC: John Baillieul,  
Westin Century-Plaza Hotel, Los Angeles, CA, 9-11 December, 1987

25th IEEE Conference on Decision and Control  
GC: Anthony Ephremides, Spyros Tzafestas,  
PC: H. Vincent Poor, Atheneum Intercontinental Athens, Greece; 10-12 December, 1986

24th IEEE Conference on Decision and Control  
GC: Gene F. Franklin, PC: Anthony N. Michel,  
Bonaventure Hotel & Spa, Ft. Lauderdale, FL, 11-13 December, 1985

23rd IEEE Conference on Decision and Control  
GC: Abraham H. Haddad, PC: Michael P. Polis,  
Las Vegas Hilton, Las Vegas, NV, 12-14 December, 1984

22nd IEEE Conference on Decision and Control  
GC: James L. Melsa, PC: Steven I. Marcus,  
Marriott Hotel, San Antonio, TX, 14-16 December, 1983

21st IEEE Conference on Decision and Control  
GC: Alexander H. Levis, PC: William S. Levine,  
Holiday Inn - International Drive, Orlando, FL, 8-10 December, 1982


Processes, GC: J. B. Cruz, Jr., PC: J. B. Pearson, SC: G. Stein, Hyatt Regency, Houston, TX, 10-12 December, 1975


1970 Symposium on Adaptive Processes (9th) Decision and Control, GC: D. J. Lainiotis University of Texas at Austin, Austin, TX, 7-9 December, 1970


Symposium on Adaptive Processes; part of NEC GC: F. N. Bailey, PC: J. C. Hancock, McCormick Place, Chicago, IL, 3-5 October, 1966

Symposium on Adaptive Processes; part of NEC GC: E. C. Jones, Jr., PC: G. Brown, McCormick Place Chicago, IL, 25-27 October, 1965

Symposium on Adaptive Processes; part of NEC GC: F. J. Mullin, McCormick Place, Chicago, IL, 19-21 October, 1964

Symposium on Adaptive Processes; part of NEC GC: L. Kanal, McCormick Place, Chicago, IL, 28-29 October, 1963

Discrete Adaptive Processes Symposium and Panel Discussion (IEEE); part of 3rd JACC GC: J. Sklansky New York University, New York City, NY, 29 June, 196
PROGRAM AT A GLANCE
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**CDC 2019 Technical Program Thursday December 12, 2019**

08:30-09:30 ThSP1
Apollon
Distributed Machine Learning Over Networks

08:30-09:30 ThSP2
Athena
The Curse of Linearity and Time-Invariance
<table>
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<tr>
<td>16:30-18:30</td>
<td>ThC01</td>
<td>Méditerranée 1 Control Theory in Neuroscience</td>
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<td>16:30-18:30</td>
<td>ThC02</td>
<td>Méditerranée 2 Control Applications</td>
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<td>ThC03</td>
<td>Méditerranée 5 Autonomous Systems</td>
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<td>16:30-18:30</td>
<td>ThC04</td>
<td>Méditerranée A2 Fuzzy Systems and Evolutionary Computing</td>
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<td>ThC06</td>
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<td>Méditerranée A1 Aerospace</td>
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<td>Méditerranée C12 Modeling, Estimation, and Control of Large-Scale Network Systems</td>
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<td>Méditerranée C12 Distribution Parameter Systems I</td>
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<td>Méditerranée C12 Distribution Parameter Networks XIX</td>
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<td>16:30-18:30</td>
<td>ThC45</td>
<td>Méditerranée C12 Distribution Parameter Systems X and Traffic Control in Mixed Autonomy Environments</td>
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### CDC 2019 Technical Program Friday December 13, 2019

| Track 1 | Track 2 | Track 3 | Track 4 | Track 5 | Track 6 | Track 7 | Track 8 | Track 9 | Track 10 | Track 11 | Track 12 | Track 13 | Track 14 | Track 15 | Track 16 | Track 17 | Track 18 | Track 19 | Track 20 | Track 21 | Track 22 | Track 23 | Track 24 | Track 25 | Track 26 |
|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 08:30-09:30 | FrP1 | Apollon | Feedback and Uncertainty: Some Basic Problems and Theorems |

#### 10:00-12:00

**FrA01**

- Maldonado, E: *Nonlinear Modeling and Estimation in Biomedical Systems*

**FrA02**

- Medrano, E: *Automated Control Systems I*

**FrA03**

- Miranda, P: *Autonomous Vehicles*

**FrA04**

- Medrano, E: *Modern Computational and Algorithmic Challenges on Switched Systems*

**FrA05**

- Miranda, P: *Robust Control I*

**FrA06**

- Medrano, E: *Optimization Algorithms IV*

**FrA07**

- Miranda, P: *Flight Control*

**FrA08**

- Medrano, E: *Control Systems II*

**FrA09**

- Miranda, P: *Actuator Design for Robust Control*

**FrA10**

- Medrano, E: *Scheduling Control*

**FrA11**

- Miranda, P: *Preliminary Analysis of the System*

**FrA12**

- Medrano, E: *iSyst*

**FrA13**

- Miranda, P: *Game Theory V*

**FrA14**

- Medrano, E: *System Stability and Phase Boundaries*

**FrA15**

- Miranda, P: *Optimal Control IV*

**FrA16**

- Medrano, E: *Real-Time Optimization Methods for Power Systems*

**FrA17**

- Miranda, P: *Formal Methods in Control*

**FrB01**

- Borenstein, E: *Biomedical Systems II*

**FrB02**

- Borenstein, E: *Automotive Control I*

**FrB03**

- Borenstein, E: *Neural Networks II*

**FrB04**

- Borenstein, E: *Analysis and Control Methods to Improve Resilience of Discrete-Event Systems*

**FrB05**

- Borenstein, E: *Robust Control II*

**FrB06**

- Borenstein, E: *Neural Networks III*

**FrB07**

- Borenstein, E: *Adaptive Control for the Design and Implementation of Uncertain Mechatronic Systems*

**FrB08**

- Borenstein, E: *Structure Preserving Discretization of PDEs for Control of Flow Applications*

**FrB09**

- Borenstein, E: *Control of Discrete-Time Systems I*

**FrB10**

- Borenstein, E: *Gallien I: Scheduling Control*

**FrB11**

- Borenstein, E: *Gallien I: Preliminary Analysis of the System*

**FrB12**

- Borenstein, E: *Game Theory V*

**FrB13**

- Borenstein, E: *System Stability and Phase Boundaries*

**FrB14**

- Borenstein, E: *Optimal Control IV*

**FrB15**

- Borenstein, E: *Real-Time Optimization Methods for Power Systems*

**FrB16**

- Borenstein, E: *Formal Methods in Control*

**FrB17**

- Borenstein, E: *Preliminary Analysis of the System*

**FrB18**

- Borenstein, E: *Game Theory V*

**FrB19**

- Borenstein, E: *System Stability and Phase Boundaries*

**FrB20**

- Borenstein, E: *Optimal Control IV*

**FrB21**

- Borenstein, E: *Real-Time Optimization Methods for Power Systems*

**FrB22**

- Borenstein, E: *Formal Methods in Control*

**FrB23**

- Borenstein, E: *Preliminary Analysis of the System*

**FrB24**

- Borenstein, E: *Game Theory V*

**FrB25**

- Borenstein, E: *System Stability and Phase Boundaries*

**FrB26**

- Borenstein, E: *Optimal Control IV*
TECHNICAL PROGRAM
### Technical Program for Wednesday December 11, 2019

**WeSP1**  
**Genetic Circuit Engineering Meets Control Theory** (Semiplenary Session)  
Chair: Khammash, Mustafa H.  
ETH Zurich  
08:30-09:30  
**Genetic Circuit Engineering Meets Control Theory**  
Del Vecchio, Domitilla  
Massachusetts Institute of Technology

**WeSP2**  
**Equivariant Observers: Robust Nonlinear State Estimation for Robotic Systems** (Semiplenary Session)  
Chair: Johansson, Karl H.  
KTH Royal Institute of Technology  
08:30-09:30  
**Equivariant Observers: Robust Nonlinear State Estimation for Robotic Systems**  
Mahony, Robert  
Australian National University

**WeA01**  
**Biological Systems I** (Regular Session)  
Chair: Gouze, Jean-Luc  
INRIA  
Co-Chair: Margaliot, Michael  
Tel Aviv University  
10:00-10:10  
Lehtimäki, Mikko  
Paunonen, Lassi  
Linne, Marja-Leena  
Tampere University  
10:20-10:40  
**Productivity Analysis and Non-Linear Gain Scheduling Approach for Multi-Species Bioprocesses with Product Inhibition**, pp. 7-12.  
Skupin, Piotr  
Rapaport, Alain  
Tampere University  
University of Montpellier, INRA, Montpellier SupAgro  
11:00-11:20  
dos Reis de Souza, Alex  
Efimov, Denis  
Polyakov, Andrey  
Gouze, Jean-Luc  
INRIA  
11:20-11:40  
Hasnain, Aqib  
Boddupalli, Nibodh  
Yeung, Enoch  
University of California, Santa Barbara  
11:40-12:00  
Bar-Shalom, Eyal  
Ovseevich, Alexander  
Margaliot, Michael  
Tel Aviv University  
11:40-12:00  
**Singular Regimes for the Maximization of Metabolite Production**, pp. 31-36.  
Yabo, Agustín Gabriel  
Caillaux, Jean-Baptiste  
Gouze, Jean-Luc  
INRIA, LJAD  

**WeA02**  
**Delay Systems I** (Regular Session)  
Chair: Pepe, Pierdomenico  
University of L’Aquila  
Co-Chair: De Iuliis, Vittorio  
University of L’Aquila  
10:10-10:20  
De Iuliis, Vittorio  
D’Innocenzo, Alessandro  
Germani, Alfredo  
Manes, Costanzo  
University of L’Aquila  
10:20-10:40  
Chaillet, Antoine  
Orlowski, Jakub  
Pepe, Pierdomenico  
University of L’Aquila  
10:40-11:00  
**Exact Delay Consensus Margin of First-Order Agents under PID Protocol**, pp. 54-59.  
Zhou, Bin  
Michiels, Wim  
Katholieke Universiteit Leuven  
11:00-11:20  
Zhang, Zhe  
Zhou, Bin  
Michiels, Wim  
Harbin Institute of Technology  
11:20-11:40  
**Cadence Tracking for Switched FES Cycling with Unknown Input Delay**, pp. 60-65.  
Allen, Brendon C.  
Cousin, Christian  
Rousse, Courtney  
Dixon, Warren E.  
University of Florida  
University of Florida  
University of Florida  
University of Florida
Tecnológico Nacional de México/
Universidad Nacional Autónoma

Chair: Baldi, Simone
Delft University of Technology

Co-Chair: Dugard, Luc
CNRS-Grenoble INP

10:00-10:20

WeA03.1
Roy, Spadan
Delft University of Technology

Baldi, Simone
School of Mathematics

10:20-10:40

WeA03.2
Landau, Ioan Dore
GIPSA-LAB, Control Dept

Airimitoieae, Tudor-Bogdan
University of Bordeaux

Melendez, Raúl
GIPSA-LAB

Dugard, Luc
CNRS

10:40-11:00

WeA03.3
Adaptive Set-Point Regulation Using Multiple Estimators, pp. 84-89.
Shahab, Mohamad T.
University of Waterloo

Miller, Daniel E.
University of Waterloo

11:00-11:20

WeA03.4
Passivity-Based Adaptive Control of Quadrotors with Mass and Moment of Inertia Uncertainties, pp. 90-95.
Song, Jeyoung
DGIST

Chang, Dong Eui
Korea Advanced Institute of Science and Technology

Eun, Yongsoo
DGIST

11:20-11:40

WeA03.5
Franco Jaramillo, José
Tecnológico Nacional de México/ROBERTO

Rios, Héctor
CONACYT-Tecnológico Nacional de México/TLA

Ferreira de Loza, Alejandra
Universidad Nacional Autónoma de Mexico

11:40-12:00

WeA03.6
Vau, Bernard
ENS Paris-Saclay

Landau, Ioan Dore
GIPSA-LAB

WeA04
Boolean Control Networks (Regular Session)
WeA04.1
Synthesis for Controllability and Observability of Logical

WeA05
Control of Systems Subject to Constraints (Invited Session)
WeA05.1
Rizvi, Syed Ali Asad
University of Virginia

Lin, Zongli
University of Virginia

10:00-10:20

WeA05.2
Single Harmonic Based Model Predictive Control for Tracking (I), pp. 151-156.
Krupa, Pablo
University of Seville

Cunis, Torbjørn ONERA - French Aerospace Lab
Liao-McPherson, Dominic University of Michigan
Condonines, Jean-Philippe ENAC
Burlion, Laurent Rutgers, State University of New Jersey
Kolmanovsky, Ilya V. University of Michigan


Turner, Matthew C. University of Leicester
Drummond, Ross University of Oxford

Regional Stability of Discrete-Time Linear Systems Subject to Asymmetric Input Saturation (I), pp. 169-174.

Broering Groff, Leonardo Universidade Federal do Rio Grande do Sul (UFRGS)
Gomes da Silva Jr, Joao Universidade Federal do Rio Grande do Sul (UFRGS)
Valmorbida, Giorgio L2S, CentraleSupelec

Closed-Form Barrier Functions for Multi-Agent Ellipsoidal Systems with Uncertain Lagrangian Dynamics, pp. 175-180.

Virginis, Christos KTH Royal Institute of Technology
Dimarogonas, Dimos V. KTH Royal Institute of Technology


Kim, Jung Hoon Pohang University of Science and Technology
Hagiwara, Tomomichi Kyoto University

H_inf Optimal Sampled-Data Controller Synthesis with Generalised Disturbance and Performance Channels, pp. 207-212.

Dreef, H.J. Eindhoven University of Technology
Donkers, M.C.F. Eindhoven University of Technology

Sampled-Data Extremum-Seeking Control for Optimization of Constrained Dynamical Systems Using Barrier Function Methods, pp. 213-219.

Hazeleger, Leroy Eindhoven University of Technology
Nesic, Dragan University of Melbourne
Van De Wouw, Nathan Eindhoven University of Technology

Robotics I (Regular Session) Méditerranée A1

Chair: Kyriakopoulos, Kostas National Tech. Univ. of Athens J.
Co-Chair: Matveev, Alexey S. Saint Petersburg University


Etienne, Lucien Institut Mine Télécom Lille Douai
Motchon, Koffi M. Djidula Université de Reims
Fiter, Christophe Université de Lille- CRISTAL (UMR CNRS 9189)


Mi, La Technion-IIT
Mirkin, Leonid Technion-IIT


Zhang, Xinkai University of Nebraska
Bradley, Justin University of Nebraska

WeA05.1

Chair: Matveev, Alexey S. Saint Petersburg University

10:00-10:20

10:20-10:40

10:40-11:00

11:00-11:20

11:20-12:00
Integrated Path Following and Collision Avoidance Using a Composite Vector Field, pp. 250-255.

Yao, Weijia University of Groningen
Lin, Bohuan University of Groningen
Cao, Ming University of Groningen

WeA08 Méditerranée 3
Estimation and Control of PDE Systems I (Invited Session)
Chair: Fahroo, Fariba AFOSR
Co-Chair: Demetriou, Michael A. Worcester Polytechnic Institute
Organizer: Demetriou, Michael A. Worcester Polytechnic Institute
Organizer: Fahroo, Fariba AFOSR
Organizer: Le Gorrec, Yann EnsMm, Femto-ST / As2m

Network-Based Control of Damped Beam Equation under Point and Pointlike Measurements (I), pp. 256-261.
Terushkin, Maria Tel Aviv University
Fridman, Emilia Tel Aviv University

10:00-10:20 WeA08.1

Das, Amritam Eindhoven University of Technology
Shivakumar, Sachin Arizona State University
Weiland, Siep Eindhoven University of Technology
Peet, Matthew M. Arizona State University

10:40-11:00 WeA08.3

Sampled-Data Control of 2D Kuramoto-Sivashinsky Equation under the Averaged Measurements (I), pp. 268-273.
Kang, Wen University of Science and Technology Beijing
Fridman, Emilia Tel-Aviv University

11:00-11:20 WeA08.4

A Path Planning Algorithm for Human Evacuations with an Environment Dependent Motion (I), pp. 274-279.
Demetriou, Michael A. Worcester Polytechnic Institute
Kontopyrgos, Marios Worcester Polytechnic Institute

11:20-11:40 WeA08.5

Shivakumar, Sachin Arizona State University
Das, Amritam Eindhoven University of Technology
Weiland, Siep Eindhoven University of Technology
Peet, Matthew M. Arizona State University

WeA09 Méditerranée B12
Mean-Field Games I (Invited Session)
Chair: Tembine, Hamidou New York University (NYU)
Co-Chair: Gomes, Diogo King Abdullah University of Science and Technology
Organizer: Tembine, Hamidou New York University (NYU)
Organizer: Gomes, Diogo King Abdullah University ofScience and Technology

10:00-10:20 WeA10.1
Models and Control Methods for Traffic Networks (Invited Session)
Chair: Como, Giacomo Politecnico di Torino
Co-Chair: Dele Monache, Maria Laura INRIA Grenoble Rhône-Alpes
Organizer: Dele Monache, Maria Laura INRIA Grenoble Rhône-Alpes
Organizer: Pasquale, Cecilia Università di Genova
Organizer: Siri, Silvia Università di Genova

11:40-12:00 WeA09.6
Partially-Observed Discrete-Time Risk-Sensitive Mean-Field Games (I), pp. 317-322.
Saldi, Naci Ozyegin University
Basar, Tamer University of Illinois, Urbana Champaign
Raginsky, Maxim University of Illinois, Urbana Champaign

11:20-11:40 WeA09.5
Mean Field Games on Prosumers (I), pp. 311-316.
Baar, Wouter University of Groningen
Bauso, Dario University of Groningen

11:00-11:20 WeA09.4
The Current Method for Stationary Mean-Field Games on Networks (I), pp. 305-310.
Farias, Diego Marcon Universidade Federal do Rio Grande do Sul
Gomes, Diogo King Abdullah University of Science and Technology
Fatimah, Al Saleh King Abdullah University of Science and Technology

10:40-11:00 WeA09.3
A Quantized Mean Field Game Approach to Energy Pricing with Application to Fleets of Plug-In Electric Vehicles (I), pp. 299-304.
Foguen Tchuendom, Rinel Ecole Poly. de Montreal
Malhame, Roland P. Ecole Poly. de Montreal
Caines, Peter E. McGill University

10:20-10:40 WeA08.2
Fractional Mean-Field-Type Games under Non-Quadratic Costs: A Direct Method (I), pp. 293-298.
Barreiro-Gomez, Julian New York University Abu Dhabi (NYUAD)
Djehiche, Boualem KTH Royal Institute of Technology
Duncan, Tyrone E. University of Kansas
Pasik-Duncan, Bozenna University of Kansas
Tembine, Hamidou New York University

10:00-10:20 WeA08.1
Caines, Peter E. McGill University
Huang, Minyi Carleton University

10:20-10:40  
- Zhang, Yue  
- Cassandra, Christos G.  

10:40-11:00  
**On a Weaker Notion of Ring Stability for Mixed Traffic with Human-Driven and Autonomous Vehicles (I)**, pp. 335-340.
- Giammarino, Vittorio  
- Lyu, Maolong  
- Baldi, Simone  
- Frasca, Paolo  
- Delle Monache, Maria Laura

11:00-11:20  
- Kouvelas, Anastasios  
- Saeedmanesh, Mohammadreza  
- Geroliminis, Nikolas  
- INRIA Grenoble Rhône-Alpes

11:20-11:40  
- BiYIK, Erdem  
- Lazar, Daniel  
- Sadigh, Dorsa  
- Pedarsani, Ramtin

11:40-12:00  
- Cianfanelli, Leonardo  
- Como, Giacomo

**WeA11**  
Observators for Linear Systems (Regular Session)  
Chair: Silvestre, Carlos  
Co-Chair: Sassano, Mario  

10:00-10:20  
**Sensitivity Analysis for Linear Systems Based on Reachability Sets**, pp. 361-366.
- Silvestre, Daniel  
- Rosa, Paulo  
- Hespanha, Joao P.  
- Silvestre, Carlos

10:20-10:40  
**A Distributed Observer for a Discrete-Time Linear System**, pp. 367-372.
- Wang, Lili

**WeA12**  
Dynamics, Control and Information Processing of Quantum Systems (Invited Session)  
Chair: Dong, Daoyi  
Co-Chair: Nurdin, Hendra I  
Organizer: Dong, Daoyi  
Organizer: Ticozzi, Francesco  
Organizer: Li, Jr-Shin

10:00-10:20  
**Tomography of Binary Quantum Detectors (I)**, pp. 396-400.
- Wang, Yuanlong  
- Dong, Daoyi  
- Yonezawa, Hidehiro

10:20-10:40  
- Chen, Jiayin  
- Nurdin, Hendra I  
- Yamamoto, Naoki
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<th>Time</th>
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<th>Title</th>
<th>Authors/Institutions</th>
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<td>Miao, Zibo Harbin Institute of Technology, Shenzhen</td>
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<td>Chen, Yu The Chinese University of Hong Kong</td>
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<td>Yuan, Haidong Hong Kong Polytechnic University</td>
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<td>Bhasin, Shubhendu Indian Institute of Technology, Delhi</td>
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<td>Althoff, Matthias Technical University of Munich</td>
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<td>Cesnik, Carlos University of Michigan</td>
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<td>Dhar, Abhishek Indian Institute of Technology, Delhi</td>
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<td>Zhang, Wei Washington University in St. Louis</td>
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<td>Narayanan, Vignesh Washington University in St. Louis</td>
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<td>Li, Jr-Shin Washington University in St. Louis</td>
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<td>Vladimirov, Igor G. Australian National University</td>
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<td>Petersen, Ian R. Australian National University</td>
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<td>James, Matthew R. Australian National University</td>
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<td>WeA13.1</td>
<td>Predictive Control for Linear Systems I (Regular Session)</td>
<td>Chair: Görges, Daniel University of Kaiserslautern</td>
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<td>Co-Chair: Maciejowski, Jan M. University of Cambridge</td>
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<td>de Freitas Virgilio Pereira University of Michigan Mateus</td>
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<td>Kolmanovsky, Ilya V. University of Michigan</td>
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<td>Cesnik, Carlos University of Michigan</td>
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<td>Lu, Liang Qingdao University</td>
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<td>Maciejowski, Jan M. University of Cambridge</td>
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**2023 European Control Conference**

- **Chair:** Görges, Daniel University of Kaiserslautern
- **Co-Chair:** Maciejowski, Jan M. University of Cambridge

**Lecture: Predictive Control for Linear Systems I**

**Topics:***
- Scalable Robust Model Predictive Control for Linear Sampled-Data Systems
- Robust Self-Triggered MPC for Constrained Linear Systems with Additive Disturbance
- Tube Based Adaptive Model Predictive Control
Leader-Follower Trajectory Tracking Control for a Mobile Robot with Unknown Amplitudes of Reference Velocities and Input Disturbances, pp. 499-504.

Zhang, Xu  
Shanghai Jiao Tong University  
Yu, Xiao  
Chen, Weidong  
Shanghai Jiao Tong University

WeA15  
Geometric Optimal Control Theory and Applications (Invited Session)  
Chair: Pomet, Jean-Baptiste  
INRIA  
Co-Chair: Gutman, Per-Olof  
Technion  
Organizer: Pomet, Jean-Baptiste  
INRIA

10:00-10:20 WeA15.1  
Bakir, Toufik  
Université de Bourgogne Franche-Comté  
Bonnard, Bernard  
Institut de Mathématiques de Bourgogne  
Rouot, Jérémy  
EPF: Ecole D'Ingénieur

10:20-10:40 WeA15.2  
Jean, Frédéric  
ENSTA ParisTech  
Maslovskaya, Sofya  
INRIA Sophia Antipolis

10:40-11:00 WeA15.3  
Caillau, Jean-Baptiste  
Université Côte d'Azur, CNRS, INRIA, LJAD  
Maslovskaya, Sofya  
INRIA Sophia Antipolis  
Mensch, Thomas  
CGG  
Moulinier, Timothée  
CGG  
Pomet, Jean-Baptiste  
INRIA

11:00-11:20 WeA15.4  
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Taitler, Ayal  
Technion  
Ioslovich, Ilya  
Technion  
Karpas, Erez  
Technion  
Gutman, Per-Olof  
Technion

11:20-11:40 WeA15.5  
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Kishida, Masako  
National Institute of Informatics  
Nagahara, Masaaki  
University of Kitakyushu  
Chatterjee, Debashish  
Indian Institute of Technology, Bombay

11:40-12:00 WeA15.6  
A No Infimum-Gap Criterion, pp. 535-540.  
Palladino, Michele  
GSSI - Gran Sasso Science Institute  
Rampazzo, Franco  
University of Padova

WeA16  
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Chair: Poovendran, Radha  
University of Washington  
Co-Chair: Dall’Anese, Emiliano  
University of Colorado, Boulder

10:00-10:20 WeA16.1  
Calafiore, Giuseppe C.  
Politecnico di Torino  
Novara, Carlo  
Politecnico di Torino  
Possieri, Corrado  
Politecnico di Torino

10:20-10:40 WeA16.2  
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Biswal, Shibasish  
Arizona State University  
Elamvazhuthi, Karthik  
Arizona State University  
Berman, Spring  
Arizona State University

10:40-11:00 WeA16.3  
A Distributed Algorithm for Online Convex Optimization with Time-Varying Coupled Inequality Constraints, pp. 555-560.  
Yi, Xinlei  
KTH Royal Institute of Technology  
Li, Xiuxian  
Nanyang Technological University  
Xie, Liuhua  
Nanyang Technological University  
Johansson, Karl H.  
KTH Royal Institute of Technology

11:00-11:20 WeA16.4  
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Lutz, Max  
Kiel University  
Freudenthaler, Gerhard  
Kiel University  
Roduner, Christian Andreas  
AVL Software and Functions GmbH  
Meurer, Thomas  
Kiel University

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Sahabandu, Dinuka  
University of Washington  
Moothedath, Shana  
University of Washington  
Allen, Joe  
Georgia Institute of Technology  
Clark, Andrew  
Worcester Polytechnic Institute  
Bushnell, Linda  
University of Washington  
Lee, Wenke  
Georgia Institute of Technology  
Poovendran, Radha  
University of Washington

11:40-12:00 WeA16.6  
CHANG, CHIN-YAO  
National Renewable Energy Laboratory  
Colombino, Marcello  
McGill University  
Cortes, Jorge  
University of California, San Diego  
Dall’Anese, Emiliano  
University of Colorado, Boulder

WeA17  
Switched Systems I (Regular Session)  
Chair: Trenn, Stephan  
University of Groningen  
Co-Chair: Fribourg, Laurent  
CNRS
10:00-10:20  WeA17.1


Dahia, Helder R.  School of Mechanical Engineering, UNICAMP
Deaecto, Grace S.  FEM/UNICAMP

10:20-10:40  WeA17.2

**Distributed Delay Observer Design for Nonlinear Systems with Output**

10:40-11:00  WeA17.3

**New Control Design for Switched Linear Time-Invariant Systems under Arbitrary Switching**, pp. 593-598.

Lee, Ti-Chung  University of Science and Technology
Tan, Ying  University of Melbourne
Mareels, Iven  IBM

11:00-11:20  WeA17.4


Le Coent, Adrien  Aalborg University
Fribourg, Laurent  CNRS

11:20-11:40  WeA17.5


Anh, Pham Ky  Vietnam National University
Linh, Pham Thi  Vietnam National University
Thuan, Do Duc  Hanoi University of Science and Technology
Trenn, Stephan  University of Groningen

11:40-12:00  WeA17.6


Regaieg, Mohamed Amin  University of Amiens
mourd, Kchaou  ENIS Sfax
Bosche, Jerome  University of Amiens
El Hajjaji, Ahmed  University of Picardie-Jules Verne
Chaabane, Mohamed  National School of Engineers of Sfax (ENIS)

10:00-10:20  WeA18.1


Ammeh, Leila  ENSA, Université Ibn Tofail, Kénitra

**Observers for Nonlinear Systems I (Regular Session)**

Chair: Trumpf, Jochen  Australian National University
Co-Chair: Gehan, Olivier  ENSICAEN

10:20-10:40  WeA18.2


Coutinho, Daniel F.  Universidade Federal de Santa Catarina
de Melo Schons, Silvane C  Universidade Federal de Santa Catarina - Université Libre de Bruxelles
Kinnaert, Michel  Université Libre de Bruxelles
de Souza, Carlos E.  LNCC

10:40-11:00  WeA18.3

**Observer and First-Order Low-Pass Filter Based Attitude Estimation for Rigid Bodies Subject to External Acceleration**, pp. 629-634.

