

E-MAIL: [NEWSLETTER@IFAC-CONTROL.ORG](mailto:NEWSLETTER@IFAC-CONTROL.ORG) | PHONE +43 2236 71447

[www.ifac-control.org](http://www.ifac-control.org)

## Who's Who in IFAC: IFAC Distinguished Lecturer Program Lecturers

The IFAC Distinguished Lecturer Program was approved by IFAC Council at its meeting during the 2020 IFAC World Congress. This program provides for the appointment of eight Pawel J. Nowacki Distinguished Lecturers for each triennium. These Distinguished Lecturers are appointed by the IFAC Council Executive on recommendation from the IFAC Distinguished Lecturer Committee. The aim of the program is for IFAC to enable researchers working in developing countries to hear lectures from the top researchers in our field.

The lecturers serve a term of one triennium during which time they are expected to give at least one lecture. As in the 2020-2023 triennium no lecture took place, those lecturers will serve for another term, along with the 2023-2026 slate of lecturers.

The lectures must be given in a developing country, often in conjunction with a local conference. IFAC provides a contribution towards the travel expenses for each lecture. Potential hosts of distinguished lectures in developing countries are encouraged to contact the lecturers directly about the possibility of hosting a lecture.

In this and upcoming Newsletters readers have the opportunity to learn more about the IFAC Distinguished Lecturers.

**Mustafa Khammash**



Mustafa Khammash is the Professor of Control Theory & Systems Biology at the Department of Biosystems Science and Engineering (D-BSSE) at the Swiss Federal Institute of Technology (ETH) in Zurich (CH). He received his B.S. degree from Texas A&M University in 1986 and his Ph.D. from Rice University in 1990, both in Electrical Engineering. Before joining ETH Zurich, Khammash had a notable academic journey. After completing his Ph.D., he joined the Electrical Engineering Department at Iowa State

University (Ames, IA, US), where he established the Dynamics and Control Program and led the control group until 2002. Subsequently, he was a member of the Mechanical Engineering faculty at the University of California, Santa Barbara (UCSB). During his tenure at UCSB, he served as the Director of the Center for Control, Dynamical Systems, and Computation.

In 2011, Khammash moved to Switzerland, joining ETH Zurich. He has held various positions there, including serving as the head of the Department of Biosystems Science and Engineering. He is a Fellow of IEEE, IFAC, and the Japan Society for the Promotion of Science. He is the winner of the prestigious European Research Council Advance grant (2018) and the Swiss National Science Foundation Advanced Grant (2023) to develop the field of Cybergenetics.

### Research Interests:

Mustafa Khammash's research sits at the intersection of control theory, systems biology, and synthetic biology. He has been developing innovative theoretical, computational, and experimental methodologies for the analysis and control of biological networks. As a pioneer in the field of Cybergenetics, he has established both the theoretical and experimental foundations for engineering genetic control systems, with applications spanning industrial biotechnology, tissue engineering, and medical therapy. His laboratory at ETH Zurich brings together expertise from diverse disciplines, including engineering, mathematics, computational science, physics, and biology.

### Lecture Topics:

- Cybergenetics: New Horizons in Engineering Biology
- Theory and Design of Biomolecular Control Systems
- The Internal Model Principle for Chemical Reaction Networks

### IFAC is on social media!

Facebook  
[facebook.com/groups/632582025190533](https://facebook.com/groups/632582025190533)

LinkedIn  
[linkedin.com/groups/13400016/](https://linkedin.com/groups/13400016/)

X (formerly Twitter)  
[twitter.com/IFAC\\_Control](https://twitter.com/IFAC_Control)

YouTube  
[www.youtube.com/@ifacyoutube3132](https://www.youtube.com/@ifacyoutube3132)

## No.3

June 2024

### IN THIS ISSUE

[IFAC Distinguished Lecturers](#)
[IFAC President's Column](#)
[IFAC Social Media Strategy Update](#)
[Reports from IFAC Conferences \(MECC- US, ANZCC- AU, ACDOS- IN, ANCDC- UK\)](#)
[Industry Connect Webinar Announcement](#)
[Annual IFAC Executive Officers' Meeting in Austria](#)
[Upcoming IFAC Conferences](#)