Bonargent, Tristan  Normandie University UNICAEN, ENSICAEN
Menard, Tomas  University of Caen
Pigeon, Eric  University of Caen
Gehan, Olivier  ENSICAEN

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**Discrete Update Pose Filter on the Special Euclidean Group SE(3)**, pp. 635-641.

Zamani, Mohammad  DSTG
Trumpf, Jochen  Australian National University

11:20-11:40  WeA18.5


Surroop, Dilshad  Mines Paris Tech
Martin, Philippe  Mines Paris Tech, PSL Research University
Combes, Pascal  Schneider Electric
Rouchon, Pierre  Mines ParisTech

11:40-12:00  WeA18.6


Pyrkin, Anton  ITMO University
Bobtsov, Alexey  ITMO University
Vedyakov, Alexey  ITMO University
Ortega, Romeo  LSS-Supelec
Vediakova, Anastasiia  Saint Petersburg State University
Sinetrova, Madina  ITMO University

10:00-10:20  WeA19.1

**Advances in Nonlinear Filtering and Stochastic Control with Partial Information I (Invited Session)**

Chair: Mehta, Prashant G.  University of Illinois, Urbana Champaign
Co-Chair: Yuksel, Serdar  Queen's University
Organizer: Mehta, Prashant G.  University of Illinois, Urbana Champaign
Organizer: Yuksel, Serdar  Queen's University
On Weak Feller Continuity Properties of Non-Linear Filters (I), pp. 654-659.
Kara, Ali Devran
Saldi, Naci
Yuksel, Serdar

10:20-10:40 WeA19.2
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Halder, Abhishek
Georgiou, Tryphon T.

10:40-11:00 WeA19.3
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Abedi, Ehsan
Surace, Simone Carlo

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D’Angelo, Massimiliano
Battilotti, Stefano
Cacace, Filippo
Germani, Alfredo
Sinopoli, Bruno

11:20-11:40 WeA19.5
Huang, Minyi

11:40-12:00 WeA19.6
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Carroll, Johnson
Hamedi, Hassan
Arapostathis, Ari

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Chair: Johansson, Karl H.
Co-Chair: Mohajerin Esfahani, Peyman
Organizer: Heemels, W.P.M.H.
Organizer: Hirche, Sandra
Organizer: Johansson, Karl H.

10:00-10:20 WeA20.1
Yang, Yongliang
Vamvoudakis, Kyriakos G.
Modares, Hamidreza
He, Wei
Yin, Yi-Xin

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Bregman, Sander Christian
Mohajerin Esfahani, Peyman
Keviczky, Tamas

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Balaghi I., M. Hadi

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Muller, Matthias A.
Allgöwer, Frank

11:20-11:40 WeA20.5
Liu, Changxin
Li, Huiping
Xu, Demin

11:40-12:00 WeA20.6
Miguel-Escrig, Oscar
Romero, Julio Ariel

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Chair: Siambi, Milad
Co-Chair: Chapman, Airlie

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Borisov, Andrey
Bosov, Alexey
Miller, Gregory
Stefanovich, Alexei

10:20-10:40 WeA21.2
Siambi, Milad
Jadbabaie, Ali

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Burke, Declan
University of Melbourne
Chapman, Airrie
University of Melbourne
Schoof, Eric
University of Washington
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Lewien, Patrick
University of Melbourne
Chapman, Airrie
University of Melbourne
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Urata, Kengo
Tokyo Institute of Technology
Ishizaki, Takayuki
Tokyo Institute of Technology
Imura, Jun-ichi
Tokyo Institute of Technology
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WeA21.6

Dynamics Concentration of Large-Scale Tightly-Connected Networks, pp. 758-763.
Min, Hancheng
Johns Hopkins University
Mallada, Enrique
Johns Hopkins University
12:00
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Chair: Lindquist, Anders
KTH Royal Institute of Technology
Co-Chair: Lopes dos Santos, P.
Unviersidade do Porto
10:00-10:20
WeA22.1

Cui, Yufang
Shanghai Jiao Tong University
Lindquist, Anders
Shanghai Jiao Tong University
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A Dynamic Mode Decomposition Approach with Hankel Block to Forecast Multi-Channel Temporal Series, pp. 771-776.
Vasconcelos Filho, Enio
Cister Research Centre in Real-Time &Embedded Computing Systems,
Lopes dos Santos, P.
Unviersidade do Porto
10:40-11:00
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Niedzwiecki, Maciej
Gdansk University of Technology
Ciolek, Marcin
Gdansk University of Technology, Faculty of Electronics, Telecom
Gancza, Artur
Gdansk University of Technology, Faculty of Electronics Telecomm
11:00-11:20
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Stark, Oliver
Karlsruhe Institute of Technology
Kupper, Martin
Karlsruhe Institute of Technology
Krebs, Stefan
Karlsruhe Institute of Technology
Hohmann, Soeren
Karlsruhe Institute of Technology
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Auber, Romain
Université de Caen
Pouliquen, Mathieu
Université de Caen
GOUDJIL, Abdelhak
University of Caen Normandy
Pigeon, Eric
University of CAEN
Gehan, Olivier
University of Caen
Menard, Tomas
Normandie Univ, UNICAEN,
ENSICAEN, LAC, 14000 Caen,
France
11:40-12:00
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Asymptotic Analysis of Recursive (Particle) Maximum Likelihood Estimation in Non-Linear State-Space Models, pp. 797-802.
Tadic, Vladislav
University of Bristol
Doucet, Arnaud
University of Oxford
12:00
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Chair: Schoellig, Angela P
University of Toronto
Co-Chair: Trimpe, Sebastian
Max Planck Institute for Intelligent Systems
Organizer: Schoellig, Angela P
University of Toronto
Organizer: Trimpe, Sebastian
Max Planck Institute for Intelligent Systems
Organizer: Zeilinger, Melanie N.
ETH Zurich
Organizer: Muller, Matthias A.
Leibniz University Hannover
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WeA23.1

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Scholten, Jan Jelmer
Delft University of Technology
Wout, Daan
Delft University of Technology
Celemim, Carlos
Delft University of Technology
Kober, Jens
Delft University of Technology
10:20-10:40
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Menner, Marcel
ETH Zurich
Bemtorp, Karl
Mitsubishi Electric Research Labs
Zeilinger, Melanie N.
ETH Zurich
Di Cairano, Stefano
Mitsubishi Electric Research Labs
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A Data-Driven Policy Iteration Scheme Based on Linear Programming (I), pp. 816-821.
Banjac, Goran
ETH Zurich
Lygeros, John
ETH Zurich
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WeA23.4

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Scampicchio, Anna
University of Padova
Chiuso, Alessandro
University of Padova
Formentin, Simone
Politecnico di Milano
Pillonetto, Gianluigi
University of Padova
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Chair: Darvianakis, Georgios  Co-Chair: Shim, Hyungbo
ABB Corporate Research Center  Seoul National University
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Binder, Matthias  ETH Zurich
Darvianakis, Georgios  ABB Corporate Research Center
Eichler, Annika  DESY
Lygeros, John  ETH Zurich
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Based Controllers Using Disturbance Observer, pp. 847-852.
Kim, Jeong Woo  Seoul National University
Shim, Hyungbo  Seoul National University
Yang, Insoo  Seoul National University
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Shivam, Shashwat  Georgia Institute of Technology
Kanellopoulos, Aris  Georgia Institute of Technology
Vamvoudakis, Kyriakos G.  Georgia Institute of Technology
Wardi, Yorai  Georgia Institute of Technology
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Subspace Viewpoint, pp. 860-866.
Lian, Yingzhao  EPFL
Jones, Colin N.  EPFL
11:20-11:40  WeA24.5
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Blotto Games, pp. 867-872.
Vu, Dong Quan  Nokia Bell Labs
Loiseau, Patrick  INRIA
Silva, Alonso  Signal and Information
Technologies, Safran Tech
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De Persis, Claudio  University of Groningen
Tesi, Pietro  University of Firenze

A Linear Constrained Integral Feedback for a Class of Reaction Systems with Absolute Concentration Robustness (I), pp. 945-950.

Cappelletti, Daniele ETH Zurich
Gupta, Ankik ETH Zurich
Khammash, Mustafa H. ETH Zurich

Optimal Parameter Tuning of Feedback Controllers with Application to Biomolecular Antithetic Integral Control, pp. 951-957.

Fil, Maurice Swiss Federal Institute of Technology in Zurich
Khammash, Mustafa H. ETH Zurich

Biomolecular Stabilisation Near the Unstable Equilibrium of a Biological System, pp. 958-964.

Cuba Samaniego, Christian University of California, Riverside
DeLateur, Nicholas Massachusetts Institute of Technology
Giordano, Giulia Delft University of Technology
Franco, Elisa University of California, Los Angeles

Ratiometric Control for Differentiation of Cell Populations Endowed with Synthetic Toggle Switches (I), pp. 927-932.

Salzano, Davide University of Napoli Federico II
Fiore, Davide University of Napoli Federico II
Fiore, Davide University of Napoli Federico II

Feedback Control Promotes Synchronisation of the Cell-Cycle across a Population of Yeast Cells (I), pp. 933-938.

Perrino, Giannisone Telethon Institute of Genetics and Medicine
Fiore, Davide University of Napoli Federico II
Napolitano, Sara Telethon Institute of Genetics and Medicine
Galdi, Francesca Telethon Institute of Genetics and Medicine
La Regina, Antonella Telethon Institute of Genetics and Medicine
Fiore, Davide University of Napoli Federico II

Moment-Based Analysis of Biochemical Networks in a Heterogeneous Population of Communicating Cells (I), pp. 939-944.

Gonzales, David Max Planck Institute of Molecular Cell Biology and Genetics
Zechnner, Christoph Max Planck Institute of Molecular Cell Biology and Genetics

A Systematic Framework for Biomolecular System Identification (I)*.

Menolascina, Filippo University of Edinburgh

Biocentrol Experiments: How to Start Your Own Lab! (I)*.

di Bernardo, Diego Telethon Institute of Genetics and Medicine

14:00-14:20

Control Systems for Biology: Methodologies and Applications (Invited Session)

Chair: di Bernardo, Diego Telethon Institute of Genetics and Medicine
Co-Chair: Khammash, Mustafa H.
Organizer: di Bernardo, Mario University of Napoli Federico II
Organizer: di Bernardo, Diego Telethon Institute of Genetics and Medicine
Organizer: Khammash, Mustafa H.

15:00-15:20

Discrete-Time Adaptive Regulation of Scalar Systems with Uncertain Upper-Bounded Input Delay, pp. 976-982.

Abidi, Khalid Newcastle University
Soo, Hang Jian None
Postlethwaite, Ian Newcastle University

15:00-15:20

Estimator-Based Output-Feedback Stabilization of Linear Multi-Delay Systems Using SOS, pp. 983-988.

Wu, Shuangshuang Yanshan University

Trenn, Stephan
University of Groningen

Unger, Benjamin
TU Berlin

Torsional Vibration Suppression with Boundary Impulsive Conditions in Rotary Drilling System, pp. 995-1000.

TOUMI, Samir
Polytechnic School of Tunisia

Beji, Lotfi
University of Evry

Mayeh, Rhouma
Polytechnic School of Tunisia

Adaptive Control II (Regular Session)

WeB03
Méditerranée 5

Chair: Baldi, Simone
Delft University of Technology

Co-Chair: Duffaut Espinosa, Luis Augusto
University of Vermont

Measures and LMIs for Adaptive Control Validation, pp. 1001-1006.

Wagner, Daniel
Czech Technical University in Prague

Henrion, Didier
LAAS-CNRS

Hromčík, Martin
Czech Technical University, FEE

Adaptive Optimal Control Via Continuous-Time Q-Learning for Unknown Nonlinear Affine Systems, pp. 1007-1012.

Chen, Anthony Siming
University of Bristol

Herrmann, Guido
University of Manchester

Combining Learning and Model Based Multivariable Control, pp. 1013-1018.

GUGGILAM, SUBBARAO
Old Dominion University

VENKATESH

Gray, W. Steven
Old Dominion University

Duffaut Espinosa, Luis Augusto
University of Vermont

Model Based Adaptive Control for a Soft Robotic Manipulator, pp. 1019-1024.

Franco, Enrico
Imperial College London

Garriga-Casanovas, Amal
Imperial College London

Rodríguez y Baena, Ferdinando
Imperial College London

Astolfi, Alessandro
Imperial College & University of Rome

Adaptive Tracking Control of Nonlinear Time-Varying Systems with Unknown Control Coefficients and Unknown Time-Varying Parameters, pp. 1025-1030.

Zhou, Jing
University of Agder

Approach

Linear Multi-Agent System: A Satisfaction Equilibrium

Decentralized Control for Guaranteed Individual Costs in a Right Sizing of Cloud Computing Systems with Data Locality

An Optimization Approach to Load Balancing, Scheduling and Leader-Follower Consensus of Linear Multi-Agent Systems

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Low-Complexity Robust Decentralized MPC: A Foundational Algorithm for Constrained Coalitional Control (I), pp. 1089-1095.

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A Coalitional Control Scheme with Topology-Switchings Convexity Guarantees, pp. 1096-1101.


Optimal Linear Exponential Quadratic Gaussian Estimation with Intermittent Observations, pp. 1132-1137.

Control Technique for Synchronization of Selected Nodes in Directed Networks, pp. 1138-1143.

WeB07 (Regular Session)

Control of Networks (Regular Session)

Chair: Paganini, Fernando
Co-Chair: Frasca, Mattia


14:40-14:50

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Leader-Follower Consensus of Linear Multi-Agent Systems with Input Saturation, pp. 1108-1113.

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On Distributed High-Gain Adaptive Stabilization (I), pp. 1083-1088.

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WeB05.4

Té Côte d’Azur, INRIA

Iori, Tomoyuki
Ohtsuka, Toshiyuki

Kyoto University
Kyoto University

Sun, Zhiyong
Rantzer, Anders
Li, Zhongkui
Robertsson, Anders

Lund University
Lund University
Peking University
LTH, Lund University

WeB05.3

15:00-15:20

WeB05.5

Low-Complexity Robust Decentralized MPC: A Foundational Algorithm for Constrained Coalitional Control (I), pp. 1089-1095.

WeB05.6

WeB06.1

Convexity Guarantees, pp. 1096-1101.

WeB06.2

WeB06.3

WeB06.4

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WeB06.6

Chanfreut, Paula
Maestre, J.M.
Muros, Francisco Javier
Camacho, Eduardo F.

University of Seville
University of Seville
University of Seville
University of Seville

WeB06.7

WeB07.1

WeB07.2

WeB07.3

WeB07.4

van Schuppen, Jan H.
Charalambous, Charalambos

Van Schuppen Control Research
University of Cyprus D.

WeB06.8

16:00-16:20

WeB06.9

WeB07.5

WeB07.6

WeB07.7

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Angelico, Bruno  Universidade de São Paulo
Brugnoni, Mateus Mussi  Universidade de São Paulo
das Neves, Gabriel  Universidade de São Paulo

15:40-16:00  WeB07.6


Mitikiri, Yujendra  University of Florida
Mohseni, Kamran  University of Florida

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**WeB08 Estimation and Control of PDE Systems II (Invited Session)**

Chair: Demetriou, Michael A.  Worcester Polytechnic Institute
Co-Chair: Fahroo, Fariba  AFOSR
Organizer: Demetriou, Michael A.  Worcester Polytechnic Institute
Organizer: Fahroo, Fariba  AFOSR
Organizer: Le Gorrec, Yann  Ensimm, Femto-St / As2m

14:00-14:20  WeB08.1


de Andrade, Gustavo Artur  Universidade Federal de Santa Catarina
Vazquez, Rafael  University of Seville
Pagano, Daniel Juan  Federal University of Santa Catarina
Mascheroni, Jose Maria  Alkimat Tecnologia Ltda

14:20-14:40  WeB08.2

**Sensor Location for Parameter Estimation of Spatiotemporal Systems with Correlated Observations (I)**, pp. 1189-1194.

Ucinski, Dariusz  University of Zielona Gora
Patan, Maciej  University of Zielona Gora

14:40-15:00  WeB08.3

**Laser Sintering Control for Metal Additive Manufacturing by PDE Backstepping (I)**, pp. 1195-1200.

Koga, Shumon  University of California, San Diego
Krstic, Miroslav  University of California, San Diego
Beaman, Joseph J.  University of Texas, Austin

15:00-15:20  WeB08.4

**Sampled-Data Observer for 2D Navier-Stokes Equation (I)**, pp. 1201-1206.

Kang, Wen  University of Science and Technology Beijing
Fridman, Emilia  Tel-Aviv University
Zhuk, Sergiy  IBM

15:20-15:40  WeB08.5

**Model-Based Networked Control of Spatially-Distributed Processes with Event-Triggered Parameter Re-Identification (I)**, pp. 1207-1212.

Zedan, Amr  University of California Davis
El-Farra, Nael H.  University of California, Davis

15:40-16:00  WeB08.6

**Combined Sequential Mobile Sensing Agent Evacuation and State Reconstruction in Contaminated Spatial Fields (I)**, pp. 1213-1218.

Demetriou, Michael A.  Worcester Polytechnic Institute

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**WeB09 Mean Field Games II (Regular Session)**

Chair: Hajek, Bruce  UIUC
Co-Chair: Huang, Minyi  Carleton University

14:00-14:20  WeB09.1

**On Non-Unique Solutions in Mean Field Games**, pp. 1219-1224.

Hajek, Bruce  UIUC
Livesay, Michael  University of Illinois

14:40-15:00  WeB09.3

**Decentralized Adaptive Optimal Control for Massive Multi-Agent Systems Using Mean Field Game with Self-Organizing Neural Networks**, pp. 1225-1230.

Zhou, Zejian  University of Nevada, Reno
Xu, Hao  University of Nevada, Reno

14:40-15:00  WeB09.4

**Linearly-Solvable Mean-Field Approximation for Multi-Team Road Traffic Games**, pp. 1243-1248.

Pedram, Ali Reza  University of Texas, Austin
Tanaka, Takashi  University of Texas, Austin

15:00-15:20  WeB09.5


Bagagiolo, Fabio  University of Trento
Maggistro, Rosario  Università Ca’ Foscari Venezia
Pesenti, Raffaele  University of Venice - Ca’ Foscari

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**WeB10 Orchestrating Movement of Smart Vehicles in Smart Cities (Invited Session)**

Chair: Malikopoulos, Andreas A.  University of Delaware
Co-Chair: Su, Rong  Nanyang Technological University
Organizer: Vahidi, Ardalan  Clemson University
Organizer: Su, Rong  Nanyang Technological University

14:00-14:20  WeB10.1


Zhang, Yicheng  Nanyang Technological University
Chen, Qixing  Nanyang Technological University
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<td>University of Delaware</td>
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<td>Zhao, Liuhui</td>
<td>University of Delaware</td>
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<td>King, Christopher</td>
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<td>Shorten, Robert</td>
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<td>Jiang, Frank J.</td>
<td>University of California, Berkeley</td>
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<td>Johansson, Karl H.</td>
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<td>Bae, Sangjae</td>
<td>University of California, Berkeley</td>
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<td>Choi, Yongkeun</td>
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<td>Kim, Yeojun</td>
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<td>Borrelli, Francesco</td>
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<td>Moura, Scott</td>
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<td>Overko, Roman</td>
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<td>Ordóñez-Hurtado, Rodrigo H.</td>
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<td>Controlling Heterogeneous Stochastic Growth Processes on Lattices with Limited Resources, pp. 1315-1322.</td>
<td>Haksar, Ravi N.</td>
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<td>WeB11.5</td>
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<td>Langbein, Frank C.</td>
<td>Cardiff University</td>
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<td>Ugrinovskii, Valery</td>
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<td>Nakao, Hiroya</td>
<td>Tokyo Institute of Technology</td>
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Maclel Neto, Ulisses Alves Amazônia Azul Technologies of Defense
Pereira da Silva, Paulo Sergio University de Sao Paulo
Beauchard, Karine CNRS, CMLS, Ecole Polytechnique
Rouchon, Pierre Mines ParisTech

15:20-15:40 WeB12.5
A Palette of Approaches for Adiabatic Elimination in Bipartite Open Quantum Systems with Hamiltonian Dynamics on Target, pp. 1362-1368.
Forni, Paolo Mines ParisTech & INRIA (QUANTIC)
Launay, Timothée Mines ParisTech
Sarlette, Alain INRIA Paris
Rouchon, Pierre Mines ParisTech

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Minimizing Decoherence on Target in Bipartite Open Quantum Systems, pp. 1369-1376.
Forni, Paolo Mines ParisTech & INRIA (QUANTIC)
Sarlette, Alain INRIA Paris

WeB13 Galliéni 4
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Chair: Allgöwer, Frank University of Stuttgart
Co-Chair: de Jager, Bram Technische Universiteit Eindhoven

14:00-14:20 WeB13.1
Dual Adaptive MPC for Output Tracking of Linear Systems, pp. 1377-1382.
Soloperto, Raffaele University of Stuttgart
Koehler, Johannes University of Stuttgart
Muller, Matthias A. Leibniz University Hannover
Allgöwer, Frank University of Stuttgart

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Koehler, Johannes University of Stuttgart
Andina, Elisa Universita Di Bologna - M.Sc. Student
Soloperto, Raffaele Raffaele Soloperto
Muller, Matthias A. Leibniz University Hannover
Allgöwer, Frank University of Stuttgart

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Instant MPC for Linear Systems and Dissipativity-Based Stability Analysis, pp. 1389-1394.
Yoshida, Keisuke Keio University
Inoue, Masaki Keio University
Hatanaka, Takeshi Tokyo Institute of Technology

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Laine, Forrest, J. University of California, Berkeley
Tomlin, Claire J. University of California, Berkeley

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Adversarial Model Predictive Control Via Second-Order Cone Programming, pp. 1403-1409.
Guthrie, James Johns Hopkins University
Mallada, Enrique Johns Hopkins University

15:40-16:00 WeB13.6
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Yang, Jiaheng Eindhoven University of Technology
Meijer, Tomas Jesse Eindhoven University of Technology
Dolk, Victor Sebastian Eindhoven University of Technology
de Jager, Bram Eindhoven University of Technology
Heemels, W.P.M.H. Eindhoven University of Technology

WeB14 Galliéni 7
Lyapunov Methods II (Regular Session)
Chair: Normand-Cyrot, Dorotheé CNRS
Co-Chair: Poonawala, Hasan University of Kentucky A.

14:00-14:20 WeB14.1
Magnetic Force Modelling and Nonlinear Switched Control of an Electromagnetic Actuator, pp. 1416-1421.
Deschaux, Flavien LAAS CNRS
Gouaisbaut, Frederic University of Toulouse, LAAS CNRS
Ariba, Yassine Icam

14:20-14:40 WeB14.2
Control-Lyapunov and Control-BARRIER Functions Based Quadratic Program for Spatio-Temporal Specifications, pp. 1422-1429.
Garg, Kunal University of Michigan-Ann Arbor
Panagou, Dimitra University of Michigan, Ann Arbor

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Discrete Port-Controlled Hamiltonian Dynamics and Average Passivation, pp. 1430-1435.
Moreschini, Alessio Sapienza University of Rome
Mattoni, Mattia University of Rome La Sapienza
Monaco, Salvatore University of Roma La Sapienza
Normand-Cyrot, Dorotheé CNRS

15:00-15:20 WeB14.4
Switched Motorized and Functional Electrical Stimulation Cycling Controllers for Power Tracking, pp. 1436-1441.
Chang, Chen-Hao Syracuse University
Duenas, Victor H Syracuse University

15:20-15:40 WeB14.5
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Poonawala, Hasan A. University of Kentucky

15:40-16:00 WeB14.6
A Control Lyapunov Perspective on Episodic Learning Via
Optimization II

WeB15 Optimization Conditions for Control Problems I (Invited Session)

Chair: Frankowska, Helene
Co-Chair: Chittaro, Francesca
Organizer: Frankowska, Helene
Organizer: Poggiolini, Laura

14:00-14:20 WeB15.1
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Frankowska, Helene
CNRS and Sorbonne University, Campus Pierre Et Marie Curie

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Poggiolini, Laura
University of Firenze
Stefani, Gianna
University of Firenze

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Soravia, Pierpaolo
University of Padova

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Motta, Monica
University of Padua, Italy
Aronna, María Soledad
Fundação Getulio Vargas
Rampazzo, Franco
University of Padova

15:20-15:40 WeB15.5
Bayen, Térence
Université de Montpellier
Pfeiffer, Laurent
Graz University

15:40-16:00 WeB15.6
Lee, Donggun
University of California, Berkeley
Tomlin, Claire J.
University of California, Berkeley

WeB16 Optimization II (Regular Session)

Chair: Nedich, Angelia
Co-Chair: Karlsson, Niklas

14:00-14:20 WeB16.1

Atta, Khalid
Luleå University of Technology
Guay, Martin
Queens University
Lucchese, Riccardo
LTU Luleå University of Technology

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Zhang, Jingzhao
MIT
Sra, Suvrit
MIT
Jadbabaie, Ali
MIT

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Nedich, Angelia
Arizona State University
Necoara, Ion
University Politehnica Bucharest

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Karlsson, Niklas
Verizon Media

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Nested Distributed Gradient Methods with Adaptive Quantized Communication, pp. 1519-1525.
Berahas, Albert S.
Lehigh University
Iakovidou, Charikleia
Northwestern University
Wei, Ermin
Northwestern University

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Bardakci, Ibrahim Ekrem
Pennsylvania State University
Lagoa, Constantino M.
Pennsylvania State University

WeB17 Switched Systems II (Regular Session)

Chair: Sznaier, Mario
Co-Chair: Ozay, Necmiye

14:00-14:20 WeB17.1
Breschi, Valentina
Politecnico di Milano
Piga, Dario
University of Applied Sciences and Arts of Southern Switzerland
Bemporad, Alberto
IMT Institute for Advanced Studies

14:20-14:40 WeB17.2
Kirches, Christian
Technical University of Braunschweig
Kostina, Professor Dr.
Heidelberg University
Ekaterina A.
IWR Heidelberg
Meyer, Andreas
Schlöder, Matthias
Heidelberg University
An Exponential Stability Result for a Class of Linear Switched Systems and Its Application, pp. 1551-1556.

Liu, Tao Shenzhen Research Institute, the Chinese University of Hong Kong
Lee, Ti-Chung University of Science and Technology
Huang, Jie The Chinese University of Hong Kong

Global Exponential Stabilization of Language Constrained Switched Linear Discrete-Time System Based on the S-Procedure Approach, pp. 1565-1570.

Song, Yang Shanghai University
Jin, Yunyun Shanghai University
Wang, Yan Jiangnan University
Yang, Taicheng University of Sussex

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Chair: Ferrara, Antonella University of Pavia
Co-Chair: Rapaport, Alain U. Montpellier, INRA, Montpellier SupAgro

A Multi Observers Approach When Observability Index Is Higher Than the State Dimension - a Case Study -, pp. 1571-1576.

Haidar, Ihab ENSEA
Barbot, Jean Pierre ENSEA
Rapaport, Alain U. Montpellier, INRA, Montpellier SupAgro


Ariou, Hichem Evry Val d'Essonne University
Ichalal, Dalil Université d'Evry Val d'Essonne, IBISC Lab
Nehouaia, Lamri Evry University
Mammar, Said Université d'Evry IBISC

Higher Order Sliding Mode Observers in Power Grids with Traditional and Renewable Sources, pp. 1583-1588.

Rinaldi, Gianmario University of Pavia
Menon, Prathyush P University of Exeter
Edwards, Christopher University of Exeter
Ferrara, Antonella University of Pavia


Pylorof, Dimitrios US Army Research Laboratory
Bakolas, Efstatios University of Texas, Austin
Chan, Kevin US Army Research Laboratory

State Observation of a Specific Class of Unknown Nonlinear SISO Systems Using Linear Kalman Filtering, pp. 1595-1600.

Amokrane, Fawzia Institut FEMTO-ST
Piat, Emmanuel Institut FEMTO-ST
Abadie, Joël Institut FEMTO-ST
Drouot, Adrien Institut FEMTO-ST
Escareño, Juan ENSIL-ENSCI @ University of Limoges

Safety Control with Preview Automaton, pp. 1557-1564.

Liu, Zexiang University of Michigan
Ozay, Necmiye University of Michigan

Advances in Nonlinear Filtering and Stochastic Control with Partial Information II (Invited Session)

Chair: Yuksel, Serdar Queen's University
Co-Chair: Mehta, Prashant G. University of Illinois, Urbana Champaign
Organizer: Mehta, Prashant G. University of Illinois, Urbana Champaign
Organizer: Yuksel, Serdar Queen's University


Kim, Jin Won University of Illinois, Urbana Champaign
Mehta, Prashant G. University of Illinois, Urbana Champaign
Meyn, Sean P. University of Florida

Belief Estimation by Agents in Major Minor LQG Mean Field Games (I), pp. 1615-1622.

Firoozi, Dena McGill University
Caines, Peter E. McGill University


McDonald, Curtis, James Queen's University
Yuksel, Serdar Queen's University


Subramanian, Jayakumar McGill University
Mahajan, Aditya McGill University

Feedback Particle Filter with Correlated Noises, pp. 1637-1643.

Luo, Xue Beihang University
Boven University

Control Systems

On Integral Input-To-State Stability of Event-Triggered Interconnected Systems

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WeB20

Event-Triggered Control Based on Lyapunov Methods (Invited Session)

Chair: Noroozi, Navid
Otto Von Guericke Universitat Magdeburg

Co-Chair: Heemels, W.P.M.H.
Eindhoven University of Technology

Organizer: Heemels, W.P.M.H.
Eindhoven University of Technology

Organizer: Hirche, Sandra
Technische Universität München

Organizer: Johansson, Karl H.
KTH Royal Institute of Technology

14:00-14:20


Wang, Wei
University of Melbourne

Nesic, Dragan
University of Melbourne

Postoyan, Romain
CNRS, CRAN, Université de Lorraine

Shames, Iman
University of Melbourne

Heemels, W.P.M.H.
Eindhoven University of Technology

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Periodic Event-Triggered Control with a Relaxed Triggering Condition (I), pp. 1656-1661.

Szymanek, Aleksandra
Delft University of Technology

de Albuquerque Gleizer, Gabriel
Delft University of Technology

Mazo Jr., Manuel
Delft University of Technology

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Inter-Event Times Analysis for Planar Linear Event-Triggered Controlled Systems (I), pp. 1662-1667.

Postoyan, Romain
CNRS, CRAN, Université de Lorraine

Sanfelice, Ricardo G.
University of California, Santa Cruz

Heemels, W.P.M.H.
Eindhoven University of Technology

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Theodosis, Dionyssios
KTH Royal Institute of Technology

Dimarogonas, Dinos V.
KTH Royal Institute of Technology

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Mousavi, Seyed Hossein
Ryerson University

Noroozi, Navid
Otto Von Guericke Universitat Magdeburg

Geiselhart, Roman
University of Ulm

Koegel, Markus
Otto Von Guericke Universitat Magdeburg

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Tadic, Vladislav
University of Bristol

Doucet, Arnaud
University of Oxford

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A Continuous Threshold Model of Cascade Dynamics, pp. 1704-1709.

Zhong, Yaofeng Desmond
Princeton University

Leonard, Naomi Ehrich
Princeton University

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Plausible Deniability As a Notion of Privacy, pp. 1710-1715.

Monshizadeh, Nima
University of Groningen

Tabuada, Paolo
University of California, Los Angeles

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Lo Iudice, Francesco
University of Napoli Federico II

Sorrentino, Francesco
University of New Mexico

Garofalo, Franco
University of Napoli

Pisano, Alessandro University of Cagliari
Kapetina, Mirna N. University of Novi Sad
Rapaić, Milan R. University of Novi Sad
Usai, Elio University of Cagliari


Mannegård, Mikael Åbo Akademi University
Toivonen, Hannu T. Åbo Akademi University


Khosravi, Mohammad ETH Zurich, Automatic Control Lab
Smith, Roy S. ETH Zurich

Efficient Identification of Linear Evolutions in Nonlinear Vector Fields: Koopman Invariant Subspaces, pp. 1746-1751.

Haseli, Masih University of California, San Diego
Cortes, Jorge University of California, San Diego

Persistent Excitation Condition for MIMO Volterra System Identification with Gaussian Distributed Input Signals, pp. 1752-1757.

Hu, Yangsheng University of California, San Diego
Tan, Li University of California, San Diego
de Callafon, Raymond A. University of California, San Diego

Co-Chair: Moller, Matthias A.
Organizer: Schoellig, Angela P

EEC 24 Learning II (Regular Session)

Chair: Tabuada, Paulo University of California, Los Angeles
Co-Chair: Pasqualetti, Fabio University of California, Riverside


Bajcay, Andrea University of California, Berkeley
Bansal, Somil University of California, Berkeley
Bronstein, Eli University of California, Berkeley
Tolani, Varun University of California, Berkeley

Organizer: Muller, Matthias A.

A Dynamical Biomolecular Neural Network, pp. 1797-1802.

Moorman, Andrew Massachusetts Institute of Technology
Cuba Samaniego, Christian University of California, Riverside
Maley, Carlo Arizona State University
Weiss, Ron MIT

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Tabuada, Paulo University of California, Los Angeles
Fraile, Lucas University of California, Los Angeles

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Processes, pp. 1809-1815.
Dokoupil, Jakub CEITEC, Brno University of Technology
Vaclavek, Pavel Brno University of Technology
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Incroci, Alessandro University of Pavia
De Nicolao, Giuseppe University of Pavia
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Ding, Dongsheng University of Southern California
Wei, Xiaohan University of Southern California
Jovanovic, Mihailo R. University of Southern California
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Al Makdah, Abed AlRahman University of California Riverside
Katewa, Vaibhav University of California Riverside
Pasqualetti, Fabio University of California, Riverside

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Chair: Tron, Roberto Boston University
Co-Chair: Poovendran, Radha University of Washington
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Danilidis, Kostas University of Pennsylvania
Tron, Roberto Boston University
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Ramasubramanian, Bhaskar University of Washington
Clark, Andrew Worcester Polytechnic Institute
Hajishirzi, Hannaneh University of Washington
Bushnell, Linda University of Washington
Poovendran, Radha University of Washington
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Wood, Tony A. University of Melbourne
Manzie, Chris University of Melbourne
Shames, Iman University of Melbourne
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Ishii, Hideaki Tokyo Institute of Technology
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Li, Shuai Peking University
Xia, Weiguo Dalian University of Technology
Sun, Jining Peking University
Xie, Guangming Peking University
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Mo, Yuanqiu University of Iowa
Dasgupta, Soura University of Iowa
Beal, Jacob Raytheon BBN Technologies

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Chair: Giordano, Giulia Delft University of Technology
Co-Chair: Singh, Abhyudai University of Delaware
Organizer: Giordano, Giulia Delft University of Technology
Organizer: Singh, Abhyudai University of Delaware
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Hori, Yutaka Keio University
Miyazaka, Hiroki University of Tokyo
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Compensating for Sensor Error in the Model Predictive Control of Circadian Clock Phase, pp. 1881-1886.
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Klerman, Elizabeth B. Harvard Medical School, Brigham and Women's Hospital
Doyle III, Francis J. Harvard University
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Medvedev, Alexander V. Uppsala University
Zhusubalyev, Zhanbai South West State University (Kursk State Technical University)
Proskurnikov, Anton V. Politecnico Di Torino
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Yin, Jiawei Rensselaer Polytechnic Institute
Julius, Agung Rensselaer Polytechnic Institute
Wen, John T. Rensselaer Polytechnic Institute
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<td>Georgia Institute of Technology, Van Schuppen Control Research Lab.</td>
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<td>Xidian University, Xidian University, Xidian University, Saarland University</td>
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Guerrini, Thomas California Institute of Technology
Mote, Mark California Institute of Technology
Singletary, Andrew Georgia Institute of Technology
Feron, Eric Georgia Institute of Technology
Ames, Aaron D. California Institute of Technology

Compositional Synthesis of Decentralized Robust Set-Invariance Controllers for Large-Scale Linear Systems, pp. 2054-2059.
Ghasemi, Kasra Boston University
Sadra, Sadra Massachusetts Institute of Technology
Belta, Calin Boston University

From Obstacle-Based Space Partitioning to Corridors and Path Planning, a Convex Lifting Approach, pp. 2060-2065.
Ioan, Daniel L2S-University Paris-Sud-CentraleSupelec-CNRS, Université Paris Saclay
Olaru, Sorin CentraleSupélec - INRIA Saclay
Prodan, Ionela Grenoble Institute of Technology (Grenoble INP) - Eisaar
Stoican, Florin UPB (Politehnica University of Bucharest)
Niculescu, Silviu-lulian CNRS-Supelec

Control of Networks II (Regular Session)
Chair: Baggio, Giacomo University of California, Riverside
Co-Chair: Astolfi, Daniele Université Claude Bernard Lyon 1

Optimizing Average Controllability of Networked Systems, pp. 2066-2071.
Srihagakollapu, Manikya Valli Indian Institute of Technology, Madras
Kalaimani, Rachel Kalpana Indian Institute of Technology, Madras
Pasumarthi, Ramkrishna Indian Institute of Technology, Madras

Data-Driven Minimum-Energy Controls for Linear Systems, pp. 2072-2077.
Baggio, Giacomo University of California, Riverside
Katewa, Vaibhav University of California, Riverside
Pasqualetti, Fabio University of California, Riverside

Synchronization in Networks of Identical Nonlinear Systems Via Dynamic Dead Zones, pp. 2078-2083.
Casadei, Giacomo Ecole Centrale Lyon
Astolfi, Daniele Université Claude Bernard Lyon 1
Alessandri, Angelo University of Genova
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<td>National Technical University of Athens</td>
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<tr>
<td>Papadopoulos, Evangelos</td>
<td>National Technical University of Athens</td>
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### WeC09
**Game Theory I (Regular Session)**

Chair: Dong, Roy  
University of Illinois, Urbana-Champaign  
Co-Chair: Brown, Philip N.  
University of Colorado, Colorado Springs

Brown, Philip N.  
University of Colorado, Colorado Springs

16:30-16:50  
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**Constrained Mean-Field-Type Games: Stationary Case**, pp. 2181-2187.  
Li, Sisi  
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Li, Nan  
University of Michigan  
Girard, Anouck  
University of Michigan  
Kolmanovsky, Ilya V.  
University of Michigan

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WeC09.2

Huang, Qisheng  
Singapore University of Technology and Design  
Xu, Yunjian  
Chinese University of Hong Kong  
Courcoubetis, Costas  
Singapore University of Technology and Design

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University of Illinois, Urbana-Champaign  
Dong, Roy  
University of Illinois, Urbana-Champaign  
Langbort, Cedric  
University of Illinois, Urbana-Champaign  
Basar, Tamer  
University of Illinois, Urbana-Champaign

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**Sensor-Reveal Games**, pp. 2194-2200.  
Hespanha, Joao P.  
University of California, Santa Barbara  
Garagic, Denis  
BAE Systems FAST Labs

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WeC09.5

**Constrained Mean-Field-Type Games: Stationary Case**, pp. 2208-2213.  
Barreiro-Gomez, Julian  
New York University, Abu Dhabi (NYUAD)  
Tembine, Hamidou  
NYU

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**New Mobility Systems (Invited Session)**

Chair: Cassandras, Christos G.  
Boston University  
Co-Chair: Su, Rong  
Nanyang Technological University  
Organizer: Cassandras, Christos G.

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**Markov Processes II (Regular Session)**

Chair: He, Xingkang  
KTH Royal Institute of Technology  
Co-Chair: Carè, Algo  
University of Brescia

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Ornik, Melkior
Ratliff, Lillian J.
Topcu, Ufuk

Caré, Algo
Csájí, Balázs
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Meggendorfer, Tobias
Kretinsky, Jan

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Chair: Chambrion, Thomas
Co-Chair: Ticozzi, Francesco
Organizer: Chambrion, Thomas

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Co-Chair: Houska, Boris

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Jones, Colin N. EPFL
Houska, Boris ShanghaiTech University

Ojaghi, Pegah University of California, Santa Cruz
Altin, Berk University of California, Santa Cruz
Sanfelice, Ricardo G. University of California, Santa Cruz

Malyuta, Danylo University of Washington
Acikmese, Behcet University of Washington

Lyapunov Methods III (Regular Session)
Chair: Wsniewski, Rafal Aalborg University
Co-Chair: Hendrickx, Julien M. Université Catholique de Louvain

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Karabacak, Ozkan Aalborg University
Wisniewski, Rafal Aalborg University

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Cortes, Jorge University of California, San Diego

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Donaire, Alejandro University of Newcastle
Middleton, Richard University of Newcastle

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Gerencsér, Balázs Alfred Rényi Institute of Mathematics
Fidan, Baris University of Waterloo

Gruene, Lars University of Bayreuth
Höger, Matthias Siemens AG

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Peet, Matthew M. Arizona State University

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Co-Chair: Chittaro, Francesca Université de Toulon
Organizer: Chittaro, Francesca Université de Toulon
Organizer: Frankowska, Helene CNRS and Sorbonne University, Campus Pierre Et Marie Curie
Organizer: Poggiolini, Laura University of Firenze

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de Pinho, Maria Do Rosario Universidade do Porto, Fac. Engenharia

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Pighin, Dario Universidad Autonoma de Madrid
Zuazua, Enrique DeustoTech, Universidad de Deusto

Özgarpucu, Mehmet Can German Aerospace Center, DLR

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Murray, Ryan Pennsylvania State University
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| Co-Chair: Ishizaki, Takayuki | Tokyo Institute of Technology |

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- Thapliyal, Omanshu Purdue University
- P. Vinod, Abraham University of Texas, Austin
- Oishi, Meeko University of New Mexico
- Hwang, Inseok Purdue University

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- Zhang, Yan Duke University
- Ravier, Robert Duke University
- Zavlanos, Michael M. Duke University
- Tarokh, Vahid Duke University

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- Ravier, Robert Duke University
- Calderbank, A. R. Duke University
- Tarokh, Vahid Duke University

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- Koike, Masakazu Tokyo University of Marine Science and Technology
- Ishizaki, Takayuki Tokyo Institute of Technology
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- Imura, Jun-ichi Tokyo Institute of Technology

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- Khaledyan, Milad University of New Mexico
- Puthuvana Vinod, Abraham University of Texas, Austin
- Oishi, Meeko University of New Mexico
- Richards, John A. Sandia National Laboratories

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- Ebrahimi, Keivan Iowa State University
- Elia, Nicola University of Minnesota
- Vaidya, Umesh Iowa State University

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### WeC17
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| Chair: Kader, Zohra | L2S, CentraleSupelec, Paris |
| Co-Chair: Raïssi, Tarek | Conservatoire National Des Arts Et Métiers |

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- Zammani, Chaima Conservatoire National Des Arts Et Métiers (CNAM), Cedric Lab
- Van Gorp, Jeremy CNAM
- Pang, Xubin Xidian University
- Raïssi, Tarek Conservatoire National Des Arts Et Métiers

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- Kader, Zohra L2S, CentraleSupelec, Paris
- Girard, Antoine CNRS

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**Free-Matrices Min-Projection Control for High Frequency DC-DC Converters**, pp. 2491-2496.

- Seriye, Mathias LAAS-CNRS
- Albea Sanchez, Carolina LAAS CNRS; University de Toulouse 3
- Seuret, Alexandre CNRS

17:30-17:50 WeC17.4

**Switching Signal Estimation Based on Interval Observer for a Class of Switched Linear Systems**, pp. 2497-2502.

- Zammani, Chaima Conservatoire National Des Arts Et Métiers (CNAM), Cedric Lab
- VAN GORP, Xubin CNAM
- Ping, Xubin Xidian University
- Raïssi, Tarek Conservatoire National Des Arts Et Métiers

17:50-18:10 WeC17.5


- Davoudi, Ramtin Tarbiat Modares University
- Hosseini, S. Mohammad Tarbiat Modares University
- Ramezani, Amin Tarbiat Modares University

18:10-18:30 WeC17.6


- Wu, Bo University of Texas, Austin
- Cubuktepe, Murat University of Texas, Austin
- Topcu, Ufuk University of Texas, Austin

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### WeC18
#### Observers for Nonlinear Systems III (Regular Session)

| Chair: Verriest, Erik I. | Georgia Institute of Technology |
| Co-Chair: Millerioux, Gilles | Lorraine University |

16:30-16:50 WeC18.1


- Wang, Miaomiao Western University
- Tayebi, Abdelhamid Lakehead University

16:50-17:10 WeC18.2

**Detecting Limit Cycles in Dimension Two**, pp. 2522-2527.

- Verriest, Erik I. Georgia Institute of Technology
- Murali, Vishal Georgia Institute of Technology

17:10-17:30 WeC18.3

**Contact Force Observer for Space Robots**, pp. 2528-2535.
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<td>Surrogate Problems for Tractable Excitation Management in Stochastic MPC, pp.2562-2567.</td>
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<td>Estimating the Probability of Safe Landing for Aircrafts, pp. 2568-2573.</td>
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<td>Compositional Verification of Large-Scale Stochastic Systems Via Relaxed Small-Gain Conditions, pp. 2574-2579.</td>
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<td>Event-Triggered Consensus for Multi-Agent Systems with Guaranteed Robust Positive Minimum Inter-Event Times (I), pp. 2604-2609.</td>
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<td>University of California, Berkeley</td>
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Borrelli, Francesco  University of California, Berkeley

17:10-17:30  WeC23.3
Grashoff, Jan  Universitäts Lübeck
Maennel, Georg  Universitäts Lübeck
Abbas, Hossam  University of Lübeck
Rostalski, Philipp  University of Luebeck

17:30-17:50  WeC23.4
Performance-Oriented Model Learning for Data-Driven MPC Design, pp. 2714-2719.
Piga, Dario  University of Applied Sciences and Arts of Southern Switzerland
Prowler.io
Fogione, Marco  SUPSI
Formentin, Simone  Politecnico di Milano
Bemporad, Alberto  IMT Institute for Advanced Studies

17:50-18:10  WeC23.5
Model Predictive Control Design for Dynamical Systems Learned by Echo State Networks, pp. 2720-2725.
Bugliari Armenio, Luca  Politecnico di Milano
Terzi, Enrico  Politecnico di Milano
Farina, Marcello  Politecnico di Milano
Scattolini, Riccardo  Politecnico di Milano

18:10-18:30  WeC23.6
Probabilistic Verification and Reachability Analysis of Neural Networks Via Semidefinite Programming (I), pp. 2726-2731.
Fazlyab, Mahyar  University of Pennsylvania
Morari, Manfred  University of Pennsylvania
Pappas, George J.  University of Pennsylvania

WeC24  Hermès
Learning III (Regular Session)
Chair: Preciado, Victor M.  University of Pennsylvania
Co-Chair: Mehta, Prashant G.  University of Illinois, Urbana Champaign

16:30-16:50  WeC24.1
Data-Driven Stabilization of Nonlinear Systems Via Tree-Based Ensemble Learning, pp. 2732-2737.
Aydogluglu, Alp  University of Pennsylvania
Becker, Cassiano  University of Pennsylvania
Preciado, Victor M.  University of Pennsylvania

16:50-17:10  WeC24.2
Decision Variance in Risk-Averse Online Learning, pp. 2738-2744.
Vakil, Sattar  Prowler.io
Boukouvalas, Alexis  Prowler.io
Zhao, Qiong  Cornell University

17:10-17:30  WeC24.3
Distributed Online Learning Over Time-Varying Graphs Via Proximal Gradient Descent, pp. 2745-2751.
Dixit, Rishabh  Rutgers University
Bedi, Amrit S.  Indian Institute of Technology Kanpur
Rajawat, Ketan  Indian Institute of Technology Kanpur
Koppel, Alec  U.S. Army Research Laboratory

17:30-17:50  WeC24.4
Nonlinear Reduced Order Source Identification under Uncertainty, pp. 2752-2757.
Khodayi-mehr, Reza  Duke University
Zavlanos, Michael M.  Duke University

17:50-18:10  WeC24.5
Q-Learning for POMDP: An Application to Learning Locomotion Gaits, pp. 2758-2763.
Wang, Tixian  University of Illinois, Urbana Champaign
Taghvaei, Amirhossein  University of Illinois, Urbana Champaign
Mehta, Prashant G.  University of Illinois, Urbana Champaign

18:10-18:30  WeC24.6
Kamanchi, Chandramouli  Indian Institute of Science, Bangalore
Diddigi, Raghuram Bharadwaj  Indian Institute of Science, Bangalore
K.J., Prabuchandran  Indian Institute of Science, Bangalore
Bhatnagar, Shalabh  Indian Institute of Science, Bangalore

WeC25  Athéna
Multi-Agent Systems III (Regular Session)
Chair: Karimoddini, Ali  North Carolina A&T State University
Co-Chair: Sakurama, Kazunori  Kyoto University

16:30-16:50  WeC25.1
On-The-Fly Decentralized Tasking of Autonomous Vehicles, pp. 2770-2775.
Tadewos, Tadewos Getahun  North Carolina A&T State University
Shamgha, Laya  North Carolina A&T State University
Karimoddini, Ali  North Carolina A&T State University

16:50-17:10  WeC25.2
Tadewos, Tadewos Getahun  North Carolina A&T State University
Shamgha, Laya  North Carolina A&T State University
Karimoddini, Ali  North Carolina A&T State University
17:10-17:30 WeC25.3
Formation-Oriented Motion Coordination of Multi-Agent Systems Over Relative Measurements, pp. 2782-2787.
Sakurama, Kazunori Kyoto University

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Phan, Tung, M California Institute of Technology
Cai, Karena Ms
Murray, Richard M. California Institute of Technology

17:50-18:10 WeC25.5
Asynchronous Decision-Making Dynamics under Imitation Update Rule in Heterogeneous Populations, pp. 2796-2801.
Fu, Yiheng University of Alberta
Ramazi, Pouria University of Alberta

18:10-18:30 WeC25.6
Hespanhol, Pedro University of California, Berkeley
Aswani, Anil University of California, Berkeley
### ThSP1

**Distributed Machine Learning Over Networks** (Semiplenary Session)

Chair: Sepulchre, Rodolphe  
University of Cambridge

08:30-09:30  
ThSP1.1  
Distributed Machine Learning Over Networks*

- Bach, Francis  
INRIA - Ecole Normale Supérieure

#### ThSP2

**The Curse of Linearity and Time-Invariance** (Semiplenary Session)

Chair: Prieur, Christophe  
CNRS

08:30-09:30  
ThSP2.1  
The Curse of Linearity and Time-Invariance*

- Astolfi, Alessandro  
Imperial College & University of Rome

### ThA01

**Control Methods for Biology and Bioprocesses** (Invited Session)

Chair: Giraldi, Laetitia  
INRIA Sophia-Antipolis  
Méditerranée

Co-Chair: Chaves, Madalena  
INRIA

Organizer: Chaves, Madalena  
INRIA

Organizer: Giraldi, Laetitia  
INRIA Sophia-Antipolis  
Méditerranée

10:00-10:20  
ThA01.1  
An Antithetic Integral Rein Controller for Bio-Molecular Networks (I), pp. 2808-2813.