### The IFAC Journals

**Automatica**  
[journals.elsevier.com/automatica](https://journals.elsevier.com/automatica)

**Control Engineering Practice**  
[journals.elsevier.com/control-engineering-practice](https://journals.elsevier.com/control-engineering-practice)

**Engineering Applications of Artificial Intelligence**  
[journals.elsevier.com/engineering-applications-of-artificial-intelligence](https://journals.elsevier.com/engineering-applications-of-artificial-intelligence)

**Journal of Process Control**  
[journals.elsevier.com/journal-of-process-control](https://journals.elsevier.com/journal-of-process-control)

**Annual Reviews in Control**  
[journals.elsevier.com/annual-reviews-in-control](https://journals.elsevier.com/annual-reviews-in-control)

**Journal on Mechatronics**  
[journals.elsevier.com/mechatronics](https://journals.elsevier.com/mechatronics)

**Nonlinear Analysis: Hybrid Systems**  
[journals.elsevier.com/nonlinear-analysis-hybrid-systems](https://journals.elsevier.com/nonlinear-analysis-hybrid-systems)

**IFAC Journal of Systems & Control**  
[journals.elsevier.com/ifac-journal-of-systems-and-control](https://journals.elsevier.com/ifac-journal-of-systems-and-control)

**IFAC-PapersOnLine**  
[journals.elsevier.com/ifac-papersonline](https://journals.elsevier.com/ifac-papersonline)

### Sophie Tarbouriech



Sophie Tarbouriech received the Ph.D. degree in Control Theory in 1991 and the HDR degree (Habilitation à Diriger des Recherches) in 1998 from University Paul Sabatier, Toulouse, France. Currently, she is a Senior Researcher at CNRS and a member of LAAS-CNRS, Toulouse. Her main research interests include analysis and control of linear and nonlinear systems with constraints (limited information), hybrid dynamical systems.

She is currently Associate Editor for *SIAM Journal of Control and Optimization*, and Senior Editor for *IEEE Control Systems Letters* and *Automatica*. She is also Deputy Editor-in-Chief of *Automatica*. She is a member of both the IFAC and IEEE Technical Committees on Nonlinear Systems and Hybrid Systems. She is a IEEE Fellow.

### Research interests

Sophie Tarbouriech considers theoretical model-based control and more especially, linear systems subject to isolated nonlinearities as ReLU, saturation, quantization, backlash, friction. One of the objectives is to revisit various techniques to use them in a nonstandard way: for example, the use of anti-windup, initially dedicated for systems with saturations, to address other kinds of nonlinearity, as for example the input quantization, in order to decrease the size of the attractor around the origin.

She also studies hybrid dynamical systems, which are a powerful tool to address different challenges including linear systems with complications (like communication channel constraints, isolated constraints) or more generally complex systems, for which a description of dynamics having different natures (such as continuous, discrete, logical) makes sense. In this context, the objective to propose constructive conditions (in the sense of theoretical conditions associated to numerical and tractable routines) appears pertinent to handle or revisit in a smart framework different control aspects (event-triggered control, sampled-data problems, intermittent or sporadic measurements and control, data-driven control).

More recently, Tarbouriech addresses the problem to develop theoretical and numerical tools to deal with control systems involving some learning components such as neural networks. While such components are well-suited to optimize the behavior of a system according to some quantitative performance criteria, their use in safety-critical systems requires us to be able to prove properties such as stability and robustness. The principal challenge in this setting lies in the structure of neural networks,

which consists in several (and potentially many) nested nonlinearities.

### Lecture Topics

Sophie Tarbouriech provided several lectures on systems subject to isolated nonlinearities as saturations (see, for example her ECC 2022 semi-plenary “A journey on dynamical systems involving isolated nonlinearities”), on event-triggered control (see, for example, her plenary in SCINDIS 2023 “Some ingredients on event-triggered control for some partial differential equations”), on the way to take into account an AI device in the loop (see, for example, her conference in the ECC 2024 workshop: Neural Network control “Layers update in event-triggered NN controllers with guaranteed stability through LMLs”)

### Hyungbo Shim



Hyungbo Shim received his B.S., M.S. and Ph.D. degrees from Seoul National University, Korea, and was a postdoctoral fellow at University of California, Santa Barbara (US) until 2001. He joined the faculty of Hanyang University in Seoul in 2002. He has been at Seoul National University, Korea, since 2003. He has served as an Associate Editor for *Automatica*, *IEEE Transactions on Automatic Control*, *International Journal of Robust and Nonlinear Control*, and *European Journal of Control*, and as an Editor for *International Journal of Control, Automation, and Systems*. He serves as General Chair for the IFAC World Congress 2026. He is a senior member of IEEE and a member of the Korean Academy of Science and Technology.

He received the Excellent Teaching Award from the College of Engineering, Seoul National University, in 2006, 2007, 2008, 2011, 2023. His research interests include stability analysis of nonlinear systems, observer design, robust control by disturbance observers, secure control systems, and analysis and synthesis of multi-agent systems.

Possible topics for his lecture include: (i) Coordination of multi-agent systems: Starting with network descriptions and synchronisation of networked dynamic systems, the lecture discusses the emergent behaviour of heterogeneous multi-agents under enforced synchronisation. The emergent behaviour is then used to design distributed algorithms such as distributed state estimators, network size estimators, self-organising distributed controllers, median solvers, and so on. The robustness gained by a large number of agents is studied, and the plug-and-play property of the distributed algorithm is discussed. (ii) Zero-dynamics at-

### From the IFAC President

Dear IFAC Friends and Colleagues,

In IFAC, the thirty-nine technical committees are solely responsible for organizing IFAC's conferences. These conferences provide a global framework for the cooperation of researchers in various fields of automatic control. This cooperation can occur between similar fields as well as quite different fields within the IFAC's technical areas.

In this edition, I am delighted to report that our Technical Committees are very active in organizing conferences, symposia, and workshops, collectively called IFAC Conferences, as we emerge from the COVID-19 pandemic. There were many uncertainties from 2020 to early 2023. I think most people recall that until early 2023, it was uncertain if we could hold the World Congress in person. I would like to take this opportunity to thank the Japanese NMO again for their relentless efforts in preparing for the successful Congress in 2023 despite such uncertain circumstances.

Many conferences were postponed due to the exceptional pandemic circumstances, and a few conferences were allowed to be held in 2023, even though it was a Congress year. In 2024, nine conferences, including six co-sponsored ones, have already been held. As of this writing, thirty-one main-sponsored conferences and thirteen co-sponsored conferences are in the pipeline.

These in-person conferences provide a platform for researchers from all over the world to collaborate, share their ideas, and enhance opportunities for international collaboration. This is one of the most rewarding aspects of participating in IFAC. While nothing is better than meeting international colleagues at the conference venue, many conferences also offer hybrid online participation, further increasing participation opportunities.

Simply sponsoring a large number of conferences is not IFAC's goal. IFAC has been encouraging similar and related TCs to collocate their conferences. As a result of this effort, many upcoming conferences will be collocated. I thank all the TC Chairs and TC members for their efforts in restarting offline conferences and extend warm invitations to all IFAC Affiliates and control researchers to participate in these exciting IFAC Conferences.

With best regards,



Dong-Il “Dan” Cho,  
IFAC President 2023-2026

tacks and countermeasures: Zero-dynamics attack (ZDA) is a stealthy attack on dynamic systems. The lecture begins with an introduction to ZDA based on the concepts of normal form and zero dynamics. Some variations of ZDA are also introduced, such as robust ZDA, sampling ZDA, and enforced ZDA. The lecture concludes with some possible countermeasures using generalised holders and samplers. (iii) Securing feedback controllers using homomorphic encryption: The lecture begins with an introduction to homomorphic encryption and the problem of finite lifetime of ciphertexts that arises when encrypting feedback controllers. Some solutions for infinite computations based on control theory are discussed. (iv) Robust disturbance observer control: The disturbance observer (DOB) is a tool for adding robustness to the nominal controller against external disturbances and parametric uncertainties of the plant, which has been widely used in practice. This presentation shows the underlying theory for both linear and nonlinear cases and introduces design guidelines for Q filters. The tool used, singular perturbation, is discussed and some variations of DOB, such as sampled data DOB and internal model embedded DOB, are explained. It also discusses how to achieve robust transient response.