- Gupta, Ankit  
ETH Zürich

- Khammash, Mustafa H.  
ETH Zurich

10:20-10:40  
ThA01.2  
A Hybrid Control against Species Invasion in the Chemostat (I), pp. 2814-2819.

- Tani, Fatima Zahra  
Université de Montpellier

- Rapaport, Alain  
U. Montpellier, INRA, Montpellier SupAgro

- Bayen, Térence  
Université de Montpellier

10:40-11:00  
ThA01.3  
Some Remarks on Robust Gene Regulation in a Biomolecular Integral Controller (I), pp. 2820-2825.

- Agrawal, Deepak Kumar  
Northeastern University

- Marshal, Ryan  
University of Minnesota

- Ali-Al-Radhawi, Muhammad  
Massachusetts Institute of Technology

- Noireaux, Vincent  
University of Minnesota

- Sontag, Eduardo  
Northeastern University

11:00-11:20  
ThA01.4  
Coupling and Synchronization of Piecewise Linear Genetic Regulatory Systems (I), pp. 2826-2831.

- Chaves, Madalena  
INRIA

- Scardovi, Luca  
University of Toronto

- Firrpi, Eleni  
INRIA

11:20-11:40  
ThA01.5  
Proportional and Derivative Controllers for Buffering Noisy Gene Expression, pp. 2832-2837.

### ThA02

**Linear Matrix Inequalities** (Regular Session)

Chair: Ravazzi, Chiara  
National Research Council of Italy (CNR)

Co-Chair: Kojima, Akira  
Tokyo Metropolitan University

10:00-10:20  
ThA02.1  

- Krokavec, Dusan  
Technical University of Kosice, Slovakia

- Filasova, Anna  
Technical University of Kosice, Slovakia

10:20-10:40  
ThA02.2  
A Calculation Method of Parameter-Dependent LMIs on Bernstein Polynomial Basis: Polytopic Representation Case, pp. 2850-2857.

- Kojima, Akira  
Tokyo Metropolitan University

10:40-11:00  
ThA02.3  

- Park, Chaneun  
Postech

- Park, In Seok  
Postech

- Park, PooGyeon  
Pohang University of Sci. & Technology

11:00-11:20  
ThA02.4  
Robust Data-Driven Neuro-Adaptive Observers with Lipschitz Activation Functions, pp. 2862-2867.

- Chakrabarty, Ankush  
Mitsubishi Electric Research Laboratories (MERL)

- Zemouche, Ali  
CRAN UMR CNRS 7039 & INRIA: EPI - DISCO

- Rajamani, Rajesh  
University of Minnesota

- Benosman, Mouhacine  
Mitsubishi Electric Research Laboratories

11:20-11:40  
ThA02.5  

- Ferrante, Francesco  
GIPSA-Lab and Université Grenoble Alpes

- Dabbene, Fabrizio  
CNR-IEIIT

- Ravazzi, Chiara  
National Research Council of Italy (CNR)

11:40-12:00  
ThA02.6  

- Ichalal, Dalil  
Université d'Evry Val d'Essonne, IBISC Lab

- Mammar, Said  
Université d'Evry IBISC

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| Co-Chair: Chaves, Madalena | INRIA |
| Organizer: Chaves, Madalena | INRIA |
| Organizer: Giraldi, Laetitia | INRIA Sophia-Antipolis  
Méditerranée |
| 10:00-10:20 | ThA01.1 |
| An Antithetic Integral Rein Controller for Bio-Molecular Networks (I), pp. 2808-2813. | |
| Gupta, Ankit | ETH Zürich |
| Khammash, Mustafa H. | ETH Zurich |
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| A Hybrid Control against Species Invasion in the Chemostat (I), pp. 2814-2819. | |
| Tani, Fatima Zahra | Université de Montpellier |
| Rapaport, Alain | U. Montpellier, INRA, Montpellier SupAgro |
| Bayen, Térence | Université de Montpellier |
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| Some Remarks on Robust Gene Regulation in a Biomolecular Integral Controller (I), pp. 2820-2825. | |
| Agrawal, Deepak Kumar | Northeastern University |
| Marshal, Ryan | University of Minnesota |
| Ali-Al-Radhawi, Muhammad | Massachsetts Institute of Technology |
| Noireaux, Vincent | University of Minnesota |
| Sontag, Eduardo | Northeastern University |
| 11:00-11:20 | ThA01.4 |
| Coupling and Synchronization of Piecewise Linear Genetic Regulatory Systems (I), pp. 2826-2831. | |
| Chaves, Madalena | INRIA |
| Scardovi, Luca | University of Toronto |
| Firrpi, Eleni | INRIA |
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| Proportional and Derivative Controllers for Buffering Noisy Gene Expression, pp. 2832-2837. | |


**ThA03**

Adaptive Control IV (Regular Session)

Chair: Bai, He
Co-Chair: Padhi, Radhakant

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Cooperative Manipulation of an Unknown Payload with Concurrent Mass and Drag Force Estimation, pp. 2880-2885.
Thapa, Sandesh
Self, Ryan
Kamalapurkar, Rushikesh
Bai, He

10:20-10:40 ThA03.2
Output-Constrained Robust Adaptive Control for Uncertain Nonlinear MIMO Systems with Unknown Control Directions, pp. 2886-2891.
Sachan, Kapil
Padhi, Radhakant

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Andersen, Tom Sian
Kristiansen, Raymond

11:00-11:20 ThA03.4
Gradient Based Pre-Filter Design for Data-Driven Parameter Updating for Regulatory Controller Based on Variance Evaluation, pp. 2898-2903.
Okada, Shogo
Yokoyama, Tsukasa
Masuda, Shiro

11:20-11:40 ThA03.5
Solo, Victor
Pasha, Syed Ahmed

11:40-12:00 ThA03.6
Initial Excitation Based Adaptive Observer with Multiple Switching, pp. 2910-2915.
Katiyar, Atul
Basu Roy, Sayan
Bhasin, Shubhendu

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**ThA04**

Fault Detection and Diagnosis (Regular Session)

Chair: Torres, Lizeth
Co-Chair: Besancon, Gildas

10:00-10:20 ThA04.1
Zhang, Jian

10:20-10:40 ThA04.2
Namvar, Mehrzad
Karami, Sasan

10:40-11:00 ThA04.3
Minimizing Side-Channel Attack Vulnerability Via Schedule Randomization, pp. 2928-2933.
Vreman, Nils
Pates, Richard
Krueger, Kristin
Fohler, Gerhard
Maggio, Martina

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Fault Isolation Based on Online Sparse Optimization of Streaming Faulty Data, pp. 2934-2939.
Li, Wenqing
Wang, Yue
Jabari, Saif Eddin

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Invariant-Set Based Minimal Detectable Fault Computation of Discrete-Time LPV Systems with Bounded Uncertainties, pp. 2940-2945.
Tan, Junbo
Olaru, Sorin
Roman, Monica
Xu, Feng

11:40-12:00 ThA04.6
Torres Ortiz, Flor Lizeth
Besancon, Gildas

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**ThA05**

Building Automation (Regular Session)

Chair: Rostampour, Vahab
Co-Chair: Jain, Tushar

10:00-10:20 ThA05.1
G. Ordonez, Joaquin

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<td>University of Science and Technology Beijing; University of Science and Technology Beijing; University of Science and Technology Beijing; University of Science and Technology Beijing</td>
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<td>Buildings-To-Grid Integration with High Wind Power Penetration</td>
<td>Rostampour, Vahab; Badings, Thom S.; Scherpen, Jacquelen M.A.</td>
<td>University of Groningen</td>
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<td>10:20-10:40</td>
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<td>Poveda, Jorge I.; Vamvoudakis, Kyriakos G.</td>
<td>University of Colorado, Boulder; Georgia Institute of Technology</td>
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<td>Bin, Michelangelo; Notarnicola, Ivano; Marconi, Lorenzo; Notarstefano, Giuseppe</td>
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<td>Poveda, Jorge I.; Li, Na</td>
<td>University of Colorado, Boulder; Harvard University</td>
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<td>Rensselaer Polytechnic Institute; Rensselaer Polytechnic Institute</td>
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<td>University of Cambridge; University of Cambridge</td>
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<td>Princeton University; Carnegie Mellon University; Princeton University; Carnegie Mellon University</td>
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<td>Chair: Solo, Victor; Co-Chair: Xin, Xin</td>
<td>University of New South Wales; Okayama Prefectural University</td>
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<td>Lin, Jianping; Divekar, Nikhil; Lv, Ge; Gregg, Robert D.</td>
<td>University of Texas, Dallas; University of Texas, Dallas; Carnegie Mellon University; University of Michigan</td>
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<td>Poveda, Jorge I.</td>
<td>University of Colorado, Boulder</td>
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**ThA07** - Mediterranean A1

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Westenbroek, Tyler University of California, Berkeley
Xiong, Xiaobin California Institute of Technology
Ames, Aaron D. California Institute of Technology
Sastry, Shankar University of California, Berkeley

11:20-11:40 ThA07.5
Linear Controllability and Observability of N-Link Underactuated Planar Revolute Robot Moving in Constantly Rotating Frame in Horizontal Plane, pp. 3054-3059.
Xin, Xin Okayama Prefectural University
Izumi, Shin-saku Okayama Prefectural University
Yamasaki, Taiga Okayama Prefectural University
Lin, Wei Case Western Reserve University

11:40-12:00 ThA07.6
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Farokhi, Farhad University of Melbourne and CSIRO
Egerstedt, Magnus Georgia Institute of Technology

ThA08 Méditerranée 3
Estimation and Control of PDE Systems IV (Invited Session)
Chair: Fahroo, Fariba AFOSR
Co-Chair: Demetriou, Michael Wormer Polytechnic Institute A.
Organizer: Demetriou, Michael Wormer Polytechnic Institute A.
Organizer: Fahroo, Fariba AFOSR
Organizer: Le Gorrec, Yann Ensmm, Femto-St / As2m

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Benabdellahi, Abdeljalil Université Ibn Tofail, Kénitra
Giri, Fouad University of Caen Normandie
Ahmed-Al, Tarek ENISCAEN
Krstic, Miroslav University of California, San Diego
El Fadil, Hassan Ibn Tofail University, Kénitra
Chaoui, F.Z. ENSET

10:20-10:40 ThA09.2
Direct Adaptive Control of Non-Minimum Phase Linear Infinite-Dimensional Systems in Hilbert Space Using a Zero Dynamics Estimator (I), pp. 3072-3079.
Balas, Mark Embry-Riddle Aeronautical University
Frost, Susan NASA Ames Research Center

10:40-11:00 ThA09.3
ISS Synthesis of Parabolic Systems with Uncertain Parameters Using In-Domain Sensing and Actuation (I), pp. 3080-3085.
Orlov, Yuriy CICESE
Autrique, Laurent ISTIA - University of Angers
Perez, Laetitia University of Nantes IUT

11:00-11:20 ThA09.4
Observer Design for a Coupled ODE-PDE System from a Wellbore Reservoir Drilling Model (I), pp. 3086-3091.
Camacho-Solorio, Leobardo University of California, San Diego

11:20-11:40 ThA09.5
Control Law Realification for the Feedback Stabilization of a Class of Diagonal Infinite-Dimensional Systems with Delay Boundary Control, pp. 3092-3097.
Lhachemi, Hugo University College Dublin
Shorten, Robert University College Dublin
Prieur, Christophe CNRS

11:40-12:00 ThA09.6
Hu, Weiwei University of Georgia
Boardman, Nicki Oklahoma State University
Mishra, Rohit Oklahoma State University

ThA09 Game Theory II (Regular Session)
Chair: Hayakawa, Tomohisa Tokyo Institute of Technology
Co-Chair: Hohmann, Soeren Karlsruhe Institute of Technology

10:00-10:20 ThA09.1
Learning Nash Equilibria in Monotone Games, pp. 3104-3109.
Tatarenko, Tatiana TU Darmstadt
Kamgarpour, Maryam ETH Zurich

10:20-10:40 ThA09.2
Valibegli, Amir University of California, San Diego
de Callafon, Raymond A. University of California, San Diego

10:40-11:00 ThA09.3
Social Welfare Improvement for Noncooperative Dynamical Systems with Tax/Subsidy Approach, pp. 3116-3121.
Yan, Yuyue Tokyo Institute of Technology
Hayakawa, Tomohisa Tokyo Institute of Technology

11:00-11:20 ThA09.4
Stability Analysis of Nash Equilibrium in Loss-Aversion-Based Noncooperative Dynamical Systems, pp. 3122-3127.
Yan, Yuyue Tokyo Institute of Technology
Hayakawa, Tomohisa Tokyo Institute of Technology
Thanomvajamun, Nutthanun Tokyo Institute of Technology

11:20-11:40 ThA09.5
Solution Sets for Inverse Non-Cooperative Linear-Quadratic Differential Games, pp. 3128-3133.
Inga, Jairo Karlsruhe Institute of Technology
Bischoff, Esther Karlsruhe Institute of Technology
Molloy, Timothy L. Queensland University of Technology
Flad, Michael Karlsruhe Institute of Technology
Hohmann, Soeren Karlsruhe Institute of Technology

11:40-12:00 ThA09.6
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Govaert, Alain Rijksuniversiteit Groningen
ThA10

Novel Approaches to Traffic Estimation and Control Using Automated Vehicles (Invited Session)

Chair: Stern, Raphael
Co-Chair: Delle Monache, Maria Laura
Organizer: Stern, Raphael
Organizer: Delle Monache, Maria Laura

10:00-10:20 ThA10.1

Piacentini, Giulia University of Pavia
Ferrara, Antonella University of Pavia
Papamichal, Ioannis Technical University of Crete
Papageorgiou, Markos Technical University of Crete

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Stop-And-Go Wave Dissipation Using Accumulated Controlled Moving Bottlenecks in Multi-Class CTM Framework (I), pp. 3146-3151.

Cicic, Mladen KTH Royal Institute of Technology
Johansson, Karl H. KTH Royal Institute of Technology

10:40-11:00 ThA10.3
Lagrangian Models for Controlling Large-Scale Heterogeneous Traffic (I), pp. 3152-3157.

Molnar, Tamas Gabor University of Michigan
upadhyay, devesh Ford
Hopka, Mike Ford Motor Company
van Nieuwstadt, Michiel J. Ford Research and Innovation Center
Orosz, Gabor University of Michigan

11:00-11:20 ThA10.4
Conditions for Improving the Computational Efficiency of Decentralized Optimal Merging Controllers for Connected and Automated Vehicles, pp. 3158-3163.

Xiao, Wei Boston University
Cassandras, Christos G. Boston University

11:20-11:40 ThA10.5
Sample Average Approximation of CVaR-Based Wardrop Equilibrium in Routing under Uncertain Costs, pp. 3164-3169.

Cherukuri, Ashish University of Groningen

11:40-12:00 ThA10.6
Analysis of a Stochastic Model for Coordinated Platooning of Heavy-Duty Vehicles, pp. 3170-3175.

Xiong, Xi New York University
Xiao, Erdong New York University
Jin, Li New York University

ThA11

Estimation I (Regular Session)

Chair: Hjalmarsson, Häkan KTH Royal Institute of Technology

10:00-10:20 ThA11.1

Pfeffer, Martin Karlsruhe Institute of Technology
Krebs, Stefan Karlsruhe Institute of Technology
Hofmann, Felix Robert Bosch GmbH
Kupper, Martin Karlsruhe Institute of Technology
Hofmann, Soeren Karlsruhe Institute of Technology

10:20-10:40 ThA11.2

Rodrigues, Diogo KTH Royal Institute of Technology
Abdalmoaty, Mohamed KTH Royal Institute of Technology
Hjalmarsson, Häkan KTH Royal Institute of Technology

10:40-11:00 ThA11.3
Dynamic Set-Inversion Procedure to Design Interval-Based State Estimators for Discrete-Time LPV Systems, pp. 3190-3195.

Krebs, Stefan Institute of Control Systems, Karlsruhe Institute of Technology
Meslem, Nacim GIPSA-LAB, CNRS
Hofmann, Soeren Karlsruhe Institute of Technology

11:00-11:20 ThA11.4
Tuning-Free, Low Memory Robust Estimator to Mitigate GPS Spoofing Attacks, pp. 3196-3201.

Lee, Junhwan University of Texas, San Antonio
Taha, Ahmad University of Texas, San Antonio
Gatsis, Nikolaos University of Texas, San Antonio
Akopian, David University of Texas, San Antonio

11:20-11:40 ThA11.5

Zhang, wenhan School of Astronautics, Harbin Institute of Technology
Wang, Zhenhua Harbin Institute of Technology
Raiassi, Tarek Conservatoire National Des Arts Et Metiers
Shen, Yi Harbin Institute of Technology
Zhang, Fengdi Beijing Aerospace Automatic Control Institute
Xu, Min Beijing Aerospace Automatic Control Institute

11:40-12:00 ThA11.6
Proximity Moving Horizon Estimation for Linear Time-Varying Systems and a Bayesian Filtering View, pp. 3208-3213.

Gharbi, Meriem University of Stuttgart
Ebenbauer, Christian University of Stuttgart

ThA12

Research and Development on Control for Fusion Facilities (Invited Session)

Chair: Vu, Ngoc Minh Trang LCIS
Co-Chair: Nouailletas, Rémy Cea - Irfm
10:00-10:20 ThA13.1

Towards Robust and Scalable Power System State Estimation, pp. 3245-3252.

Jin, Ming
Molybog, Igor
Mohammadi Ghazi, Reza
Lavaei, Javad

University of California, Berkeley
University of California, Berkeley
University of California, Berkeley
University of California, Berkeley

10:20-10:40 ThA12.3

Model Predictive Control for Micro Grid Stabilisation in Case of Loss of Units, pp. 3266-3271.

Liu, Mingxi
Lestas, Ioannis

University of Utah
Université de La Réunion

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Kasis, Andreas
Lestas, Ioannis

University of Cambridge
University of Cambridge

11:20-11:40 ThA12.4

Integrated Robust Control of Individual Scalar Variables in Tokamaks (I), pp. 3233-3238.

Pajares, Andres
Schuster, Eugenio

Lehigh University
Lehigh University

11:40-12:00 ThA13.6

Frequency Regulation with Thermostatic Load Participation in Power Networks, pp. 3279-3284.

Kasis, Andrés
Lestas, Ioannis

University of Cambridge
University of Cambridge

11:00-11:10 ThA12.2


van Berkel, Matthijs
Oosterwegel, Gerard
Anthonissen, Martijn
Zwart, Hans
Vandersteen, Gerd G.

Dutch Institute for Fundamental Energy Research
Eindhoven University of Technology
Eindhoven University of Technology
University of Twente
Vrije University Brussels

11:10-11:30 ThA12.5

Nonlinear PDE-Based Control of the Electron Temperature in H-Mode Tokamak Plasmas (I), pp. 3227-3232.

Mameche, Hamza
Witrant, Emmanuel
Prieur, Christophe

University Grenoble Alpes
Université Grenoble Alpes
CNRS

11:30-11:50 ThA12.6

Guaranteeing Disturbance Rejection and Control Signal Continuity for the Saturated Super-Twisting Algorithm, pp. 3285-3290.

Seeber, Richard
Hom, Martin

Graz University of Technology
Graz University of Technology

10:40-11:00 ThA13.3

Transactive Control Approach to Trip Optimization in Electric Railways, pp. 3260-3265.

D’Achiardi, David
Pilo de la Fuente, Eduardo
Annaswamy, Anuradha M.

Massachusetts Institute of Technology
Universidad Francisco de Vitoria
Massachusetts Institute of Technology

11:00-11:20 ThA14

Lyaunov Methods IV (Regular Session)

Chair: Petersen, Ian R.
Co-Chair: Seeber, Richard

Australian National University
Graz University of Technology

10:00-10:20 ThA14.1

Guaranteeing Disturbance Rejection and Control Signal Continuity for the Saturated Super-Twisting Algorithm, pp. 3285-3290.

Seeber, Richard
Hom, Martin

Graz University of Technology
Graz University of Technology

10:40-11:00 ThA14.3

Filter-Based Feedback Control for a Class of Markovian Open Quantum Systems, pp. 3297-3302.

Liu, Yanan
Dong, Daoyi
Petersen, Ian R.

University of New South Wales
University of New South Wales
Australian National University

10:40-11:00 ThA13.2

Frequency Regulation Using Sparse Learned Controllers in Power Grids with Variable Inertia Due to Renewable Energy, pp. 3253-3259.

Hidalgo-Gonzalez, Patricia
Henriquez-Auba, Rodrigo
Callaway, Duncan S.
Tomlin, Claire J.

University of California, Berkeley
University of California, Berkeley
University of California, Berkeley
University of California, Berkeley

10:20-10:40 ThA14.2


Seeber, Richard
Hom, Martin

Graz University of Technology
Graz University of Technology

11:00-11:20 ThA13.5

Chance-Constrained SPDS-Based Decentralized Control of Distributed Energy Resources, pp. 3272-3278.

Liu, Mingxi

University of Utah

11:20-11:40 ThA12.7

Lyapunov Methods IV (Regular Session)

Chair: Petersen, Ian R.
Co-Chair: Seeber, Richard

Australian National University
Graz University of Technology

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Guaranteeing Disturbance Rejection and Control Signal Continuity for the Saturated Super-Twisting Algorithm, pp. 3285-3290.

Seeber, Richard
Hom, Martin

Graz University of Technology
Graz University of Technology

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Filter-Based Feedback Control for a Class of Markovian Open Quantum Systems, pp. 3297-3302.

Liu, Yanan
Dong, Daoyi
Petersen, Ian R.

University of New South Wales
University of New South Wales
Australian National University
On the Optimal Control of Volterra Integro-Differential Equations, pp. 3340-3345.


External Constraint Handling for Solving Optimal Control Problems with Simultaneous Approaches and Interior Point Methods, pp. 3352-3357.

Optimization IV (Regular Session)

Chair: Clark, Andrew
Co-Chair: Shames, Iman

11:40-11:50
ThA16.1

Online Optimisation Using Zeroth Order Oracles, pp. 3364-3369.

Optimal Control I (Regular Session)

Chair: Mareels, Ivan
Co-Chair: Kerrigan, Eric C.

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ThA15.4

Matroid-Constrained Approximately Supermodular Optimization for Near-Optimal Actuator Scheduling, pp. 3391-3398.


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On the Optimal Control of Volterra Integro-Differential Equations, pp. 3340-3345.


Optimal Control I (Regular Session)

Chair: Mareels, Ivan
Co-Chair: Kerrigan, Eric C.

10:40-11:00
ThA15.4

Matroid-Constrained Approximately Supermodular Optimization for Near-Optimal Actuator Scheduling, pp. 3391-3398.

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ThA16.6

On the Optimal Control of Volterra Integro-Differential Equations, pp. 3340-3345.


Optimal Control I (Regular Session)

Chair: Mareels, Ivan
Co-Chair: Kerrigan, Eric C.

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ThA15.4

Matroid-Constrained Approximately Supermodular Optimization for Near-Optimal Actuator Scheduling, pp. 3391-3398.
Switched Systems IV (Regular Session)

Chair: Jungers, Raphaël M. Co-Chair: Daafouz, Jamal
University of Louvain Université de Lorraine, CRAN, CNRS

10:00:10:20 ThA17.1

Polyhedral Path-Complete Lyapunov Functions, pp. 3399-3404.
Athanassopoulos, Nikolaos Queen's University Belfast
Jungers, Raphaël M. University of Louvain

10:20:10:40 ThA17.2

Granzotto, Mathieu CNRS, CRAN, Université de Lorraine
Postoyan, Romain CNRS, CRAN, Université de Lorraine
Busoniu, Lucian Technical University of Cluj-Napoca
Nesic, Dragan University of Melbourne
Daafouz, Jamal Université de Lorraine, CRAN, CNRS

10:40:11:00 ThA17.3

A Nonlinear Switched Control Strategy for Permanent Magnet Synchronous Machines, pp. 3411-3416.
Egidio, Lucas N. School of Mechanical Engineering, UNICAMP
Deaecto, Grace S. FEM/UNICAMP
Hespanha, Joao P. University of California, Santa Barbara
Geromel, Jose C. UNICAMP

11:00:11:20 ThA17.4

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Dai, Tianyu Northeastern University
Sznajer, Mario Northeastern University

11:20:11:40 ThA17.5

Innocenti, Giacomo University of Firenze
Di Marco, Mauro University of Siena
Tesi, Alberto University of Firenze
Forti, Mauro University of Siena

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Efficient Identification of Error-In-Variables Switched Systems Via a Sum-Of-Squares Polynomial Based Subspace Clustering Method, pp. 3429-3434.
Ozbay, Bengisu Northeastern University
Campos, Octavio I. Northeastern University
Sznajer, Mario Northeastern University

ThA18

Estimation and Observer Design in Nonlinear Systems (Invited Session)
Chair: Zemouche, Ali CRAN UMR CNRS 7039 & INRIA

10:00:10:20 ThA18

Ribeiro, Alejandro University of Pennsylvania

Brivadis, Lucas LAGEPP, Université Lyon 1
Andrieu, Vincent Université de Lyon
Serres, Ulysse Université Claude Bernard Lyon 1

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Observer Design for Nonlinear Systems with Sampled and Transformed Measurements (I), pp. 3441-3446.
González de Cossio, Francisco Université Claude Bernard Lyon 1
Nadri, Madiha Université Claude Bernard Lyon 1
Dufour, Pascal Université de Lyon, Université Claude Bernard Lyon 1, CNRS

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An I&I Observer-Based Controller with Guaranteed Stability for Vehicles with Roll Dynamics, pp. 3453-3458.
Cisneros, Rafael Instituto Tecnológico Autónomo de México
Romero, Jose Guadalupe Instituto Tecnológico Autónomo de México
Ley-Rosas, Juan José Cinvestav Gdl
Maghenem, Mohamed Adlene University of California Santa Cruz

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Unified Hinf Observer for a Class of Nonlinear Lipschitz Systems: Application to a Real ER Automotive Suspension, pp. 3459-3464.
PHAM, Thanh-Phong University Grenoble Alpes, CNRS, Grenoble INP
Senanayake, Olivier Grenoble INP / GIPSA-Lab
Dugard, Luc CNRS

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Ha, Wonseok Kwangwon University
Back, Juhoon Kwangwon University

ThA19

Stochastic Systems II (Regular Session)
Chair: Tsiotras, Panagiotis Georgia Institute of Technology
Co-Chair: Scarcioni, Giordano Imperial College London

10:00:10:20 ThA19.1

Efficient Identification of Error-In-Variables Switched Systems Via a Sum-Of-Squares Polynomial Based Subspace Clustering Method, pp. 3429-3434.
Ozbay, Bengisu Northeastern University
Campos, Octavio I. Northeastern University
Sznajer, Mario Northeastern University

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Prasdeski, Bary S. R. Centre National de La Recherche Scientifique, France

10:40-11:00 ThA19.3
Nonlinear Uncertainty Control with Iterative Covariance Steering, pp. 3484-3490.
Ridderhof, Jack Georgia Institute of Technology
Okamoto, Kauzhide Georgia Institute of Technology
Tsitos, Panagiotis Georgia Institute of Technology

11:00-11:20 ThA19.4
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Haddad, Wassim M. Georgia Institute of Technology
Jin, Xu University of Kentucky

11:20-11:40 ThA19.5
Input Hard Constrained Optimal Covariance Steering, pp. 3497-3502.
Okamoto, Kauzhide Georgia Institute of Technology
Tsitos, Panagiotis Georgia Institute of Technology

11:40-12:00 ThA19.6
Normal Form and Exact Feedback Linearisation of Nonlinear Stochastic Systems: The Ideal Case, pp. 3503-3508.
Mellone, Alberto Imperial College London
Scarditi, Giordano Imperial College London

10:20-10:40 ThA20.1
Tesi, Alessandro Technical University of Munich
Angeli, David Imperial College

10:40-11:00 ThA20.2
Voltage Regulation of a Power Distribution Network in a Radial Configuration with a Class of Sector-Bounded Droop Controllers, pp. 3515-3520.
Chong, Michelle S. KTH Royal Institute of Technology
Umsonst, David KTH Royal Institute of Technology
Sandberg, Henrik KTH Royal Institute of Technology

11:00-11:20 ThA20.3
Suttner, Raik University of Wuerzburg
Sun, Zhiyong Lund University

11:00-11:20 ThA20.4
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11:20-11:40 ThA20.5
Iterative Algorithms for Distributed Leader-Follower Model Predictive Control, pp. 3533-3539.
Ferraz, Henrique University of California, Santa Barbara
Hespanha, Joao P. University of California, Santa Barbara

11:40-12:00 ThA20.6
Hierarchical Model Decomposition for Distributed Design of Glocal Controllers, pp. 3540-3545.
Sasahara, Hampei KTH Royal Institute of Technology
Ishizaki, Takayuki Tokyo Institute of Technology
Imura, Jun-ichi Tokyo Institute of Technology
Sandberg, Henrik KTH Royal Institute of Technology
Johansson, Karl H. KTH Royal Institute of Technology
11:40-12:00 ThA21.6

Topology and Subsystem Parameter Based Verification for the Controllability/Observability of a Networked Dynamic System, pp. 3575-3580.
Zhou, Tong Tsinghua University, Beijing, 100084, CHINA

ThA22
Identification IV (Regular Session)
Chair: Sato, Kazuhiro Kitami Institute of Technology
Co-Chair: Weyer, Erik University of Melbourne

10:00-10:20 ThA22.1
Confidence Regions for Parameters of Errors-In-Variables Systems Using Sign Perturbed Sums, pp. 3581-3586.
Moravej Khorasani, Masoud University of Melbourne
Weyer, Erik University of Melbourne

10:20-10:40 ThA22.2
Granger Causality of Gaussian Signals from Quantized Measurements, pp. 3587-3592.
Ahmadi, Salman University of Melbourne, Australia
Nair, Girish N. University of Melbourne
Weyer, Erik University of Melbourne

10:40-11:00 ThA22.3
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Sato, Hiroyuki Kyoto University
Sato, Kazuhiro Kitami Institute of Technology

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Frequency Domain Maximum Likelihood Identification with Gaussian Input-Output Uncertainty, pp. 3599-3604.
Verbeke, Dieter Vrije Universiteit Brussel
Moravej Khorasani, Masoud University of Melbourne

11:20-11:40 ThA22.5
Nonlinearity Measures for Data-Driven System Analysis and Control, pp. 3605-3610.
Martin, Tim University of Stuttgart
Allgöwer, Frank University of Stuttgart

11:40-12:00 ThA22.6
Construction Methods of the Nearest Positive System, pp. 3611-3616.
Sato, Kazuhiro Kitami Institute of Technology
Takeda, Akiko University of Tokyo

ThA23
Machine Learning in Control, Theory and Applications I (Invited Session)
Chair: Gaudio, Joseph E. Massachusetts Institute of Technology
Co-Chair: Dibaji, Seyed Massachusetts Institute of Technology
Organizer: Gaudio, Joseph E. Massachusetts Institute of Technology
Organizer: Dibaji, Seyed Massachusetts Institute of Technology
Organizer: Gibson, Travis E. Harvard Medical School
Organizer: Annaswamy, Anuradha M. Massachusetts Institute of Technology

10:00-10:20 ThA23.1
Heterogeneous Formation Control of Multiple Rotorcrafts with Unknown Dynamics Using Reinforcement Learning (I), pp. 3617-3622.
Liu, Hao Beihang University
Peng, Fachun Beihang University
Modares, Hamidreza Michigan State University
Kiumarsi, Bahare University of Illinois, Urbana Champaign

10:20-10:40 ThA23.2
Sarkar, Tuvin Massachusetts Institute of Technology
Rakhlin, Alexander University of Pennsylvania
Dahleh, Munther A. Massachusetts Institute of Technology

10:40-11:00 ThA23.3
Kanellopoulos, Aris Georgia Institute of Technology
Vamvoudakis, Kyriakos G. Georgia Institute of Technology
Gupta, Vijay University of Notre Dame

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Uribe, Cesar Massachusetts Institute of Technology
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Kaplan, Lance Army Research Laboratory
Jadbabaie, Ali MIT

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Kiumarsi, Bahare University of Illinois, Urbana Champaign
Basar, Tamer University of Illinois, Urbana Champaign

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Tsiamis, Anastasios University of Pennsylvania
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Machine Learning I (Regular Session)
Chair: Vidyasagar, Mathukumalli Indian Institute of Technology Hyderabad
Co-Chair: Paschalidis, Ioannis Boston University

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- Santilli, Matteo, University of Roma Tre
- Franceschelli, Mauro, University of Cagliari
- Gasparri, Andrea, University of Roma Tre

### ThA25.6
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- Ong, Chong-Jin, National University of Singapore
- Djamari, Djali Wibowo, National University of Singapore

### ThA26
**Self-Tuning and Reinforcement Learning (Tutorial Session)**
- Chair: Matni, Nikolai, University of Pennsylvania
- Co-Chair: Rantzer, Anders, Lund University
- Organizer: Matni, Nikolai, University of Pennsylvania
- Organizer: Rantzer, Anders, Lund University

**Introduction to Control Theory for Reinforcement Learning (I)**.
- Rantzer, Anders, Lund University

**From Self-Tuning Regulators to Reinforcement Learning and Back Again (I)**, pp. 3724-3740.
- Matni, Nikolai, University of Pennsylvania
- Proutiere, Alexandre, KTH Royal Institute of Technology
- Rantzer, Anders, Lund University
- Tu, Stephen, University of California, Berkeley

**Optimally Controlling Unknown Discrete Systems (II)**.
- Proutiere, Alexandre, KTH Royal Institute of Technology

**Optimization Based Approaches to Exploration/exploitation (II)**.
- Rantzer, Anders, Lund University

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- Matni, Nikolai, University of Pennsylvania
- Tu, Stephen, University of California, Berkeley

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- Chair: Rizzo, Alessandro, Politecnico di Torino
- Co-Chair: Srivastava, Vaibhav, Michigan State University

- Possieri, Corrado, Politecnico di Torino
- Rizzo, Alessandro, Politecnico di Torino

- Lima, Marcelo, Instituto Mauá de Tecnologia

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- Ranjan, Shashank, Indian Institute of Technology, Hyderabad, India
- Vidyasagar, Mathukumalli, Indian Institute of Technology Hyderabad

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- Wang, Taiyao, Boston University
- Paschalidis, Ioannis Ch., Boston University

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- Andersson, Carl, Uppsala University
- Ribeiro, Antônio, UFMG
- Tiels, Koen, Uppsala University
- Wahström, Niklas, Uppsala University
- Schön, Thomas (Bo), Uppsala University

- Hihn, Heinke, Ulm University
- Gottwald, Sebastian, Ulm University
- Braun, Daniel, Ulm University

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**Chair**: Franceschelli, Mauro, University of Cagliari
**Co-Chair**: Dimarogonas, Dimos V., KTH Royal Institute of Technology

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- Chipade, Vishnu S., University of Michigan, Ann Arbor
- Panagou, Dimitra, University of Michigan, Ann Arbor

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- Sanal Dashti, Zohreh Al Zahra, University of Cagliari
- Seatzu, Carla, University of Cagliari
- Franceschelli, Mauro, University of Cagliari

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- Dimarogonas, Dimos V., KTH Royal Institute of Technology

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- Wasz, Patrick, US Air Force
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Co-Chair: Castelan, Eugenio B.


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Co-Chair: He, Wei

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Yue, Xinling
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Co-Chair: Ghosh, Bijoy
Organizer: Yang, Tao
Organizer: Ghosh, Bijoy
Organizer: Wu, Junfeng

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Jin, Li 
New York University

Wen, Yining 
New York University

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Chair: Farina, Francesco 
University of Bologna

Co-Chair: Jauberthie, Carine 
LAAS-CNRS

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Levy, Kfir. Y. ETH Zürich

Krause, Andreas ETH Zurich

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Farina, Francesco University of Bologna

Garulli, Andrea University of Siena

Giannitrapani, Antonio University of Siena

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Unique Maximum Likelihood Localization of Nuclear Sources, pp. 4127-4132.

Anderson, Brian D.O. Australian National University/NICTA

Dasgupta, Soura University of Iowa

Baidoo-Williams, Henry Ernest Amazon

Anjum, Md Fahim University of Iowa

Mudumbai, Raghuraman University of Iowa

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Alanwar, Amr Technische Universität München

Said, Hazem Ain Shams University

Althoff, Matthias Technische Universität München

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Baumgärtner, Katrin University of Freiburg

Zanelli, Andrea University of Freiburg

Diehl, Moritz University of Freiburg

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Denis-Vidal, Lilianne University of Compiègne

Jauberthie, Carine LAAS-CNRS

Kieffer, Michel Université Paris-Sud

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Chair: Malabre, Michel CNRS

Co-Chair: Chen, Wei Hong Kong University of Science and Technology

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Vasal, Deepanshu University of Michigan, Ann Arbor

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Chen, Wei Hong Kong University of Science and Technology

Qiu, Li Hong Kong University of Science and Technology

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Bonilla Licea, Daniel Université Internationale de Rabat

Bonilla, Moises E. CINVESTAV-IPN

Ghogho, Mounir International University of Rabat

Malabre, Michel CNRS-UMR6004-CD0962

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Raisch, Joerg Technical University Berlin

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Soleymani, Touraj KTH Royal Institute of Technology

Baras, John S. University of Maryland

Johansson, Karl H. KTH Royal Institute of Technology

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Khojasteh, Mohammad Javad University of California, San Diego

Hedayatpour, Mojtaba DOT Technology Corporation

Franceschetti, Massimo University of California, San Diego

ThB13

Control and Demand Response in Smart Grids (Invited Session)

Chair: Dvorkin, Yury New York University

Co-Chair: Deka, Deepjyoti Los Alamos National Lab

Organizer: Dvorkin, Yury New York University

Organizer: Deka, Deepjyoti Los Alamos National Lab

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Benenati, Emilio ETH Zürich

Colombo, Marcello McGill University

Dall’Anese, Emiliano University of Colorado, Boulder
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Australian National University,

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Co-Chair: Khorrami, Farshad

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NYU Tandon School of Engineering

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- Kammer, Isaac, Naval Postgraduate School
- Walton, Claire, Naval Postgraduate School, Monterey, CA
- Hovakimyan, Naira, University of Illinois, Urbana-Champaign
- Pascoal, Antonio Manuel, Inst. Superior Tecnico

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- Borkar, Vivek S., Indian Institute of Technology
- Gaitsgory, Vladimir, Macquarie University
- Shvartsman, Ilya, Penn State Harrisburg

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- Chair: Kerrigan, Eric C., Imperial College London
- Co-Chair: Nie, Yuanbo, Imperial College London
- Organizer: McInerney, Ian, Imperial College London
- Organizer: Kerrigan, Eric C., Imperial College London
- Organizer: Nie, Yuanbo, Imperial College London

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- Deng, Haoyang, Kyoto University
- Ohtsuka, Toshiyuki, Kyoto University

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- Kempf, Idris, University of Oxford
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- Åström, Daniel, Linköping University
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- Hermans, Ben, Katholieke Universiteit Leuven
- Themelis, Andreas, Katholieke Universiteit Leuven
- Patrinos, Panagiotis, Katholieke Universiteit Leuven

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- McInerney, Ian, Imperial College London
- Kerrigan, Eric C., Imperial College London

**Rhodes EF**

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- Chair: Ren, Xiaoliang, KTH
- Co-Chair: Sinopoli, Bruno, Washington University in St Louis
- Organizer: Ren, Xiaoliang, Shanghai University
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Pasqualetti, Fabio University of California, Riverside

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Marden, Jason R. University of California, Santa Barbara

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dos Santos, Felipe Otávio National Laboratory for Scientific Computing-LNCC
Todorov, Marcos LNCC
Fragoso, Marcelo Lncc / Mct

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Beko, Marko COPELABS, Universidade Lusófona de Humanidades e Tecnologias
Stankovic, Milos S. Vlatacom Institute Ltd

Vlahakis, Eleftherios City, University of London
Dritsas, Leonidas ASPETE
Halikias, George City University

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Moulay, Emmanuel Université de Poitiers
Defoort, Michael UVHC
Menard, Tomas University of Caen
Coirault, Patrick ENSIP-LIAS

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Knorn, Steffi Uppsala University
Ahlen, Anders Uppsala University

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Baniamerian, Amir Concordia University
Khorasani, Khoshyar Concordia University
Meskin, Nader Qatar University

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Networked Control of Coupled Subsystems: Spectral Decomposition and Low-Dimensional Solutions, pp. 4514-4520.

Gao, Shuang McGill University
Mahajan, Aditya McGill University

15:40-16:00 ThB21.6

Finite Time Semistability and Consensus in Networks with

Communication Uncertainty, pp. 4521-4526.

Haddad, Wassim M. Georgia Institute of Technology
Rajpurohit, Tanmay Georgia Institute of Technology
Jin, Xu University of Kentucky

ThB22

Theoretical Foundations for the Representation and Identification of Dynamic Networks I (Invited Session)

Chair: Van den Hof, Paul M. Eindhoven University of Technology
Co-Chair: Warnick, Sean Brigham Young University
Organizer: Van den Hof, Paul M. J. Eindhoven University of Technology
Organizer: Warnick, Sean Brigham Young University

14:00-14:20 ThB22.1


Solo, Victor University of New South Wales

14:20-14:40 ThB22.2


Kivits, E.M.M. (Lizan) Eindhoven University of Technology
Van den Hof, Paul M. J. Eindhoven University of Technology

15:00-15:20 ThB22.3


Yue, Zuogong University of New South Wales
Thunberg, Johan Halmstad University
Goncalves, Jorge University of Luxembourg

15:20-15:40 ThB22.4

Corruption Detection in Networks of Bi-Directional Dynamical Systems, pp. 4545-4550.

Subramanian, Venkat Ram University of Minnesota
Lamperski, Andrew University of Minnesota
Salapaka, Muriel V. University of Minnesota

15:40-16:00 ThB22.5


Nugroho, Sebastian Adi University of Texas, San Antonio
Taha, Ahmad University of Texas, San Antonio

15:40-16:00 ThB22.6

Strong Structural Controllability of Signed Networks, pp. 4557-4562.

Mousavi, Shima Sadat Sharif University of Technology
Haeri, Mohammad Sharif University of Technology
Mesbahi, Mehran University of Washington

ThB23

Machine Learning in Control, Theory and Applications II (Invited Session)

Chair: Annaswamy, Anuradha M. Massachusetts Institute of Technology
Co-Chair: Gibson, Travis E. Harvard Medical School
Organizer: Gaudio, Joseph E. Massachusetts Institute of Technology
Connections between Adaptive Control and Optimization in Machine Learning (I), pp. 4563-4568.

Gaudio, Joseph E. Massachusetts Institute of Technology
Gibson, Travis E. Harvard Medical School
Annaswamy, Anuradha M. Massachusetts Institute of Technology

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Shared Linear Quadratic Regulation Control: A Reinforcement Learning Approach (I), pp. 4569-4576.

Abu-Khalaf, Murad Massachusetts Institute of Technology
Karaman, Sertac Massachusetts Institute of Technology
Rus, Daniela MIT

14:40-15:00 ThB23.2

Pauli, Patricia Universität Stuttgart
Dibaji, Seyed Mehran Massachusetts Institute of Technology
Annaswamy, Anuradha M. Massachusetts Institute of Technology
Chakraborty, Aranya North Carolina State University

15:00-15:20 ThB23.3
Cause Mining and Controller Synthesis with STL, pp. 4589-4594.

Saglam, Irmak Middle East Technical University
Aydin Gol, Ebru Middle East Technical University

15:40-16:00 ThB23.4

Varnai, Peter KTH Royal Institute of Technology
Dimarogonas, Dimos V. KTH Royal Institute of Technology

14:00-14:20 ThB24
Machine Learning II (Regular Session)

Chair: Peet, Matthew M. Arizona State University
Co-Chair: alimo, shahrouz NASA Jet Propulsion Laboratory (JPL)


14:00-14:20 ThB24.1
Transforming Policy Via Reward Advancement, pp. 4609-4614.

Wu, Guojun WPI
Li, Yanting Worcester Polytechnic Institute (WPI)
Luo, Jun Shenzhen Institutes of Advanced Technology

14:40-15:00 ThB24.2
Inferring Particle Interaction Physical Models and Their Dynamical Properties, pp. 4615-4621.

Matei, Ion Palo Alto Research Center
Mavridis, Christos University of Maryland
Baras, John S. University of Maryland
Zhenirovskyy, Maksym Palo Alto Research Center

15:00-15:20 ThB24.3
Using SDP to Parameterize Universal Kernel Functions, pp. 4622-4629.

Colbert, Brendon Arizona State University
Peet, Matthew M. Arizona State University

15:20-15:40 ThB24.4

Yekkehkhany, Ali University of Illinois, Urbana Champaign
Arian, Ebrahim University of Illinois, Urbana Champaign
Hajiesmaili, Mohammad University of Massachusetts, Amherst
Nagi, Rakesh University of Illinois, Urbana Champaign

15:40-16:00 ThB24.5
Delaunay-Based Derivative-Free Optimization Via Global Surrogates with Safe and Exact Function Evaluations, pp. 4636-4641.

Zhao, Muhan University of California, San Diego
Alimo, Shahrouz NASA Jet Propulsion Laboratory (JPL)
Beyhaghi, Pooriya University of California, San Diego
Bewley, Thomas University of California, San Diego

14:00-14:20 ThB25
Decentralized Control (Regular Session)

Chair: Fridman, Emilia Tel-Aviv University
Co-Chair: Cannon, Mark University of Oxford

Decentralized Predictor Feedback of Large-Scale Systems under Input Delays, pp. 4642-4647.

Zhu, Yang Zhejiang University
Fridman, Emilia Tel-Aviv University

14:20-14:40 ThB25.2
A Port-Hamiltonian Approach to Plug-And-Play Voltage and Frequency Control in Islanded Inverter-Based AC Microgrids, pp. 4648-4655.
ThB26

Autonomous Vehicles and Traffic Control in Mixed Autonomy Environments (Tutorial Session)

Chair: Delle Monache, Maria Laura
Co-Chair: Sprinkle, Jonathan
Organizer: Delle Monache, Maria Laura
Organizer: Sprinkle, Jonathan
Organizer: Vasudevan, Ramanarayan
Organizer: Work, Daniel B.

16:30-16:35 ThB26.1

Autonomous Vehicles: From Vehicular Control to Traffic Control (I), pp. 4680-4696.

Delle Monache, Maria Laura
Sprinkle, Jonathan
Vasudevan, Ramanarayan
Work, Daniel B.

16:35-17:05 ThB26.2

Techniques for Online Verification of Autonomous Vehicle Control (I)*.

Vasudevan, Ramanarayan

17:05-17:35 ThB26.3

Realistic Control & Sensing for Autonomous Vehicles (I)*.

Sprinkle, Jonathan

17:35-18:05 ThB26.4

Traffic Modeling (I)*.

Delle Monache, Maria Laura

18:05-18:30 ThB26.5

Eulerian to Lagrangian Traffic Estimation & Control (I)*.

Work, Daniel B.

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Control Theory in Neuroscience (Invited Session)

Chair: Singh, Abhyudai
Co-Chair: Pequito, Sergio
Organizer: Singh, Abhyudai
Organizer: Chaillet, Antoine
Organizer: Jafarian, Matin

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A Framework to Control Functional Connectivity in the Human Brain (I), pp. 4697-4704.

Menara, Tommaso
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Bassett, Danielle
Pasqualetti, Fabio

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A Separation Principle for Discrete-Time Fractional-Order Dynamical Systems and Its Implications to Closed-Loop Neurotechnology, pp. 4705-4710.

Chatterjee, Sarthak
Romero, Orlando
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Johansson, Karl H.

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On Phase Reduction and Time Period of Noisy Oscillators (I), pp. 4717-4722.

Aminzare, Zahra
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Franci, Alessio
Drion, Guillaume
Sepulchre, Rodolphe

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Vahdat, Zahra
Xu, Zikai
Singh, Abhyudai

18:30-19:05 ThC01.7

Control Applications (Regular Session)

Chair: Rapaport, Alain

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Identification of Outliers in Graph Signals, pp. 4769-4776.

Gopalakrishnan, Karthik Massachusetts Institute of Technology
Li, Max Massachusetts Institute of Technology
Balakrishnan, Hamsa Massachusetts Institute of Technology

Identification of Outliers in Graph Signals, pp. 4769-4776.

Gopalakrishnan, Karthik Massachusetts Institute of Technology
Li, Max Massachusetts Institute of Technology
Balakrishnan, Hamsa Massachusetts Institute of Technology

On Active Disturbance Rejection Based Path Following Control for Unmanned Roller, pp. 4791-4796.

Chen, Sen Academy of Mathematics and Systems Science, Chinese Academy of Sciences
Kumar, Harshat University of Pennsylvania
Paternain, Santiago University of Pennsylvania
Ribeiro, Alejandro University of Pennsylvania

Navioation of a Quadratic Potential with Ellipsoid Obstacles, pp. 4777-4784.

Chen, Fei KTH Royal Institute of Technology
Dimarogonas, Dimos V. KTH Royal Institute of Technology

Consensus Control for Leader-Follower Multi-Agent Systems under Prescribed Performance Guarantees, pp. 4785-4790.

Chen, Fei KTH Royal Institute of Technology
Dimarogonas, Dimos V. KTH Royal Institute of Technology

Safe Policy Synthesis in Multi-Agent POMDPs Via Discrete-Time Barrier Functions, pp. 4797-4803.

Ahmadi, Mohamadreza California Institute of Technology
Singletary, Andrew Georgia Institute of Technology
Burdict, Joel W. California Institute of Technology
Ams, Aaron D. California Institute of Technology

Dynamic Boundary Guarding against Radially Incoming Targets, pp. 4804-4809.

Bajaj, Shivam Michigan State University
Bopardikar, Shaunak D. Michigan State University

Reachability-Based Safety Guarantees Using Efficient Initializations, pp. 4810-4816.

Herbert, Sylvia University of California, Berkeley
Bansal, Somil University of California, Berkeley
Ghosh, Shromona University of California, Berkeley
Tomlin, Claire J. University of California, Berkeley

Fuzzy Systems and Evolutionary Computing (Regular Session)
Chair: Campos, Victor Universidade Federal de Minas Gerais
Co-Chair: Chadli, Mohammed Université de Picardie-Jules Verne

Vehicle Sideslip Angle Estimation Based on Switched Fuzzy Model, pp. 4817-4822.

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Liu, Zhiyuan Harbin Institute of Technology
Gu, mingqin Alibaba Group
Zhao, chunming Alibaba Group
Jia, Fengjiao Harbin Institute of Technology

Gomes, Izabella O. University of Campinas
Tognetti, Eduardo Stockler University of Brasilia
Olivera, Ricardo C. L. F. University of Campinas - UNICAMP
Peres, Pedro L. D. University of Campinas

Development of Dynamic Multi-Objective Feature Extraction Optimization Method to Detect H/OD Impact Damages, pp. 4835-4840.

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Yin, Chun University of Electronic Science and Technology of China
Huang, Xuegang Aerodynamics Institute, China Aerodynamics Research and Development
Dadras, Sara Ford Motor Company
Cheng, Yuhua University of Electronic Science and Technology of China
Dadras, Soodeh Utah State University

On the Particle Swarm Optimization Improvement Using Time Delay Auto Synchronization, pp. 4841-4846.

Tomaszek, Lukas VSB-TU Ostrava
Zelinka, Ivan VSB-TU Ostrava
Chadli, Mohammed University of Paris-Saclay

A Proposal of the “Group Egogram” for Group Work Aptitude Analysis, pp. 4847-4851.

Matsuki, Hirotom National Institute of Technology, Kumamoto College
Ohki, Makoto National Institute of Technology, Kumamoto College

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Chair: Diehl, Moritz University of Freiburg
Co-Chair: Almassalkhi, Mads University of Vermont

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An Adaptive Passivity-Based Controller for a Wind Energy Conversion System, pp. 4852-4857.

Cisneros, Rafael Instituto Tecnológico Autónomo de México
Gao, Rui North Carolina State University
Ortega, Romeo LSS-SUPELEC

Convex Inner Approximation of the Feeder Hosting Capacity Limits on Dispatchable Demand, pp. 4858-4864.

Almassalkhi, Mads University of Vermont

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De Schutter, Jochem ALU Freiburg
Leuthold, Rachel University of Freiburg
Bronnenmeyer, Thilo Kitewarms GmbH
Paelinck, Reinhart Kitewarms Ltd
Diehl, Moritz University of Freiburg

17:30-17:50 ThC05.3


Kim, Eugene University of Michigan
Shin, Kang G. University of Michigan

17:50-18:10 ThC05.4


Zlotnik, Anatoly Los Alamos National Laboratory
Sundar, Kaarthik Los Alamos National Laboratory
Rudkevich, Alexandr Newton Energy Group
Beylin, Alexandr Newton Energy Group
Li, Xindi Tabors Caramanis Rudkevich

18:10-18:30 ThC05.5

Fuzzy-Variable Gain Super Twisting Algorithm Control Design for Direct-Drive PMSG Wind Turbines, pp. 4885-4890.