Hideaki Ishii



Hideaki Ishii (Distinguished Lecturer Committee chair and lecturer) received the Ph.D. degree from the University of Toronto (CA) in 2002. He was a Postdoctoral Research Associate at the University of Illinois at Urbana-Champaign (US) in 2001--2004, and a Research Associate at The University of Tokyo (JP) in 2004--2007. He was an Associate Professor and then a Professor at the Department of Computer Science, Tokyo Institute of Technology in 2007--2024. Currently, he is a Professor at the Department of Information Physics and Computing at The University of Tokyo since 2024.

He was a Humboldt Research Fellow at the University of Stuttgart (DE) in 2014--2015. Ishii has served as an Associate Editor for *Automatica*, the *IEEE Control Systems Letters*, the *IEEE Transactions on Automatic Control*, the *IEEE Transactions on Control of Network Systems*, and the *Mathematics of Control, Signals, and Systems*.

Ishii was a Vice President for the IEEE Control Systems Society (CSS) in 2022--2023 and the Chair of the IFAC Coordinating Committee on Systems and Signals in 2017--2023. He served as the IPC Chair for the IFAC World Congress 2023 held in Yokohama, Japan. He received the IEEE Control Systems Magazine Outstanding Paper Award in 2015. Dr. Ishii is an IEEE Fellow.

### Research interests:

Ishii's research focuses on control methods for large-scale networked systems utilizing heterogeneous networks. The study of such networked control systems and cyber-physical systems requires the two areas of systems control and informatics to meet in new forms, and his research involves theories from communications, distributed algorithms, and network science. More specifically, his research interests include control over networks, distributed cooperative control of multi-agent systems, cyber-physical security of control systems, and control applications in power systems.

### Lecture Topics:

- Multi-agent consensus in the presence of malicious agents
- Cyber-physical security of control systems
- The role of opinion dynamics under spreading diseases

## Strengthening Global Bonds

### A New IFAC Social Media Strategy

We are excited to announce the launch of a new social media strategy aimed at fostering stronger relationships among our global IFAC family. This initiative is motivated by our vision to create a global community of professionals, researchers, and enthusiasts dedicated to advancing automation and control technologies.

The aim is to leverage the power of social media platforms, specifically LinkedIn, to engage the global automatic control community, promote IFAC both in general and within the broader control community, facilitate collaboration, and foster relationships between academia and industry. This enables us to reach not only IFAC members and contributors, but also the general public, media and press, young and aspiring engineers, sponsors and partners, to name a few.

Plans are underway for each of the nine Coordinating Committees (CCs) within IFAC to have a LinkedIn showcase page where you can keep track of events and opportunities of all the Technical Committees (TCs) within a CC. The aim is not only to share news on events, but also share other significant news relevant to a CC. Each CC will be given a unique brand, and each TC will be easily recognizable by a unique icon. In this way, it will be simple to follow posts and news from a specific TC.

If you are not currently following us on any of our social media platforms, we invite you to please join, subscribe and follow! It is a great opportunity to follow the thought-leaders in your field, to connect with researchers with similar interests, and keep track of all the opportunities offered by IFAC. Please help us grow the IFAC family!

The links to the various platforms (LinkedIn, X, Facebook, Youtube) are available in the respective box in this Newsletter on page 1.

Submitted by: Derik le Roux (ZA), IFAC Social Media Editor

## 3<sup>rd</sup> AACC/IFAC Conference on Modeling, Estimation, & Control Conference (MECC 23)

2-5 October 2023

Lake Tahoe, NV, US

The 2023 Modeling, Estimation, and Control Conference (MECC) was held in Lake Tahoe, Nevada, USA from October 2-5, 2023. This was the third MECC but the second in-person conference. This is due to the Covid-19 pandemic causing the first ever MECC conference to be held virtually in 2021.