Benzaouia, Soufyane LCGM - Université Mohamed Premier - Oujda / MIS - Université De
Rabhi, Abdelhamid MIS
Zouggar, Smail University Mohammed First Oujda

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Optimization Algorithms III (Regular Session)

Chair: Cucuzzella, Michele University of Groningen
Co-Chair: Hu, Guoqiang Nanyang Technological University

16:30-16:50 ThC06.1

QPDAK: Dual Active Set Solver for Mixed Constraint Quadratic Programming, pp. 4891-4897.

Fält, Mattias Lund University
Giselsson, Pontus Lund University

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On the Performance of Exact Diffusion Over Adaptive Networks, pp. 4898-4903.

Yuan, Kun University of California, Los Angeles
Alghunaim, Sulaiman A. University of California, Los Angeles
Ying, Bicheng University of California, Los Angeles
Sayed, Ali H. EPFL

17:10-17:30 ThC06.3
Charging Plug-In Electric Vehicles As a Mixed-Integer Aggregative Game, pp. 4904-4909.

Cenedese, Carlo
University of Groningen

Fabiani, Filippo
Delft University of Technology

Cucuzzella, Michele
University of Groningen

Schepen, Jacquelien M.A.
University of Groningen

Cao, Ming
University of Groningen

Grammatico, Sergio
Delft University of Technology

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Randomized Gradient-Free Distributed Online Optimization with Time-Varying Objective Functions, pp. 4910-4915.

Pang, Yipeng
Nanyang Technological University

Hu, Guoqiang
Nanyang Technological University

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Miller, Jared
Northeastern University

Zheng, Yang
University of Oxford

Rog-Solvas, Biel
Northeastern University

Sznaiers, Mario
Northeastern University

Papachristodoulou, Antonis
University of Oxford

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Sun, Shiqing
Johns Hopkins University

Spall, James C.
Johns Hopkins University

18:30-18:50
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ThC07 (Regular Session)

Aerospace

Chair: Invernizzi, Davide
Politecnico di Milano

Co-Chair: Louembet, Christophe
LAAS-CNRS

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Sliding Mode Control Applied to a Multivariate Underactuated Control Moment Gyroscope, pp. 4928-4933.

Toriumi, Fabio
Polytechnic School of University of São Paulo

Angelico, Bruno
University of São Paulo

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Impulsive Zone Model Predictive Control for Rendezvous Hovering Phase, pp. 4934-4939.

Louembet, Christophe
LAAS-CNRS

González, Alejandro H.
CONICET-Universidad Nacional del Litoral

Arantes Gilz, Paulo Ricardo
LAAS-CNRS

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ThC07.3


Ra, Won-Sang
Agency for Defense Development

Ahn, Sejoon
Agency for Defense Development

Lee Yunha
Cranfield University

Whang, Ick Ho
The Agency for Defense Development

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Maneuvering, pp. 4946-4951.

Leomanni, Mirko
University of Siena

Bianchini, Gianni
University of Siena

Garulli, Andrea
University of Siena

Giannitrapani, Antonio
University of Siena

Qartullo, Renato
University of Siena

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Integral ISS-Based Cascade Stabilization for Vectored-Thrust UAVs, pp. 4952-4957.

Invernizzi, Davide
Politecnico di Milano

Lovera, Marco
Politecnico di Milano

Zaccarian, Luca
LAAS-CNRS and University of Trento

18:10-18:30
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Spall, James C.
University of Oxford

Papachristodoulou, Antonis
University of Siena

18:30-18:50
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Distributed Parameter Systems I (Regular Session)

Chair: Auriol, Jean
University of Calgary

Co-Chair: Polyakov, Andrey
INRIA Lille Nord-Europe

16:30-16:50
ThC08.1


Auriol, Jean
University of Calgary

Bribiesca Argomedo, Federico
Université de Lyon, INSA Lyon, CNRS, Ampère

16:50-17:10
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On the Ball-Marsden-Slemrod Obstruction for Bilinear Control Systems, pp. 4971-4976.

Boussaid, Nabil
Université de Franche-Comté

Caponigro, Marco
Conservatoire National Des Arts Et Métiers

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Zheng, Jun
Southwest Jiaotong University

Zhu, Guchuan
Ecole Polytechnique de Montreal

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Strecker, Timm
University of Melbourne

Aamo, Ole Morten
NTNU

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Polyakov, Andrey
INRIA Lille Nord-Europe

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Co-Chair: Margellos, Kostas  
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Co-Chair: Niazi, Muhammad  
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Cheng, Xiaodong  
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Gao, Shuang  
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Co-Chair: Zorzi, Mattia  
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<td>Salehghaffari, Hossein, NYU, Tandon School of Engineering</td>
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<td>Fay, Dominik, KTH Royal Institute of Technology</td>
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<td>Dimitrakis, Christos, Chalmers University of Technology</td>
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<td>Kamgarpour, Maryam, ETH Zurich</td>
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<td>Perez, Filipe, UNIFEI, CentraleSupelec</td>
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Li, Haifang
Heilongjiang University
Wang, Xin
Heilongjiang University
Xue, Yu
Heilongjiang University

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ThC14.6
Maintaining Ferment, pp. 5217-5222.

Goyal, Mohak
Indian Institute of Technology, Bombay
Chatterjee, Debasis
Indian Institute of Technology, Bombay
Karamchandani, Nikhil
Indian Institute of Technology, Bombay
Manjunath, D
INDIAN INSTITUTE OF TECHNOLOGY Bombay, India

ThC15
Optimal Control III (Regular Session)

Chair: Anderson, James
California Institute of Technology
Co-Chair: Leve, Frederick
AFOSR

16:30-16:50
ThC15.1

Stickan, Benjamin
Institute for Solar Energy Systems
Freiburg
Rutquist, Per
Department of Microsystems Engineering, IMTEK
Geyer, Tobias
ABB Corporate Research
Diehl, Moritz
University of Freiburg

16:50-17:10
ThC15.2

Sutherland, Richard
University of Michigan
Kolmanovsky, Ilya V.
University of Michigan
Girard, Anouck
University of Michigan, Ann Arbor
Leve, Frederick
AFOSR
Petersen, Christopher
Air Force Research Laboratory

17:10-17:30
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Optimal Control for Continuous-Time Nonlinear Systems Based on a Linear-Like Policy Iteration, pp. 5238-5243.

TAHIROVIC, Adnan
University of Sarajevo
Astolfi, Alessandro
Imperial College & University of Rome

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ThC15.4
Quasi-Stochastic Approximation and Off-Policy Reinforcement Learning, pp. 5244-5251.

Bernstein, Andrey
National Renewable Energy Lab (NREL)
Chen, Yue
National Renewable Energy Laboratory
Colombino, Marcello
McGill University
Dall’Anese, Emiliano
University of Colorado, Boulder
Mehta, Prashant G.
University of Illinois, Urbana Champaign
Meyn, Sean P.
University of Florida

17:50-18:10
ThC15.5
Distributed Optimization of Nonlinear Multi-Agent Systems
A Small-Gain Approach, pp. 5252-5257.
Liu, Tengfei  
Northeastern University
Qin, Zhengyan  
Northeastern University
Hong, Yiguang  
Chinese Academy of Sciences
Jiang, Zhong-Ping  
New York University

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Chen, Yuxiao  
California Institute of Technology
Anderson, James  
California Institute of Technology

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(Invited Session)

Chair: McInerney, Ian  
Imperial College London
Co-Chair: Kerrigan, Eric C.  
Imperial College London
Organizer: McInerney, Ian  
Imperial College London
Organizer: Kerrigan, Eric C.  
Imperial College London
Organizer: Nie, Yuanbo  
Imperial College London

A Parallel Decomposition Scheme for Solving Long-Horizon Optimal Control Problems (I), pp. 5264-5271.
Shin, Sungho  
University of Wisconsin-Madison
Faulwasser, Timm  
Karlsruhe Institute of Technology
Zanon, Mario  
IMT Institute for Advanced Studies Lucca
Zavala, Victor M.  
University of Wisconsin-Madison

Nonlinear Model Predictive Control for Distributed Motion Planning in Road Intersections Using PANOC (I), pp. 5272-5278.
Katrinioik, Alexander  
Ford Research & Innovation Center
Sopasakis, Pantelis  
Katholieke Universiteit Leuven
Schuurmans, Mathijs  
Katholieke Universiteit Leuven
Patrinos, Panagiotis  
Katholieke Universiteit Leuven

Burk, Daniel  
Friedrich-Alexander-University Erlangen-Nuremberg
Völz, Andreas  
Friedrich-Alexander-University Erlangen-Nuremberg
Graichen, Knut  
University Erlangen-Nürnberg (FAU)

Real-Time Model Predictive Control Based on Prediction-Correction Algorithms (I), pp. 5285-5291.
Paternain, Santiago  
University of Pennsylvania
Morari, Manfred  
University of Pennsylvania
Ribeiro, Alejandro  
University of Pennsylvania

Nie, Yuanbo  
Imperial College London
Kerrigan, Eric C.  
Imperial College London

The Advanced Step Real Time Iteration for NMPC, pp. 5298-5305.
Nurkanović, Amin  
Siemens AG
Zanelli, Andrea  
University of Freiburg
Albrecht, Sebastian  
Siemens AG
Diehl, Moritz  
University of Freiburg

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Luo, Xusheng  
Duke University
Zavlanos, Michael M.  
Duke University

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Belta, Calin  
Boston University
Vasile, Cristian Ioan  
Massachusetts Institute of Technology

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Kulkarni, Abhishek  
Worcester Polytechnic Institute
Fu, Jie  
Worcester Polytechnic Institute

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Lee, Insup  
University of Pennsylvania

Hasanbeig, Hosein  
University of Oxford
Kantaros, Yiannis  
University of Pennsylvania
Abate, Alessandro  
University of Oxford
Kroening, Daniel  
University of Oxford
Pappas, George J.  
University of Pennsylvania

Security in Cyber-Physical Systems II (Invited Session)

Chair: Johansson, Karl H.  
KTH Royal Institute of Technology
Co-Chair: Mo, Yilin  
Tsinghua University
Organizer: Ren, Xiaojing  
Shanghai University
Organizer: Mo, Yilin  
Tsinghua University
Organizer: Sinopoli, Bruno  
Washington University in St Louis
Organizer: Johansson, Karl H.  KTH Royal Institute of Technology

16:30-16:50  ThC18.1

Secure Distributed Filtering for Unstable Dynamics under Compromised Observations (I), pp. 5344-5349.
He, Xingkang  KTH Royal Institute of Technology
Ren, Xiaoqiang  KTH Royal Institute of Technology
Sandberg, Henrik  KTH Royal Institute of Technology
Johansson, Karl H.  KTH Royal Institute of Technology

16:50-17:10  ThC18.2

Wang, Yu  Duke University
Pajic, Miroslav  Duke University

17:10-17:30  ThC18.3

Filtering Approaches for Dealing with Noise in Anomaly Detection (I), pp. 5356-5361.
Hashemi, Navid  University of Texas, Dallas
Verdugo, Eduardo  Centro De Investigación Científica Y De Educación Superior De En
Peña, Jonatán  Centro De Investigación Científica Y De Educación Superior De En
Ruths, Justin  University of Texas, Dallas

17:30-17:50  ThC18.4

Study on Realizable Generalized Hold Functions As a Countermeasure against Zero Dynamics Attack (I), pp. 5362-5367.
Ha, Jongsoo  Seoul National University
Shim, Hyungbo  Seoul National University

17:50-18:10  ThC18.5

Mao, Yanwen  University of California, Los Angeles
Mitra, Aritra  Purdue University
Sundaram, Shreyas  Purdue University
Tabuada, Paulo  University of California, Los Angeles

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Protecting Assets with Heterogeneous Valuations under Behavioral Probability Weighting (I), pp. 5374-5379.
Abdallah, Mustafa  Purdue University
Naghizadeh, Parinaz  Purdue University
Cason, Timothy  Purdue University
Bagchi, Saurabh  Purdue University
Sundaram, Shreyas  Purdue University

16:30-16:50  ThC19.1

Finite-Time Stabilization and Robust Control of Stochastic Nonlinear System Based on Hamiltonian Realization, pp. 5380-5385.
Wang, Min  Zhengzhou University
Liu, Yanhong  Zhengzhou University

16:50-17:10  ThC19.2

Linear Noisy Networks with Stochastic Components, pp. 5386-5391.
Sevuktekin, Noyan  University of Illinois, Urbana Champaign
Raginsky, Maxim  University of Illinois, Urbana Champaign
Singer, Andrew  University of Illinois, Urbana Champaign

17:10-17:30  ThC19.3

M. Jasour, Ashkan  Massachusetts Institute of Technology
Williams, Brian  Massachusetts Institute of Technology

17:30-17:50  ThC19.4

Hosoe, Yohei  Kyoto University
Peaucelle, Dimitri  LAAS-CNRS, Université de Toulouse

17:50-18:10  ThC19.5

Noroozi, Navid  Otto Von Guericke Universitat Magdeburg
Jackson, Roxanne R.  University of Passau
Quevedo, Daniel E.  Paderborn University
Wirth, Fabian  University of Passau
Findeisen, Rolf  Otto Von Guericke Universitat Magdeburg

18:10-18:30  ThC19.6

A Modified Technique for Spectral Factorization of Infinite-Dimensional Systems Using Subspace Techniques, pp. 5412-5419.
Lao, Yejun  University of Michigan
Scruggs, Jeff  University of Michigan

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Robust Dynamic Average Consensus with Prescribed Performance, pp. 5420-5425.
Stamoulis, Charalampos  National Tech. Univ. of Athens
Bechlioulis, Charalampos P.  National Tech. Univ. of Athens
Kyriakopoulou, Kostas J.  National Tech. Univ. of Athens

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Pham, Van Thiern  University of Reims Champagne-Ardenne
Mesai, Nadhir  Université de Reims Champagne-Ardenne
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Asynchronous Consensus of Continuous-Time Multiagent
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Strongly Connected Distributed Systems
Network Realizable Controllers with an Application to
Leaders in Discrete-Time Systems
Resilient Leader-Follower Consensus of Time-Varying
Adversary Attacks and Asynchronous Events
Resilient Exponential Consensus with Time-Varying
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Regret and Fit, pp. 5486-5493.
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Wang, Shen University of Texas, San Antonio
Taha, Ahmad University of Texas, San Antonio
Sela, Lina University of Texas, Austin
Gatsis, Nikolaos University of Texas, San Antonio
Giacomoni, Marco University of Texas, San Antonio

Network Realizable Controllers with an Application to
Strongly Connected Distributed Systems, pp. 5450-5455.
Kucuksayacigil, Gulnihar Iowa State University
Naghaei, Mohammad Clemson University
Elia, Nicola University of Minnesota

ThC21

Networked Control Systems III (Regular Session)
Chair: Taha, Ahmad University of Texas, San Antonio
Co-Chair: Kan, Zhen University of Iowa

Characterizing Herdability of Signed Networks Via Graph
Walks, pp. 5456-5461.
She, Baike University of Iowa
Cai, Mingyu University of Iowa
Kan, Zhen University of Iowa

Asynchronous Consensus of Continuous-Time Multiagent
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Sawant, Vishal Indian Institute of Technology, Bombay
Chakraborty, Debraj Indian Institute of Technology, Bombay
Pal, Debasattam Indian Institute of Technology, Bombay

On the Computation of a Lower Bound on Strong Structural
Controllability in Networks, pp. 5468-5473.
Shabbir, Mudassir Information Technology University
Abbas, Waseem Vanderbilt University
Yazicioglu, Yasin University of Minnesota

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17:50-18:10 ThC20.5

18:10-18:30 ThC20.6

17:30-17:50 ThC20.4

17:30-17:50 ThC20.3

17:10-17:30 ThC21.3

17:10-17:30 ThC21.2

16:50-17:10 ThC22.1

16:50-17:10 ThC22.2

17:10-17:30 ThC22.3

17:10-17:30 ThC21.1

17:50-18:10 ThC21.5

18:10-18:30 ThC21.6

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#### Chair: Basar, Tamer
- University of Illinois, Urbana-Champaign

#### Co-Chair: Liu, Ji
- Stony Brook University

#### Organizer: Basar, Tamer
- University of Illinois, Urbana-Champaign

#### Organizer: Liu, Ji
- Stony Brook University

#### Organizer: Shi, Wei
- Arizona State University

#### Organizer: Zhang, Kaiqing
- University of Illinois, Urbana-Champaign

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#### ThC24  Recent Advances in Iterative Learning Control and Repetitive Learning Control: From Theory to Applications (Invited Session)

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#### Chair: Tan, Ying
- University of Melbourne

#### Co-Chair: Li, Yanan
- University of Sussex

#### Organizer: Sebastian, Gijo
- University of Melbourne

#### Organizer: Tan, Ying
- University of Melbourne

#### Organizer: Oomen, Tom
- Eindhoven University of Technology

#### Organizer: Chu, Bing
- University of Southampton

#### Organizer: Freeman, Christopher T.
- University of Southampton

#### Organizer: Barton, Kira
- University of Michigan, Ann Arbor

---

#### ThC22  Topology Identification of Heterogeneous Networks of Linear Systems (I), pp. 5513-5518.
- van Waarde, Henk J.
  - University of Groningen
- Tesi, Pietro
  - University of Firenze
- Camlibel, M. Kanat
  - University of Groningen

#### ThC23  Generalized Sensing and Actuation Schemes for Local Module Identification in Dynamic Networks (I), pp. 5519-5524.
- Ramaswamy, Karthik R.
  - Eindhoven University of Technology
- Van den Hof, Paul M.J.
  - Eindhoven University of Technology
- Dankers, Ame
  - University of Calgary

#### ThC24  Designing Local Inputs to Identify Link Failures in a Diffusive Network: A Graph Perspective (I), pp. 5525-5530.
- Xue, Mengran
  - Washington State University

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#### ThC25  Policy Gradient Using Weak Derivatives for Reinforcement Learning (I), pp. 5531-5537.
- Bhatt, Sujay
  - Cornell University
- Koppel, Alec
  - U.S. Army Research Laboratory
- Krishnamurthy, Vikram
  - Cornell University

#### ThC26  Distributed Stochastic Gradient Method for Non-Convex Problems with Applications in Supervised Learning (I), pp. 5538-5543.
- George, Jemin
  - U.S. Army Research Laboratory
- Yang, Tao
  - Northeastern University
- Bai, He
  - Oklahoma State University
- Gurram, Prudhvi
  - Booz Allen Hamilton

#### ThC27  Distributed Learning in Network Games: A Dual Averaging Approach (I), pp. 5544-5549.
- Talebi, Shahriar
  - University of Washington
- Alemzadeh, Siavash
  - University of Washington
- Ratliff, Lillian J.
  - University of Washington
- Mesbahi, Mehran
  - University of Washington

#### ThC28  Stochastic Bregman Parallel Direction Method of Multipliers for Distributed Optimization, pp. 5550-5555.
- Yu, Yue
  - University of Washington
- Aickmese, Behcet
  - University of Washington

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#### ThC29  Reinforcement Learning for Decentralized Stochastic Control (I), pp. 5556-5561.
- Yongacoglu, Bora
  - Queen's University
- Arslan, Gurdal
  - University of Hawaii, Manoa
- Yuksel, Serdar
  - Queen's University

#### ThC30  A Communication-Efficient Multi-Agent Actor-Critic Algorithm for Distributed Reinforcement Learning (I), pp. 5562-5567.
- Lin, Yixuan
  - Stony Brook University
- Zhang, Kaicong
  - University of Illinois, Urbana-Champaign
- Yang, Zhuoran
  - Princeton University
- Wang, Zhaoan
  - Northwestern University
- Basar, Tamer
  - University of Illinois, Urbana-Champaign
- Sandhu, Romeil
  - Stony Brook University
- Liu, Ji
  - Stony Brook University
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Patan, Maciej University of Zielona Gora
Klimkowicz, Kamil University of Zielona Gora
Maniarski, Robert University of Zielona Góra
Patan, Krzysztof University of Zielona Góra
Rogers, Eric University of Southampton

18:10-18:30 ThC24.6
Frequency Domain Design of a Robust Iterative Learning Control Via Convex Optimization Techniques (I), pp. 5599-5604.

Mandra, Slawomir Nicolaus Copernicus University
Galkowski, Krzysztof University of Zielona Góra
Aschemann, Harald University of Rostock
Rauh, Andreas University of Rostock

ThC25
Large-Scale Systems (Regular Session)

Chair: Görges, Daniel University of Kaiserslautern
Co-Chair: Mironchenko, Andrii University of Passau

16:30-16:50 ThC25.1

Mao, Yanbing Binghamton University-SUNY
Jafarnejadsani, Hamidreza University of Illinois, Urbana Champaign
Zhao, Pan University of Illinois, Urbana Champaign
Akyol, Emrah SUNY Binghamton
Hovakimyan, Naira University of Illinois, Urbana Champaign

16:50-17:10 ThC25.2

Kang, Rongrong Fudan University
Li, Cong Fudan University
Li, Xiang Fudan University

17:10-17:30 ThC25.3

Mironchenko, Andrii University of Passau

17:30-17:50 ThC25.4
A Distributed Approach for the Detection of Covert Attacks in Interconnected Systems with Stochastic Uncertainties, pp. 5623-5628.

Barboni, Angelo Imperial College London
Gallo, Alexander Imperial College London
Boem, Francesca University College London
Parisini, Thomas Imperial College & University of Trieste

17:50-18:10 ThC25.5
Robust Finite Frequency H∞ Model Reduction for Uncertain

2D Continuous Systems, pp. 5629-5634.

El-Amrani, Abderrahim University of Sidi Mohammed Ben Abdellah
Boukili, Bensalem Fez
El Hajjaji, Ahmed University of Picardie-Jules Verne
Hmamed, Abdelaziz Faculty of Science Dhar El Mahraz
Boumhidi, Ismail USMBA
# Technical Program for Friday December 13, 2019

## FrP1

**Feedback and Uncertainty: Some Basic Problems and Theorems**
(Plenary Session)

Chair: Bitmead, Robert R.  
University of California San Diego

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| 08:30-09:30| Feedback and Uncertainty: Some Basic Problems and Theorems*  
Guo, Lei  
Academy of Mathematics and Systems Science, Chinese Academy of Sciences |

## FrA01

**Nonlinear Modeling and Estimation in Biomedical Systems**
(Invited Session)

Chair: Medvedev, Alexander V.  
Uppsala University  
Co-Chair: Knorn, Steffi  
Otto-Von-Guericke University Magdeburg  
Organizer: Medvedev, Alexander V.  
Uppsala University  
Organizer: Knorn, Steffi  
Otto-Von-Guericke University Magdeburg

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| 10:00-10:20| Identification of Continuous Volterra Models with Explicit Time Delay through Series of Laguerre Functions (I), pp. 5641-5646.  
Bro, Viktor  
Uppsala University  
Medvedev, Alexander V.  
Uppsala University |
Kask, Nathalie  
Luleå University of Technology  
Budgett, David M  
Auckland Bioengineering Institute, University of Auckland  
Kruger, Jennifer A  
Auckland Bioengineering Institute, University of Auckland  
Nielsen, Poul M F  
Department of Engineering Science, University of Auckland  
Varagnolo, Damiano  
NTNU - Norwegian University of Science and Technology  
Knorn, Steffi  
Otto-Von-Guericke University Magdeburg |
| 10:40-11:00| Meal Estimation from Continuous Glucose Monitor Data Using Kalman Filtering and Hypothesis Testing (I), pp. 5654-5661.  
Staal, Odd Martin  
NTNU, Norwegian University of Science and Technology  
Sælid, Steinar  
Prediktor Medical AS  
Fougner, Anders Lyngvi  
Norwegian University of Science and Technology (NTNU)  
Stavdahl, Øyvind  
NTNU, Norwegian University of Science and Technology |
| 11:00-11:20| Optimal Control Modulation of HIV Reservoir Formation Rate by Antigen Infusion (I), pp. 5662-5667.  
Jagarapu, Aditya  
University of Delaware  
Piovoso, Michael J.  
University of Delaware  
Zurakowski, Ryan  
University of Delaware |

## FrA02

**Linear Systems I** (Regular Session)

Chair: Niemann, Henrik  
Technical University of Denmark  
Co-Chair: Dilip, Sanand  
Indian Institute of Technology, Kharagpur

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| 10:00-10:20| Towards Data-Driven LPV Controller Synthesis Based on Frequency Response Functions, pp. 5680-5685.  
Bloemers, Tom  
Eindhoven University of Technology  
Tóth, Roland  
Eindhoven University of Technology  
Oomen, Tom  
Eindhoven University of Technology |
Baggio, Giacomo  
University of California, Riverside  
Zampieri, Sandro  
University of Padova  
Scherer, Carsten W.  
University of Stuttgart |
| 10:40-11:00| A Controller Architecture with Anti-Windup, pp. 5692-5697.  
Niemann, Henrik  
Technical University of Denmark |
| 11:00-11:20| The Controllability Gramian, the Hadamard Product and the Optimal Actuator and Sensor Placement Problem, pp. 5698-5703.  
Dilip, Sanand  
Indian Institute of Technology, Kharagpur |
Eising, Jaap  
University of Groningen  
Camlibel, M. Kanat  
University of Groningen |
| 11:40-12:00| Fractional-Order Memory Reset Control for Integer-Order LTI Systems, pp. 5710-5715.  
Weise, Christoph  
TU Ilmenau  
Wulff, Kai  
TU Ilmenau  
Reger, Johann  
TU Ilmenau |
FrA03

**Autonomous Vehicles (Regular Session)**

**Chair:** Liu, Lantao  
Indiana University  
**Co-Chair:** Ferrari, Riccardo M.G.  
Delft University of Technology

**10:00-10:20**  
FrA03.1  
**Multi-Objective and Model-Predictive Tree Search for Spatiotemporal Informative Planning**, pp. 5716-5722.  
Chen, Weizhe  
Indiana University Bloomington  
Liu, Lantao  
Indiana University

**10:20-10:40**  
FrA03.2  
**Decentralized Radial Segregation in Heterogeneous Swarms of Robots**, pp. 5723-5728.  
Bernardes Ferreira Filho, Edson  
Universidade Federal de Minas Gerais  
Pimenta, Luciano  
Universidade Federal de Minas Gerais

**10:40-11:00**  
FrA03.3  
Bopardikar, Shaunak D.  
Michigan State University  
Srivastava, Vaibhav  
Michigan State University