Brought together by the diverse collective experience of the Organizing Committee, MECC 2023 featured 138 original papers, including 30 joint submissions with *ASME Letters in Dynamic Systems and Control*, six journal-paper abstracts, 24 posters, and 26 special-session abstracts. These contributions were organized into seven invited sessions, 17 contributed sessions, 16 special sessions, one tutorial session, four workshops, two rapid-fire poster presentation sessions, and poster presentations on first two days of the conference. This was the first MECC to feature a joint submission option for authors for consideration of their papers in both MECC and *ASME Letters in Dynamic Systems and Control*.

To provide a platform to promote students' research and career growth, there was a series of interactive sessions (Rising Star Sessions) for close-to-graduation PhD students and postdocs to present their work. This platform covered four frontier areas ranging from robotics, energy storage, control design and applications to learning and estimation. This excitement was resonated by the conference plenary talks presented by three distinguished scholars:

1. Professor Igor Mezic from the University of California, Santa Barbara on "*Koopman Operator Theory Based Machine Learning of Dynamical Systems*" (Tuesday, 3 October)
2. Professor Ella Atkins from Virginia Tech on "*Increasingly Autonomous Perception and Decision Systems for Advanced Air Mobility*" (Wednesday, 4 October)
3. Dr. Nikolai Smolyanskiy from NVIDIA Corporation on "*Driving Innovation - Real-Time Traffic Prediction for Autonomous Vehicles*" (Thursday, 5 October)

Additionally the conference offered ample opportunities and activities to students and young scholars in career building, professional development, and networking, including the Newest Advances in Systems and Control from Recent NSF DSCD CAREER Awardees, ASME DSCD Women's Luncheon, Rising Stars Networking Reception, Careers After PhD: Possibilities and DEI Perspective, and the Best Conference and Student Papers Competitions.

A special session on funding opportunities was organized for the program directors from NSF to introduce their programs and interact with



the attendees. Several exciting events of the ASME Dynamic Systems and Control Division (DSCD) also took place during the conference, including the Oldenburger Lecture along with the DSCD Award Ceremony (on Wednesday, 4 October) and the Nyquist Lecture (on Tuesday, 3 October).



Another exciting event this year was the opening reception ceremony on Tuesday, October 3, which was combined with 80<sup>th</sup> Birthday celebration of ASME's Dynamic System and Controls Division. The event occurred on a spectacular MS Dixie Cruise Ship. A special session entitled "ASME Dynamic Systems and Control Division: Past, Present and Future" was held on Wednesday, 4 October to bring together a group of division researchers in academia, industry, and government agencies and labs to trace the 80-year history of the DSCD, highlight significant events, show how the division evolved and grown over the years, and also provide insight and perspectives into the future technology developments and division directions in system dynamics and control.

Other social events included the opening networking mixer, awards banquet, women's luncheon, and the closing reception.

The Organizing Committee included Atul Kelkar, General Chair; Manish Kumar, Program Chair; May-Win Thein, Invited & Special Sessions Chair; Kam Leang, Workshops & Tutorials Chair; Tuhin Das, Finance Chair; Douglas Bristow, Publications Chair; Yue Wang, Publicity Chair; Satadru Dey and Hossein Rastgoftar, Students/Young Members Co-Chairs; Marcello Canova, Conference Editorial Board Chair; Jun Zhang, Local Arrangement Chair; Juan Ren, Registration Chair; Dragana Vrabie, Exhibits & Industry Liaison Chair; and Jung Kim, IFAC Liaison. The International Program Committee was led by Jongeun Choi, Yonsei University, South Korea

Submitted by: Atul Kelkar (US), MECC 2023 General Chair

**All material proposed for publication in the IFAC Newsletter should be sent to [NEWSLETTER@IFAC-CONTROL.ORG](mailto:NEWSLETTER@IFAC-CONTROL.ORG).**

**Emails to this email address are seen by Dimitri Peaucelle (Newsletter EIC) and Elske Haberl (IFAC Secretariat).**

**The latest edition of the IFAC Newsletter is available on the IFAC homepage, as well as an online archive dating back to the early 2000s.**

## Australian & New Zealand Control Conference (in cooperation with IFAC: ANZCC 24)

1-2 February 2024  
Gold Coast, AU

Since many countries/regions are still in a Post Covid-19 recovery state, and on the trajectory of improving their economies, a special arrangement was put in place to let international participants, if unable to travel to Australia, to upload pre-recorded video presentation of their papers. Now, it can be seen that such a decision was worth offering as many papers enjoyed such an opportunity including those presented onsite.

The General Co-Chairs were:

Ljubo Vlacic, Griffith University, Australia; Fei-Yue Wang, Chinese Academy of Sciences, China; Tek Tjing Lie, Auckland University of Technology, New Zealand; and Qing-Long Han, Swinburne University of Technology, Australia.

Program Co-Chairs were:

Victor Sreeram, University of Western Australia; and Xiaohua Ge, Swinburne University of Technology, Australia.

The conference was co-sponsored by ANZCC Steering Committee Incorporated, Griffith University, Federation University and IEEE/CAA Journal of Automatica Sinica. Technical co-sponsorship was provided by IFAC, IEEE Control Systems Society and the Asian Control Association (ACA).

A total of 63 manuscripts were submitted. They were co-authored by 201 researchers, practitioners and research students from 17 countries from around the world (Asia-Pacific, Europe, USA and Middle East). The conference proceedings are available for download from IEEE-Xplore.

The conference included two plenary talks, namely "AGI in Metaverse for Smart Cities and Societies: A Cyber Physical Social Approach" by Xiao Wang, China and "Limitations of System Identification; Revisiting Detection and Prediction of Epileptic Episodes" by Iven Mareels (IFAC Advisor), Australia.

The Best Student Paper Award was sponsored by Federation University, Australia. Six papers were nominated for the Best Student Paper Award. The Best Student Paper Award recipient was the paper on "Generalized Asynchronous Event-Triggered Measurement and Control for Non-Linear Systems" co-authored by Daniel A Williams, Chris Manzie and Airlie Chapman (The University of Melbourne, AU). The first listed co-author, being a student, received the Award Certificate and a cash award of \$500 AUD.

A High Commendation was presented to the paper on "SEIQRS Epidemic Model and Its State Estimation Using Positive Observer" co-authored by Hinata Sato and Naohisa Otsuka

(Tokyo Denki University, Japan). The first listed co-author, being a student, received the Award Certificate and a cash award of \$300 AUD.



The next edition of the ANZCC series will be held in the City of Gold Coast, Australia from 30- 31 January 2025 ([anzcc.org.au/ANZCC2025/](http://anzcc.org.au/ANZCC2025/)). The City of Gold Coast is a celebrated holiday experience set on one of Australia's most spectacular natural stages. From pure, adrenalin-packed fun to natural indulgence, the contrasts of Australia's Gold Coast unite to deliver every holiday experience you could desire in one friendly place.

For further details please contact the ANZCC 2025 General Chair, Professor Emeritus Ljubo Vlacic via [l.vlacic@griffith.edu.au](mailto:l.vlacic@griffith.edu.au) or the ANZCC Steering Committee Chair, Professor Victor Sreeram via [victor.sreeram@uwa.edu.au](mailto:victor.sreeram@uwa.edu.au).

Come and enjoy both the ANZCC 2025 and Gold Coast's stunning scenery!

Submitted by: Ljubo Vlacic (AU),  
ANZCC General Co-Chair

## 8<sup>th</sup> ACDOS/IFAC Conference on Advances in Control and Optimization of Dynamical Systems (ACDOS 2024) 12-15 March 2024 Delhi, IN

ACDOS 2024 was the eighth international conference on Advances in Control and Optimisation of Dynamical Systems. The conference is a biennial flagship meeting of the Automatic Control and Dynamic Optimization Society (ACDOS), the Indian NMO of IFAC. The eighth edition of the conference was held at Shiv Nadar University. Delhi NCR (IN).

Artificial Intelligence is set to become an enabler and disrupter in modelling, control and optimisation – the three indispensable branches of process systems engineering. The ACDOS 2024 conference aimed to address the amalgamation. This conference has also brainstormed other crucial areas like state and parameter estimation, application areas, and beyond.

**To register as an IFAC affiliate or to update your information please log in to the affiliate portal.**  
<https://affiliates.ifac-control.org/>

Living in an interconnected world, with security, communication, energy and healthcare becoming issues of national concern, the conference provided a platform to deliberate on these.