**11:00-11:20**  
FrA03.4  
**An Observer-Based Longitudinal Control of Car-Like Vehicles Platoon Navigating in an Urban Environment**, pp. 5735-5741.  
Khalifa, Ahmed  
Faculty of Electronics Engineering, Menoufa University  
Kermorgant, Olivier  
École Centrale Nantes  
Dominguez, Salvador  
École Centrale de Nantes  
Martinet, Philippe  
IRCCyN

**11:20-11:40**  
FrA03.5  
Keijzer, Twan  
Delft University of Technology  
Ferrari, Riccardo M.G.  
Delft University of Technology

**11:40-12:00**  
FrA03.6  
**A Predictive Vector-Field Based Lane-Changing Controller**, pp. 5748-5753.  
Huang, Lixing  
University of Michigan  
Panagou, Dimitra  
University of Michigan, Ann Arbor

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FrA04

**Modern Computational and Algorithmic Challenges on Switched Systems (Invited Session)**

**Chair:** Mason, Paolo  
CNRS, Laboratoire Des Signaux Et Systèmes, Supélec  
**Co-Chair:** Jungers, Raphaël M.  
University of Louvain  
**Organizer:** Girard, Antoine  
CNRS  
**Organizer:** Jungers, Raphaël M.  
University of Louvain  
**Organizer:** Wang, Zheming  
University of Louvain

**10:00-10:20**  
FrA04.1  
Scabin Vicinansa, Guilherme  
University of Illinois, Urbana

**10:20-10:40**  
FrA04.2  
**Dissipativeness and Dissipatization of Discrete-Time Switched Linear Systems (I)**, pp. 5760-5765.  
Jungers, Marc  
CNRS - Université de Lorraine  
Ferrante, Francesco  
GIPSA-Lab and Université Grenoble Alpes  
Loheac, Jerome  
CNRS, Université de Lorraine

**10:40-11:00**  
FrA04.3  
Zacchia Lun, Yuriy  
IMT School for Advanced Studies Lucca  
D'Innocenzo, Alessandro  
University of L'Aquila

**11:00-11:20**  
FrA04.4  
**Extended Projected Dynamical Systems with Applications to Hybrid Integrator-Gain Systems (I)**, pp. 5773-5778.  
Sharif, Bardia  
Eindhoven University of Technology  
Heertjes, Marcel  
Eindhoven University of Technology  
Heemels, W.P.M.H.  
Eindhoven University of Technology

**11:20-11:40**  
FrA04.5  
**Fault Detectability Analysis of Switched Affine Systems with Linear Temporal Logic Constraints (I)**, pp. 5779-5786.  
Yang, Liren  
University of Michigan  
Ozay, Necmiye  
University of Michigan

**11:40-12:00**  
FrA04.6  
Girard, Antoine  
CNRS  
Mason, Paolo  
CNRS, Laboratoire Des Signaux Et Systèmes, Supélec

FrA05

**Robust Control I (Regular Session)**

**Chair:** Ossmann, Daniel  
German Aerospace Center (DLR)  
**Co-Chair:** Yagoubi, Mohamed  
IMT Atlantique

**10:00-10:20**  
FrA05.1  
Arthur, Khalid M.  
University of New Hampshire  
Yoon, Se Young (Pablo)  
University of New Hampshire

**10:20-10:40**  
FrA05.2  
Martinez, Contreras, Edgar Alejandro  
Tecnologico Nacional de Mexico/ Instituto Tecnologico de La Laguna  
Rios, Héctor  
CONACYT-Tecnologico Nacional de Mexico/ Instituto Tecnologico de La Laguna  
Mera, Manuel  
UPIBI-IPN  
González-Sierra, Jaime  
Instituto Tecnológico de La Laguna
10:40-11:00 FrA05.3
Robustness Analysis of Continuous Periodic Systems Using Integral Quadratic Constraints, pp. 5805-5810.
Ossmann, Daniel Munich University of Applied Sciences
Pfifer, Harald University of Nottingham
11:00-11:20 FrA05.4
Projection/Reflection-Based Techniques for Multi-Objective Control Synthesis under Information Structure Constraints, pp. 5811-5818.
Yagoubi, Mohamed CNRS-UMR 6004-CD0962
11:20-11:40 FrA05.5
Revisit of LQG Control--A New Paradigm with Recovered Robustness, pp. 5819-5825.
Chen, Xiang University of Windsor
Zhou, Kemin Shandong University of Science and Technology
Tan, Ying University of Melbourne
10:40-11:00 FrA06.1
Yang, Haibo Iowa State University
Zhang, Xin Iowa State University
Fang, Minghong Iowa State University
Liu, Jia Iowa State University
10:20-10:40 FrA06.2
Teel, Andrew R. University of California, Santa Barbara
Poveda, Jorge I. University of Colorado, Boulder
Le, Justin University of California, Santa Barbara
10:40-11:00 FrA06.3
Distributed Algorithm for Economic Dispatch Problem with Separable Losses, pp. 5844-5849.
Lee, Seungjoon Seoul National University
Shim, Hyungbo Seoul National University
11:00-11:20 FrA06.4
Seidman, Jacob H. University of Pennsylvania
Fazlyab, Mahyar University of Pennsylvania
11:20-11:40 FrA06.5
Han, Shuo University of Illinois, Chicago
11:40-12:00 FrA06.6
Distributed Alternating Direction Method of Multipliers for Linearly-Constrained Optimization Over a Network, pp. 5862-5867.
Carli, Raffaele Politecnico di Bari
Dotoli, Mariagrazia Politecnico di Bari
10:20-10:40 FrA07.1
Robust Multivariable Sliding Mode Attitude Control for Enhanced Helicopter Handling Qualities, pp. 5868-5873.
Haible, Omkar Technical University of Munich
Hajek, Manfred Technical University of Munich
10:40-11:00 FrA07.3
Automatic Control of Convertible Fixed-Wing Drones with Vectorized Thrust, pp. 5880-5887.
anglade, andre I3S, Université Cote D Azur, CNRS, Sophia Antipolis, France,
KAI, Jean-Marie I3S CNRS Université Côte D’Azur
Hamel, Tarek Université de Nice Sophia Antipolis
Samson, Claude I3S-CNRS
11:00-11:20 FrA07.4
Saraiva da Silva, Ramiro Federal University of Santa Catarina
De Lelis, Marcelo Federal University of Santa Catarina
Bruhns Bastos, Matheus Federal University of Santa Catarina
Trofino, Alexandre Federal University of Santa Catarina
**Continuous Sliding-Mode Control for a Class of Underactuated Systems**, pp. 6001-6006.

Ovalle, Luis
TechNM/Instituto Tecnológico de La Laguna
Steinberger, Martin
Graz University of Technology
Horn, Martin
Graz University of Technology
Ferrara, Antonella
University of Pavia

**Homogeneous Filtering and Differentiation Based on Sliding Modes**, pp. 6013-6018.

Levant, Arie
Tel-Aviv University


Xie, Junfei
San Diego State University
Garcia Carrillo, Luis Rodolfo
Texas A&M University - Corpus Christi
Jin, Lei
Texas A&M University-Corpus Christi
Hespanha, Joao P.
University of California, Santa Barbara


Joseph, Ajin
Indian Institute of Science
Bhatnagar, Shalabh
Indian Institute of Science

**Optimization Based Input Preview Filtering for Dynamical Systems**, pp. 6032-6037.

Lang, Adair
University of Melbourne
Cantoni, Michael
University of Melbourne


Andrien, Alex Rudolf Petrus
Eindhoven University of Technology
Antunes, Duarte
Eindhoven University of Technology

**Tracking of Multiple Targets across Distributed Platforms with FOV Constraints**, pp. 6044-6049.

Allik, Bethany
US Army Research Laboratory

**Distributed Tracking Via Simultaneous Perturbation Stochastic Approximation-Based Consensus Algorithm**, pp. 6050-6055.

Efroeeva, Victoria
Saint Petersburg State University
Granchin, Oleg
Saint Petersburg State University
Amelina, Natalia
Saint Petersburg State University
Ivanskii, Yury
Saint Petersburg State University
Jiang, Yuming
Norwegian University of Science and Technology

**System Cones and Phase Bounded Systems** (Invited Session)

Chair: Qiu, Li
Hong Kong University of Science and Technology
Co-Chair: Chen, Wei
Hong Kong University of Science and Technology
Organizer: Chen, Wei
Peking University
Organizer: Qiu, Li
Hong Kong University of Science and Technology

**Phase Analysis of MIMO LTI Systems (I)**, pp. 6062-6067.

Chen, Wei
Peking University
Wang, Dan
Hong Kong University of Science and Technology
Khong, Sei Zhen
University of Hong Kong
Qiu, Li
Hong Kong University of Science and Technology


Pates, Richard
Lund University
Bergeling, Carolina
Lund University
Rantzer, Anders
Lund University

**Karpelevich Theorem and the Positive Realization of Matrices**, pp. 6074-6079.

Cacace, Filippo
Università Campus Biomedico di Roma
Germani, Alfredo
University of L'Aquila
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<td>FrA15.4</td>
<td>Adaptive Dynamic Programming Using Lyapunov Function Constrainst</td>
<td>Göhr, Thomas, Osinenko, Pavel, Streif, Stefan (Technische Universität Chemnitz)</td>
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<td>11:20-11:40</td>
<td>FrA15.5</td>
<td>Optimal Motion of a Scallop: Some Case Studies</td>
<td>Zoppello, Marta, Magistro, Rosario (Università Ca' Foscari Venezia)</td>
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<td>FrA15.6</td>
<td>Solution for the Continuous-Time Infinite-Horizon Linear Quadratic Regulator Subject to Scalar State Constraints</td>
<td>van Keulen, Thijs (Eindhoven University of Technology)</td>
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<td>FrA16</td>
<td>Real-Time Optimization Methods for Power Systems (Invited Session)</td>
<td>Chair: Colombino, Marcello, Co-Chair: Scherpen, Jacquelien M.A., Organizer: Colombino, Marcello</td>
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<td>FrA16.1</td>
<td>Towards Robustness Guarantees for Feedback-Based Optimization (I)</td>
<td>Colombino, Marcello (McGill University), Simpson-Porco, John W., Bernstein, Andrey (NREL)</td>
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<td>FrA16.2</td>
<td>Distributed Control of DC Microgrids Using Primal-Dual Dynamics (I)</td>
<td>Kosaraju, Krishna Chaitanya, Cucuzzella, Michele, Scherpen, Jacquelien M.A. (University of Groningen)</td>
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<td>10:40-11:00</td>
<td>FrA16.3</td>
<td>On the Convergence of the Inexact Running Krasnosel'ski-Mann Method</td>
<td>Dall’Anese, Emiliano, Simonetto, Andrea (University of Colorado, Boulder, IBM Research Ireland)</td>
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<td>11:00-11:20</td>
<td>FrA16.4</td>
<td>Sufficient Conditions for Exact Semidefinite Relaxation of Optimal Power Flow in Unbalanced Multiphase Radial Networks</td>
<td>Zhou, Fengyu, Chen, Yue, Low, Steven (California Institute of Technology)</td>
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- Tatarenko, Tatiana (Technical University of Darmstadt)
- Zimmermann, Jan (Technical University of Darmstadt)
- Willert, Volker (Technical University of Darmstadt)
- Adamy, Jürgen (Technical University of Darmstadt)

**11:40-12:00 FrA16.6 Distributed Model Predictive Control for Autonomous Droop-Controlled Inverter-Based Microgrids**, pp. 6242-6248.

- Anderson, Sean (University of California, Berkeley)
- Hidalgo-Gonzalez, Patricia (University of California, Berkeley)
- Dobbe, Roel (University of California, Berkeley)
- Tomlin, Claire J. (University of California, Berkeley)

**FrA17 Rhodes AB**

**Formal Methods in Control (Invited Session)**

- Chair: Reisigg, Gunther (Bundeswehr University Munich)
- Co-Chair: Kong, Zhaodan (University of California, Davis)
- Organizer: Reisigg, Gunther (Bundeswehr University Munich)
- Organizer: Ehlers, Ruediger (Clausthal University of Technology)

**10:00-10:20 FrA17.1 Computing Controlled Invariant Sets in Two Moves (I)**, pp. 6249-6254.

- Anevavis, Tzanis (University of California, Los Angeles)
- Tabuada, Pablo (University of California, Los Angeles)


- Saoud, Adnane (CentraleSupélec, CNRS, CentraleSupélec, Université Paris-Sud, Université Paris-Sa)
- Girard, Antoine (CNRS)


- Bai, Yunjun (SKLCS, Institute of Software, Chinese Academy of Sciences, Univ)
- Mallik, Kaushik (MPI-SWS (Max Planck Institute for Software Systems))
- Schmuck, Anne-Kathrin (MPI-SWS)
- Zufferey, Damien (MPI-SWS)
- Majumdar, Rupak (University of California, Los Angeles)

**11:00-11:20 FrA17.4 Semantic Inference for Cyber-Physical Systems with Signal Temporal Logic**, pp. 6269-6274.

- Chen, Gang (University of California, Davis)
- Liu, Mei (University of Hong Kong)
- Kong, Zhaodan (University of California, Davis)
Temporal Logic Planning in Uncertain Environments with Probabilistic Roadmaps and Belief Spaces, pp. 6282-6287.

FrA18

Hybrid Systems I (Regular Session)

Chair: Normand-Cyrot, Dorothée CNRS
Co-Chair: Sanfelice, Ricardo G. University of California, Santa Cruz

10:00-10:20 FrA18.1
Zattoni, Elena Università di Bologna
Perdon, Anna Maria Università Politecnica delle Marche
Conte, Giuseppe Università Politecnica delle Marche
Moog, Claude H. CNRS

10:20-10:40 FrA18.2
Murali, Vishal Georgia Institute of Technology
Ames, Aaron D. California Institute of Technology
Verriest, Erik I. Georgia Institute of Technology

10:40-11:00 FrA18.3
Time-Optimal Control for the Hybrid Double Integrator with State-Driven Jumps, pp. 6301-6306.
Cristofaro, Andrea University of Oslo
Possier, Corrado Politecnico di Torino
Sassano, Mario University of Rome, Tor Vergata

11:00-11:20 FrA18.4
Mattoni, Mattia University of Roma La Sapienza
Monaco, Salvatore University of Roma La Sapienza
Normand-Cyrot, Dorothée CNRS

11:20-11:40 FrA18.5
Robust Regulation for Linear Systems Using Impulsive Observers, pp. 6313-6318.
Jaramillo, Oscar David Center for Research and Advanced Studies of the National Polytec.

11:40-12:00 FrA17.6

10:00-10:20 FrA19.1
Convex Optimization Over Sequential Linear Feedback Policies with Continuous-Time Chance Constraints, pp. 6325-6331.
Oguri, Kenshiro University of Colorado
Ono, Masahiro Jet Propulsion Laboratory, California Institute of Technology
McMahon, Jay University of Colorado

10:20-10:40 FrA19.2
Monte Carlo Tree Search with Optimal Computing Budget Allocation, pp. 6332-6337.
Li, Yunchuan University of Maryland
Fu, Michael C. University of Maryland
Xu, Jie George Mason University

10:40-11:00 FrA19.3
Sequential Dynamic Resource Allocation for Epidemic Control, pp. 6338-6343.
Fekom, Mathilde ENS Paris-Saclay
Vayatis, Nicolas Ecole Normale Superieure de Cachan
Kalogeratos, Argyris ENS Paris Saclay

11:00-11:20 FrA19.4
Sharma, Hiteshi USC
Jain, Rahul University of Southern California
Haskell, William B. National University of Singapore

11:20-11:40 FrA19.5
Stochastic Zero-Sum Differential Games for Forward-Backward SDEs, pp. 6350-6355.
Moon, Jun University of Seoul
Basar, Tamer University of Illinois, Urbana Champaign

11:40-12:00 FrA19.6
Optimization-Based Estimation of Expected Values with Application to Stochastic Programming, pp. 6356-6361.
Chinchilla, Raphael University of California, Santa Barbara
Hespanha, Joao P. University of California, Santa Barbara
### FrA20

**Distributed Control IV (Regular Session)**

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<tr>
<td>10:00-10:20</td>
<td>A Randomized Block Subgradient Approach to Distributed Big Data Optimization</td>
<td>Farina, Francesco, Notarstefano, Giuseppe (University of Bologna)</td>
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<td>10:20-10:40</td>
<td>A Graph-Theoretic Approach to the H_infty Performance of Leader-Follower Consensus on Directed Networks</td>
<td>Pirani, Mohammad, Sandberg, Henrik, Johansson, Karl H. (KTH Royal Institute of Technology)</td>
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<td>10:40-11:00</td>
<td>Distributed Constraint-Coupled Optimization Over Random Time-Varying Graphs Via Primal Decomposition and Block Subgradient Approaches</td>
<td>Camisa, Andrea, Farina, Francesco, Notarstefano, Giuseppe (University of Bologna)</td>
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<td>11:00-11:20</td>
<td>Asynchronous Distributed Optimization Via Dual Decomposition and Block Coordinate Ascent</td>
<td>Lin, Yankai, Shames, Iman, Nesic, Dragan (University of Melbourne)</td>
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<td>11:20-11:40</td>
<td>Dynamic Reduction of the Iterations Requirement in a Distributed Model Predictive Control</td>
<td>DAI, Xiang, Bourdais, Romain, Gueguen, Herve (CentraleSupélec)</td>
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### FrA21

**Networked Control Systems IV (Regular Session)**

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<td>Scheduling for Stabilization Over Capacity-Constrained Channels</td>
<td>Rokade, Kiran, Kamath, Gopal Krishna, Kalaimani, Rachel Kalpana (Indian Institute of Technology, Texas A&amp;M University, Madras)</td>
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### FrA22

**Nonlinear Systems Identification I (Regular Session)**

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<td>10:00-10:20</td>
<td>Local Model Networks for the Identification of Nonlinear State Space Models</td>
<td>Schüssler, Max, Münker, Tobias, Nelles, Oliver (University of Siegen)</td>
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<td>10:40-11:00</td>
<td>Variable Selection for a Nonparametric Nonlinear System by Directional Regression</td>
<td>Cheng, Changming, Bai, Er-Wei (Shanghai Jiaotong University, University of Iowa)</td>
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### FrA23

**Near-Optimal Solution to Non-Uniform Sampling Problem in Kalman Filtering**

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<td>On Discrete-Time H-Inf Optimization under Intermittent Communications</td>
<td>Braksmyer, Maor, Mirkin, Leonid (Technion - IIT)</td>
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### FrA24

**On Graphs with Bounded and Unbounded Convergence Times in Social Hegselmann-Krause Dynamics**

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<td>11:40-12:00</td>
<td>Sequence-Based Stochastic Receding Horizon Control Using IMM Filtering and Value Function Approximation</td>
<td>Rosenthal, Florian, Hanebeck, Uwe D. (Karlsruhe Institute of Technology)</td>
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<tr>
<td>11:00-11:20</td>
<td>On Graphs with Bounded and Unbounded Convergence Times in Social Hegselmann-Krause Dynamics</td>
<td>Parasnis, Rohit Yashodhar, Franceschetti, Massimo, Touri, Behrouz (University of California, San Diego)</td>
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### FrA25

**Occupation Kernels and Densely Defined Liouville Operators for System Identification**

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<td>Data-Based Robust MPC with Componentwise Hölder Kinky Inference</td>
<td>Manzano, Jose Maria, Limon, Daniel, Muñoz de la Peña, David, Callies, Jan-Peter (University of Seville, University of Oxford)</td>
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<td>10:40-11:00</td>
<td>Near-Optimal Solution to Non-Uniform Sampling Problem in Kalman Filtering</td>
<td>Hartman, David (University of Maryland, College Park)</td>
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<td>10:40-11:00</td>
<td>Event-Triggered Approximate Leader-Follower Consensus with Resilience to Byzantine Adversaries</td>
<td>Zegers, Federico (University of Florida)</td>
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<td>11:00-11:20</td>
<td>On Discrete-Time H-Inf Optimization under Intermittent Communications</td>
<td>Braksmyer, Maor, Mirkin, Leonid (Technion - IIT)</td>
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<td>On Graphs with Bounded and Unbounded Convergence Times in Social Hegselmann-Krause Dynamics</td>
<td>Parasnis, Rohit Yashodhar, Franceschetti, Massimo, Touri, Behrouz (University of California, San Diego)</td>
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<td>11:40-12:00</td>
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<td>11:00-11:20</td>
<td>On Graphs with Bounded and Unbounded Convergence Times in Social Hegselmann-Krause Dynamics</td>
<td>Parasnis, Rohit Yashodhar, Franceschetti, Massimo, Touri, Behrouz (University of California, San Diego)</td>
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Learning Safe Policies Via Primal-Dual Methods, pp. 6491-6497.
Paternain, Santiago University of Pennsylvania
Calvo-Fullana, Miguel University of Pennsylvania
de Oliveira Chamon, Luiz University of Pennsylvania
Fernando
Ribeiro, Alejandro University of Pennsylvania

11:40-12:00 FrA22.6
Simultaneous Localization and Parameter Estimation for Single Particle Tracking Via Sigma Points Based EM, pp. 6467-6472.
Lin, Ye Boston University
Andersson, Sean B. Boston University

10:00 FrA24 Iterative Learning Control I (Regular Session)

11:20-11:40 FrA23.5
Safe Learning-Based Control of Stochastic Jump Linear Systems: A Distributionally Robust Approach (I), pp. 6498-6503.
Schuurmans, Matthijs Katholieke Universiteit Leuven
Sopasakis, Pantelis Katholieke Universiteit Leuven
Patrinos, Panagiotis Katholieke Universiteit Leuven

11:00-11:20 FrA24.1
Adib Yaghmaie, Farnaz Linkoping University
Gustafsson, Fredrik Linkoping University

10:20-10:40 FrA24.2
Design of Iterative Learning Control Schemes for Spatially Interconnected Systems, pp. 6518-6523.
Maniarski, Robert University of Zielona Góra
Klimkowicz, Kamil University of Zielona Gora
Paszke, Wojciech University of Zielona Gora
Rogers, Eric University of Southampton

10:40-11:00 FrA24.3
Motion Control of a Soft Circular Crawling Robot Via Iterative Learning Control, pp. 6524-6529.
Chi, Haozhen Zhejiang University
Li, Xuefang Imperial College London
Li, Na National University of Singapore
Wu, Yan A*STAR Institute for Infocomm Research
Ren, Qinyuan Zhejiang University

11:00-11:20 FrA24.4
Emelianova, Julia Arzamas Polytechnic Institute of R.E. Alekseev Nizhny Novgorod
Pakshin, Pavel Arzamas Polytechnic Institute of R.E. Alekseev Nizhny Novgorod
Galkowski, Krzysztof University of Zielona Gora
Rogers, Eric University of Southampton

11:20-11:40 FrA24.5
Rizvi, Syed Ali Asad University of Virginia
Wei, Yusheng University of Virginia
Lin, Zongli University of Virginia

10:20-10:40 FrA23.2
Exploiting Fast Decaying and Locality in Multi-Agent MDP with Tree Dependence Structure (I), pp. 6479-6486.
Qu, Guannan Harvard University
Li, Na Harvard University

10:00-10:20 FrA23.1
Off-Policy Reinforcement-Learning Algorithm to Solve Minimax Games on Graphs (I), pp. 6473-6478.
Lopez Mejia, Victor Gabriel University of Texas, Arlington
Vamvoudakis, Kyriakos G. Georgia Institute of Technology
Wan, Yan University of Texas, Arlington
Lewis, Frank L. University of Texas, Arlington

10:40-11:00 FrA23.3
Completion of Rectangular Matrices Using Asymmetric Ramanujan Graphs, pp. 6487-6490.
Burmwal, Shantanu Prasad Indian Institute of Technology, Hyderabad
Vidyasagar, Mathukumalli Indian Institute of Technology, Hyderabad

11:00-11:20 FrA23.4
Learning Safe Policies Via Primal-Dual Methods, pp. 6491-6497.
Patrinos, Panagiotis Katholieke Universiteit Leuven
Sopasakis, Pantelis Katholieke Universiteit Leuven
Patrinos, Panagiotis Katholieke Universiteit Leuven

11:40-12:00 FrA22.6
Avoiding Chatter in an Online Co-Learning Algorithm Predicting Human Intention (I), pp. 6504-6509.
Young, Carol Georgia Institute of Technology
Yao, Ningshi Georgia Institute of Technology
Zhang, Fumin Georgia Institute of Technology
### FrA25

**Power Systems I (Regular Session)**

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<th>Co-Chair</th>
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<td>Generalized Active Disturbance Rejection Controller for Load Frequency Control in Power Systems, pp. 6548-6553.</td>
<td>Jain, Shivam</td>
<td>Henrion, Didier</td>
<td>Indian Institute of Technology, Roorkee</td>
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<td>Li, Tongxin</td>
<td>Werner, Lucien</td>
<td>California Institute of Technology</td>
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<td>Fekih, Afef</td>
<td>University of Louisiana, Lafayette</td>
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<td>A Supervisory Control Structure for Voltage-Controlled Islanded DC Microgrids, pp. 6566-6571.</td>
<td>La Bella, Alessio</td>
<td>Nahata, Pulkit</td>
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<td>FrA25.6</td>
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<td>Gwynn, Benjamin</td>
<td>de Callafon, Raymond A.</td>
<td>University of California, San Diego</td>
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### FrA26

**Payoff Dynamics and Higher-Order Learning in Population Games (Tutorial Session)**

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<td>Shamma, Jeff S.</td>
<td></td>
<td>King Abdullah University of Science and Technology (KAUST)</td>
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<td>FrA26.2</td>
<td>Population Games: Motivation and Foundational Concepts (I)*.</td>
<td>Shamma, Jeff S.</td>
<td></td>
<td>King Abdullah University of Science and Technology (KAUST)</td>
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<td>Stability Analysis: Potential and Contractive Games (I)*.</td>
<td>Martins, Nuno C.</td>
<td></td>
<td>University of Maryland</td>
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<td>From Population Games to Payoff Dynamics Models: A Passivity-Based Approach (I), pp. 6584-6601.</td>
<td>Park, Shinkyu</td>
<td>Martins, Nuno C.</td>
<td>University of Maryland</td>
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<td>Gyorgy, Andras</td>
<td>Max Planck Institute of Molecular Cell Biology and Genetics</td>
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<td>Duso, Lorenzo</td>
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Reichensdörfer, Elias Technical University of Munich and BMW Group
Degel, Wolfgang BMW M
Odenthal, Dirk German Aerospace Center (dlr) Oberpfaffenhofen
Wollherr, Dirk Technische Universität München

Bayesian Learning of Tire Friction with Automotive-Grade Sensors by Gaussian-Process State-Space Models, pp. 6681-6686.

Bemtrop, Karl Mitsubishi Electric Research Labs
Kitano, Hiroaki Mitsubishi Electric Corp., Adv. Technology R&D Center

A One-Step Feasible Negotiation Algorithm for Distributed Trajectory Generation of Autonomous Vehicles, pp. 6687-6693.

Kneissl, Maximilian DENSO Automotive Deutschland GmbH
Molin, Adam DENSO Automotive Deutschland GmbH
Esen, Hasan DENSO Automotive Deutschland GmbH
Hirche, Sandra Technische Universität München

Robust Hierarchical MPC for Handling Long Horizon Demand Forecast Uncertainty with Application to Automotive Thermal Management, pp. 6694-6699.

Amini, Mohammad Reza University of Michigan
Kolmanovsky, Ilya V. University of Michigan
Sun, Jing University of Michigan


Li, Boyuan Cranfield University
Siampis, Efstathios Delta Motorsport
Lin, Chenhui Cranfield University
Longo, Stefano Cranfield University
Velenis, Efstathios Cranfield University
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Liu, Zhaocong Shanghai Jiao Tong University
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Shu, Shaolong Tongji University
Li, Shaoyuan Shanghai Jiao Tong University

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Hadjicostis, Christoforos N. University of Cyprus

Verification of Nonblockingness in Bounded Petri Nets with a Semi-Structural Approach (I), pp. 6718-6723.
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Ma, Ziyue Xidian University
Li, Zhiwu Xidian University
Guia, Alessandro University of Cagliari

Miao, Chengshi Tongji University
Shu, Shaolong Tongji University
Lin, Feng Wayne State University

Zhu, Yuting Nanyang Technological University
Lin, Liyong University of Toronto
Ware, Simon Nanyang Technological University
Su, Rong Nanyang Technological University

Yang, Jingkai Sun Yat-Sen University
Deng, Weilin Sun Yat-Sen University
Jiang, Cheng Sun Yat-Sen University
Qiu, Daowen Sun Yat-Sen University

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Summers, Tyler H. University of Texas, Dallas
Mohajerin Esfahani, Peyman Delft University of Technology
| Chair: Rakotondrabe, Micky | FEMTO-ST Institute |
| Co-Chair: Boudaoud, Mokrane | Sorbonne Université |
| Organizer: Rakotondrabe, Micky | ENIT Tarbes |
| Organizer: Boudaoud, Mokrane | Sorbonne Université |
| Organizer: Al Janaideh, Mohammad | Memorial University |

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| Zarif Mansour, Sepehr | 1990 |
| Seethaler, Rudolf | UBC |

**FrB072**

*Iterative Learning Control for High-Speed Rosette Trajectory Tracking (I), pp. 6832-6837.*

| Nikoienejad, Nastaran | University of Texas, Dallas |
| Maroufi, Mohammad | University of Texas, Dallas |
| Moheimani, S.O. Reza | University of Texas, Dallas |

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**Advances in Constructive Techniques and Use of Lyapunov Functions (Invited Session)**

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<td>Srinivasan, Mohit; Hyun, Nak-seung Patrick; Coogan, Samuel</td>
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### FrB13
**Uncertain Systems II (Regular Session)**

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Switching between Sensor Configurations for Uncertain Systems; Application to Control of Anesthesia, pp. 7043-7048.

van Heusden, Klaske
Dumont, Guy A.
University of British Columbia

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Leurent, Edouard
Efimov, Denis
INRIA

Raissi, Tarek
Conservatoire National Des Arts Et Métiers

Perruquet, Wilfrid
Ecole Centrale de Lille

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Robustness Analysis of Initial Excitation Based Adaptive Control, pp. 7055-7062.

Basu Roy, Sayan
Indraprastha Institute of Information Technology Delhi

Bhasin, Shubhendu
Indian Institute of Technology, Delhi

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Learning and Information Manipulation: Repeated Hypergames for Cyber-Physical Security, pp. 7063-7068.

Bakker, Craig
Pacific Northwest National Laboratory

Bhattacharya, Arnab
Pacific Northwest National Laboratory

Chatterjee, Samrat
Pacific Northwest National Laboratory

Vrabie, Draguna
Pacific Northwest National Laboratory

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Braga, Marcio F.
Federal University of Ouro Preto (UFOP)

Campos, Victor
Universidade Federal de Minas Gerais

Frezzatto, Luciano
Universidade Federal de Minas Gerais

FrB14

Stability of Nonlinear Systems II (Regular Session)

Chair: Polyaakov, Andrey
INRIA Lille Nord-Europe

Co-Chair: Chitour, Yacine
Université Paris-Sud, CNRS, Supelec

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Polushin, Ilya G.
Western University

Dashkovskiy, Sergey N.
University of Wuerzburg

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Kim, Minwoo
Korea Advanced Institute of Science & Technology (KAIST)

Phogat, Karmvir Singh
IIT Bombay

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Chair: De Marchi, Alberto
Bundeswehr University Munich

Co-Chair: Streif, Stefan
Technische Universität Chemnitz

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Beckenbach, Lukas
Chemnitz University of Technology

Osinenko, Pavel
Technische Universität Chemnitz

Streif, Stefan
Technische Universität Chemnitz

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Fontes, Fernando A. C. C.
UniversidadedoPorto

Halder, Abhishek
University of California, Santa Cruz

Becerril, Jorge
UniversidadedoPorto

Kumar, P. R.
Texas A&M University

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De Marchi, Alberto
Bundeswehr University Munich

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Cartee, Elliot
Cornell University

Lai, Lexiao
University of Hong Kong

Song, Qianli
University of Hong Kong

Vladimirsky, Alexander
Cornell University

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Vincent, Tyrone L. Colorado School of Mines
Tang, Gongsuo Colorado School of Mines
Weddle, Peter Colorado School of Mines

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Hou, QiQiHong Kong University of Sci. & Tech
Clark, Andrew Worcester Polytechnic Institute

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Chair: Schulze Darup, Moritz University of Paderborn
Co-Chair: Alexandru, Andreea B. University of Pennsylvania B.
Organizer: Schulze Darup, Moritz University of Paderborn
Organizer: Alexandru, Andreea B. University of Pennsylvania B.

14:00-14:20 Rhodes EF

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Teranishi, Kaoru University of Electro-Communications
Shimada, Naoki National Institute of Technology, Ishikawa College
Kogiso, Kiminao University of Electro-Communications

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Kim, Junsoo Seoul National University
Shim, Hyungbo Seoul National University

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Alexandru, Andreea B. University of Pennsylvania
Schulze Darup, Moritz University of Paderborn
Pappas, George J. University of Pennsylvania

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Tjell, Katrine Aalborg University
Wisniewski, Rafal Aalborg University

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Sultangazin, Alimzhan University of California, Los Angeles
Tabuada, Paulo University of California, Los Angeles

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Schulze Darup, Moritz University of Paderborn
Jager, Tibor Paderborn University

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Western University

Tayebi, Abdelhamid 
Lakehead University

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Maghenem, Mohamed Adlene 
University of California Santa Cruz

Melis, Alessandro 
University of Bologna

Sanfelice, Ricardo G. 
University of California, Santa Cruz

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Baradaran Hosseini, Matina 
University of California, Santa Barbara

Teel, Andrew R. 
University of California, Santa Barbara

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Harbin Institute of Technology, Shenzhen

Wang, Shuning 
Tsinghua University

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de Carolis, Giovanni 
University of Roma Tor Vergata

Saccon, Alessandro 
Eindhoven University of Technology

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Manganini, Giorgio 
United Technologies Research Centre

Riverso, Stefano 
United Technologies Research Centre Ireland Ltd

Kouramas, Konstantinos 
United Technologies Research Center

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Stochastic Optimal Control II (Regular Session)

Chair: Mahajan, Aditya 
McGill University

Co-Chair: Chakravorty, Suman 
Texas A&M University

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Busic, Ana 
INRIA

Meyn, Sean P. 
University of Florida

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The Maximal Hitting-Time Stochastic Reachability Problem, pp. 7266-7272.

FrB19

Stochastic Optimal Control II (Regular Session)

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Chair: Mahajan, Aditya 
McGill University

Co-Chair: Chakravorty, Suman 
Texas A&M University

14:00-14:20 FrB19.1

Distributed Control of Thermostatically Controlled Loads: Kullback-Leibler Optimal Control in Continuous Time, pp. 7258-7265.

Busic, Ana 
INRIA

Meyn, Sean P. 
University of Florida

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The Maximal Hitting-Time Stochastic Reachability Problem, pp. 7266-7272.

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P. Vinod, Abraham 
University of Texas, Austin

Oishi, Meeko 
University of New Mexico

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Yu, Dan 
Nanjing University of Aeronautics and Astronautics

Chakravorty, Suman 
Texas A&M University

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Jang, Sunho 
Seoul National University

Yang, Insoon 
Seoul National University

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Akbarzadeh, Nima 
Student

Mahajan, Aditya 
McGill University

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Chair: Cai, Kai 
Osaka City University

Co-Chair: Qu, Zhihua 
University of Central Florida

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Kawamura, Satoshi 
Osaka City University

Cai, Kai 
Osaka City University

Kishida, Masako 
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Liu, Zhenwei 
Northeastern University

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Washington State Univ

Stoorvogel, Anton A. 
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Nojavanzadeh, Donya 
Washington State University

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Talebi, Shahrar 
University of Washington

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University of Central Florida

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Von Moll, Alexander 
Air Force Research Laboratory

Casbeer, David W. 
Air Force Research Laboratory
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Hsieh, M. Ani
Kumar, Vijay
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Command Army Research Laboratory
University of Pennsylvania
University of Pennsylvania
University of Pennsylvania

Colombo, Leonardo Jesus
Garcia de Marina, Hector
Barbero-Linan, Maria
Martin de Diego, David
Consejo Superior de Investigaciones Científicas (CSIC)
University of Southern Denmark
Technical University of Madrid
High Council for Scientific Research

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Co-Chair: Lucia, Walter
University of Texas, Austin
Concordia University

Wang, Xin
Ishii, Hideaki
Du, Linkang
Cheng, Peng
Chen, Jiming
Zhejiang University
Tokyo Institute of Technology
Zhejiang University
Zhejiang University
Zhejiang University

**Sparse LQR Synthesis Via Information Regularization**, pp. 7345-7351.
Stefan, Jeb
Tanaka, Takashi
University of Texas, Austin
University of Texas, Austin

Javed, Muhammad Umar
Poveda, Jorge I.
Chen, Xudong
University of Colorado, Boulder
University of Colorado, Boulder
University of Colorado, Boulder

Sharf, Miel
Zelazo, Daniel
Israel Institute of Technology
Technion - Israel Institute of Technology

Knorn, Steffi
Otto-Von-Guericke University Magdeburg

**Resilient Control for Cyber-Physical Systems Subject to Replay Attacks**, pp. 7370-7375.
Franze’, Giuseppe
Tedesco, Francesco
Lucia, Walter
University of Calabria
University of Calabria
Concordia University

Paoletti, Simone
Savelli, Iacopo
Garulli, Andrea
Vicino, Antonio
University of Siena
University of Siena
University of Siena
University of Siena

**Learning Discrepancy Models from Experimental Data**, pp. 7389-7396.
Kaheman, Kadierdan
Kaiser, Eureka
Strom, Benjamin
Kutz, J. Nathan
Brunton, Steven L.
University of Washington
University of Washington
University of Washington
University of Washington
University of Washington

Decuyper, Jan
Dreesen, Philippe
Schoukens, Johan
Runacres, Mark C
Tiels, Koen
Vrije Universiteit Brussel
Vrije Universiteit Brussel
Vrije Universiteit Brussel
Vrije Universiteit Brussel
Université Libre de Bruxelles

**Nonlinear Input Design As Optimal Control of a Hamiltonian System**, pp. 7403-7408.
Umenberger, Jack
Schön, Thomas (Bo)
Uppsala University
Uppsala University

Berger, Guillaume O.
Jungers, Raphaël M.
University of Louvain
University of Louvain
## Large-Scale Distributed Optimization and Decentralized Control I
### Invited Session

**Chair:** Nedic, Angelia  
**Co-Chair:** Uribe, Cesar

**Organizer:** Uribe, Cesar  
**Organizer:** Nedic, Angelia  
**Organizer:** Olshesky, Alexander

### FrB23.1 14:00-14:20

**Convergence and Iteration Complexity of Policy Gradient Method for Infinite-Horizon Reinforcement Learning (I),** pp. 7415-7422.

- Zhang, Kaiqing  
  University of Illinois, Urbana-Champaign
- Koppel, Alec  
  U.S. Army Research Laboratory
- Zhu, Hao  
  University of Texas, Austin
- Basar, Tamer  
  University of Illinois, Urbana-Champaign

### FrB23.2 14:20-14:40

**Totally Asynchronous Distributed Quadratic Programming with Independent Stepsizes and Regularizations (I),** pp. 7423-7428.

- Ubl, Matthew  
  University of Florida
- Hale, Matthew  
  University of Florida

### FrB23.3 14:40-15:00

**Lower Bound Performances for Average Consensus in Open Multi-Agent Systems (I),** pp. 7429-7434.

- Monnoyer de Galland de Carnières, Charles  
  Université Catholique de Louvain
- Hendrickx, Julien M.  
  Université Catholique de Louvain

### FrB23.4 15:00-15:20

**On Primal and Dual Approaches for Distributed Stochastic Convex Optimization Over Networks (I),** pp. 7435-7440.

- Dvinskikh, Darina  
  Weierstrass Institute for Applied Analysis and Stochastics
- Gorbunov, Eduard  
  Moscow Institute of Physics and Technology
- Gasnikov, Alexander  
  Moscow Institute of Physics and Technology
- Dvurechensky, Pavel  
  Weierstrass Institute for Applied Analysis and Stochastics
- Uribe, Cesar  
  Massachusetts Institute of Technology

### FrB23.5 15:20-15:40

**Graph Topology and Subsystem Centrality in Approximately Dissipative System Interconnections,** pp. 7441-7447.

- Köhler, Philipp N.  
  University of Stuttgart
- Muller, Matthias A.  
  Leibniz University Hannover
- Allgöwer, Frank  
  University of Stuttgart

### FrB23.6 15:40-16:00

**Convergence Rate Analysis of a Subgradient Averaging Algorithm for Distributed Optimisation with Different Constraint Sets,** pp. 7448-7453.

- Romao, Licio  
  University of Oxford
- Margellos, Kostas  
  University of Oxford
- Notarstefano, Giuseppe  
  University of Bologna

Ratha, Anubhav, Technical University of Denmark (DTU)
Kazempour, Jalal, Technical University of Denmark
Virag, Ana, Flemish Institute for Technological Research (VITO)
Pinson, Pierre, Dtu Electrical Engineering

Exponentially Fast Estimation of Power System Oscillation Modes Using Distributed Phasor Data, pp. 7506-7511.

Liu, Ji, Stony Brook University
Chakraborty, Aranya, North Carolina State University
Basar, Tamer, University of Illinois, Urbana-Champaign

Data-Driven Distributed Reactive Power Sharing in Microgrids, pp. 7512-7517.

Madani, Seyed, EPFL
Karimi, Alireza, EPFL

Toward Distributed Stability Analytics for Power Systems with Heterogeneous Bus Dynamics, pp. 7518-7523.

Yang, Peng, Tsinghua University
Liu, Feng, Tsinghua University
Wang, Zhaojian, Tsinghua University
Shen, Chen, Tsinghua University
Yi, Jun, China Electric Power Research Institute
Lin, Weifang, China Electric Power Research Institute


Nguyen, Hieu, University of Utah
Parvania, Masood, University of Utah
Kharongekar, Pramod, University of California, Irvine

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FrC01 Relative Entropy of a Free-Matrix-Based Lyapunov-Krasovskii Functional, pp. 7556-7560

Borri, Alessandro, IASI-CNR
Palermo, Pasquale, IASI-CNR
Singh, Abhaydut, University of Delaware

FrC02 Convex Synthesis of Strictly Negative Imaginary Feedback Controllers, pp. 7578-7583.

Caverly, Ryan James, University of Minnesota
Chakraborty, Manash, University of Minnesota
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<td>FrC03</td>
<td>GPU Based Parameterized NMPC Scheme for Control of Half Car Vehicle with Semi-Active Suspension System</td>
<td>Murali Madhavan Rathai, KARTHIK, Sename, Olivier, Alamir, Mazen, CNRS, GIPSA Lab, Grenoble, Grenoble INP / GIPSA-Lab, CNRS / University of Grenoble</td>
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<td>FrC04.1</td>
<td>Cyber-Security of Discrete-Event Systems (Invited Session)</td>
<td>Chair: Su, Rong, Co-Chair: Yin, Xiang, Organizer: Yin, Xiang, Organizer: Cai, Kai, Organizer: Su, Rong, Organizer: Tong, Yin, Nanyang Technological University, Osaka City University, Nanyang Technological University, Southwest Jiaotong University</td>
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<td>Insecure Multiple Channel Networks (Invited Session)</td>
<td>Organizer: Cai, Kai, Organizer: Su, Rong, Organizer: Cai, Kai, University of Oxford, Osaka City University, Shanghai Jiaotong University</td>
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<td>18:00-18:30</td>
<td>FrC04.3</td>
<td>K-Delayed Strong Detectability of Discrete-Event Systems (Invited Session)</td>
<td>Zhang, Kuize, Giua, Alessandro, KTH Royal Institute of Technology, University of Cagliari</td>
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<td>18:30-19:00</td>
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<td>Abstraction-Based Synthesis of Opacity-Enforcing Controllers Using Alternating Simulation Relations (Regular Session)</td>
<td>Hou, Junyao, Yinh, Xiang, Li, Shaoqian, Zamani, Majid, Shanghai Jiaotong University, Shanghai Jiaotong University, University of Colorado Boulder</td>
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<td>Lin, Liyong, Zhu, Yuting, Su, Rong, Nanyang Technological University, Nanyang Technological University, Nanyang Technological University</td>
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<td>Current-State Opacity Verification in Modular Discrete Event Systems (Regular Session)</td>
<td>Tong, Yin, Lan, Hao, Southwest Jiaotong University, Southwest Jiaotong University</td>
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<td>FrC05</td>
<td>Learning-Based Predictive Control for MIMO Systems (Regular Session)</td>
<td>Chair: Lessard, Laurent, Co-Chair: Van Scoy, Bryan, University of Wisconsin-Madison, University of Wisconsin-Madison</td>
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**FrC02.4**


Tartaglione, Gaetano, University of Napoli Parthenope

Anolidays, Marco, University of Napoli Parthenope

Amato, Francesco, University of Napoli Federico II

17:50-18:10 FrC02.5

**From Reference Model Selection to Controller Validation: Application to Loewner Data-Driven Control**, pp. 7590-7595.

Kergus, Pauline, ONERA

Olivi, Martine, INRIA

Poussot-Vassal, Charles, ONERA

Demourant, Fabrice, ONERA

17:50-18:10 FrC03.1

**Autonomous Control II (Regular Session)**

Chair: Yu, Min, Imperial College London

Co-Chair: Cannon, Mark, University of Oxford

16:30-16:50 FrC03.2

**FrC03**


Chokor, Abbas, Université de Technologie de Compiègne

Doughiati, Moustapha, Université de Technologie de Compiègne

Taji, Reine, Heudiasyc, UTC

Charara, Ali, Umr Cnrs 6599

17:10-17:30 FrC03.3

**Distributed Nested PI Slip Control for Longitudinal and Lateral Motion in Four In-Wheel Motor Drive Electric Vehicle**, pp. 7609-7614.

Amato, Gerardo, University of Rome Tor Vergata

Marino, Riccardo, University of Rome Tor Vergata

17:30-17:50 FrC03.4

**FrC04**

**Robust Control for a Full-Car Prototype of Series Active Variable Geometry Suspension**, pp. 7615-7622.

Yu, Min, Imperial College London

Cheng, Cheng, Huazhong University of Science and Technology

Evangelou, Simos Andreas, Imperial College

Dini, Daniele, Imperial College London

17:50-18:10 FrC03.5


Son, Tong, Siemens PLM Software

Nguyen, Quan, Massachusetts Institute of Technology (MIT)

18:10-18:30 FrC03.6

**FrC05**

**Learning-Based Predictive Control for MIMO Systems**, pp. 7671-7676.

Salvador, Jose R., Universidad de Sevilla
Terzi, Enrico  
Farina, Marcello  
Ramirez, Daniel R.  
Fagiano, Lorenzo  
Muñoz de la Peña, David  
Scattolini, Riccardo

Politecnico di Milano  
Universidad de Sevilla  
Politecnico di Milano  
Politecnico di Milano  
Universidad de Sevilla  
Politecnico di Milano

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Integral Quadratic Constraints: Exact Convergence Rates and Worst-Case Trajectories, pp. 7677-7682.

Van Scoy, Bryan  
Lessard, Laurent

University of Wisconsin—Madison  
University of Wisconsin-Madison

17:10-17:30 FrC05.3


Tripathy, Niladri Sekhar  
Chamanbaz, Mohammadreza  
Bouffanais, Roland

Singapore University of Technology and Design  
Singapore University of Technology and Design  
Singapore University of Technology and Design

17:30-17:50 FrC05.4

Unified Necessary and Sufficient Conditions for the Robust Stability of Interconnected Sector-Bounded Systems, pp. 7690-7695.

Cyrus, Saman  
Lessard, Laurent

University of Wisconsin-Madison  
University of Wisconsin-Madison

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Parallel Explicit Tube Model Predictive Control, pp. 7696-7701.

Wang, Kai  
Jiang, Yuning  
Oravec, Juraj  
Villanueva, Mario E.  
Houska, Boris

ShanghaiTech University  
ShanghaiTech University  
Slovak University of Technology in Bratislava  
ShanghaiTech University  
ShanghaiTech University

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Direct H-Infinity Synthesis of Reduced Order Controllers for a Class of Single-Input Plants, pp. 7702-7707.

Ghosh, Arun  
Chattopadhyay, Susobhan  
Meena, Jairam

Indian Institute of Technology  
Indian Institute of Technology, Kharagpur  
Intel Corporation

17:10-17:30 FrC06.3

Computing Common Factors of Matrix Polynomials with Applications in System and Control Theory, pp. 7721-7726.

Fazzi, Antonio  
Guglielmi, Nicola  
Markovsky, Ivan

Gran Sasso Science Institute  
University of L'Aquila  
Vrije Universiteit Brussel

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Liu, Kairong  
Li, Meilun  
She, Zhikun

Beihang University  
Beihang University  
Beihang University

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Bakker, Craig  
Nowak, Kathleen  
Rosenthal, Steven

Pacific Northwest National Laboratory  
Pacific Northwest National Laboratory  
Pacific Northwest National Laboratory

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On Trade-Offs between Computational Complexity and Accuracy of Electrochemistry-Based Battery Models, pp. 7740-7745.

Khalik, Zuan  
Bergveld, Hendrik Johannes  
Donkers, M.C.F.

Eindhoven University of Technology  
Eindhoven University of Technology  
Eindhoven University of Technology

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Real-Time Predictive Control for Precision Machining, pp. 7746-7751.

Liniger, Alexander  
Varano, Luca  
Lygeros, John

ETH Zurich  
ETH Zurich  
ETH Zurich

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Stability Analysis for Active Control with a Sky-Hook and Ground-Hook Inerter-Damper Configuration, pp. 7752-7757.

Hu, Yinlong  
Chen, Michael Z. Q.

Hohai University  
Nanjing University of Science and Technology

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CPRG Assisstive Motion Control for Variable Stiffness Actuators, pp. 7758-7763.

Misgeld, Berno Johannes  
Engelbert  
Efken, Marc  
Liu, Lin  
Iwasaki, Tetsuya

MedIT, RWTH Aachen University  
ETH Zurich  
RWTH Aachen University  
RWTH Aachen University  
University of California, Los Angeles
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<td>Leonhardt, Steffen, RWTH Aachen University</td>
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<td>An Extended Model Order Reduction Technique for Linear Delay Systems</td>
<td>Naderi Lordejani, Sajad, Eindhoven University of Technology; Besselink, Bart, University of Groningen; Van De Wouw, Nathan, Eindhoven University of Technology</td>
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<td>Simard, Joel David, Imperial College London; Astolfi, Alessandro, Imperial College &amp; University of Rome</td>
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<td>Synchronization Preserving Model Reduction of Multi-Agent Network Systems by Eigenvalue Assignments</td>
<td>Yu, Lanlin, University of Science and Technology of China; Cheng, Xiaodong, Eindhoven University of Technology; Scherpen, Jacquelien M.A., University of Groningen; Xiong, Junlin, University of Science and Technology of China</td>
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<td>Schouten, Sil, Eindhoven University of Technology; Lou, Daming, Eindhoven University of Technology</td>
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<td>Balanced Truncation for a Special Class of Bilinear Descriptor Systems</td>
<td>Pontes Duff Pereira, Igor, Max Planck Institute for Dynamics of Complex Technical Systems; Goyal, Pawan, Max Planck Institute; Benner, Peter, Max Planck Institute for Dynamics of Complex Technical Systems</td>
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<td>A Two-Sided Iterative Framework for Model Reduction of Linear Systems with Quadratic Output</td>
<td>Gosea, Ion Victor, Max Planck Institute for Dynamics of Complex Technical Systems; Antoulas, Athanasios C., Rice University</td>
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<td>Chair: Sundaram, Shreyas, Purdue University; Co-Chair: Tron, Roberto, Boston University</td>
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<td>Méditerranée C12</td>
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<td>Chair</td>
<td>Ferrara, Antonella</td>
<td>University of Pavia</td>
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<td>Co-Chair</td>
<td>Hsu, Liu</td>
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<td>Nunes, Eduardo Vieira Leao</td>
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<td>Université de Technologie de Belfort-Montbéliard (UTBM)</td>
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<td>Fridman, Leonid</td>
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<td>Politecnico di Torino, CNR-IEIIT</td>
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University of Maryland

Co-Chair: Schenato, Luca
University of Padova

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Imran, Imil Hamda
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Linköping University

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American University of Beirut

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Kohl, Anna NTNU
Petersen, Kristin Y. Norwegian University of Science and Technology (NTNU)
Allgöwer, Frank University of Stuttgart

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- Lee, Ki-Yeob Texas A&M University
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**Note:** The table contains entries with article codes that are likely to be references to scientific papers or publications. The context of the document is not provided, but it appears to be a list of authors or contributors with their respective affiliations and possibly some code or identifier numbers associated with their work.
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*Note: The table above contains a list of system types and their associated examples. The 'See also' column references other sections or categories within the document where related topics are discussed.*
Maps

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