### Plenary Talks and Tutorials

The topics of discussion ranged from health, science writing, the fusion of hard and soft (AI) control strategies, navigation and tracking of artificial space objects, Control of Floating Offshore Wind Turbines, Predictive Analytics, Cyber-Physical Systems, Optimal Guidance in Chandrayaan-3 Mission, to name a few.

The conference hosted six plenary talks by leading researchers.

1. Prof. B. Bandopadhyay, (Retd. Professor, IIT Bombay, IN), Inaugural Talk: *Modeling and Control of Large Size Nuclear Reactors*.
2. Prof. Lucy Pao, (U. of Colorado- Boulder, US), *Sink or Swim: Control of Floating Offshore Wind Turbines*.
3. Prof. Krishna Kumar, (Toronto Metropolitan, CA), *Innovations in Aerospace Systems – Fault Tolerant Control, Artificial Intelligence, and Predictive Analytics*.
4. Prof. Anurag Kumar, (IISc Bangalore, IN), *Cyber Physical Systems for Industry 4.0: Control of and Over Wireless Networks*.
5. Prof. Radhakant Padhi, (IISc Bangalore, IN), *Optimal Guidance in India's Chandrayaan-3 Mission and Beyond*.
6. Prof. Ananda Basu & Prof. Rita Basu, (U. of Alabama, US), *Diabetes Simulator: From Birth to Adolescence*.

In addition, the conference also hosted a host of tutorials on varied subject matters.

- Ultra-Fast Optimal Control in Real-Time.
- Managing Diabetes in the Modern Era: Challenges and Solutions for a Healthier Future.
- Navigation and Tracking in Space.
- Fusion of Hard and Soft (AI) Control Strategies for a Smart Prosthetic / Robotic Hand.
- Trends Shaping Control Systems, AI, and Model-Based Design.

There was also a tutorial talk organised for young scholars on technical writing by Springer-Nature, India.

### Technical Program and Awards

The conference received a large number of submissions. 123 regular contributions worldwide (India, Germany, Bulgaria, Colombia, USA, Malaysia, Canada and China) were received in addition to eight discussion/dissemination papers, three tutorial proposals and two invited sessions. Out of 123 regular contributions, 79 were accepted for full length papers and were also presented at the conference.

There were 102 registered participants in the conference including 20% female participants. Three awards were given for the best contributed regular papers at the conference. Paper

presentation awards were given to student presenters in every technical session.

Springer Nature sponsored ebook vouchers

- Best Paper 1st prize: EUR 250
- Best Paper 2nd prize: EUR 200
- Best Paper 3rd prize: EUR 150
- Best Presentation Awards (16 numbers, one for each session): EUR 100 x16.

Best Paper Award went to Dr. Taushif KN.

### A special Session in memory of SN Balakrishnan



A special session was dedicated in memory of Prof. SN Balakrishnan, the second Chancellor of Shiv Nadar University. Professor Bala, as he was fondly called by his students at Missouri University of Science and Technology (US), guided 17 Ph.D. scholars during his tenure as a professor of Aerospace Engineering at the Department of Mechanical & Aerospace Engineering. His students from across the globe joined the conference virtually to remember Professor Balakrishnan for his intellectual and scholastic achievements, as well as his empathic leadership. The session was shared via the YouTube channel. [www.youtube.com/live/el87sSNWoks](https://www.youtube.com/live/el87sSNWoks)

### Social Program

ACODS 2024 hosted a social program every day. It witnessed a cultural evening showcasing local dance and music on 13 March 2024, a bird-watching bio-diversity park tour, a movie screening on 14 March and a yoga session on 15 March. The final day also included a local visit to the Taj Mahal at Agra.

The conference closed with a farewell and a special talk by the Chief guest, Mr. B. S. Sarkar, former director of the Airport Authority of India.

The conference team would like to extend a big thanks to all participants for their excellent contributions. Moreover, the organizers would like to thank the members of the International Program Committee (IPC) and IFAC team for their constant support and encouragement.

Finally, big thanks to all sponsors and co-sponsors of the conference, in particular to IFAC and its technical committees, TC 7.3. *Aerospace*; TC 2.4. *Optimal Control*; TC 4.2. *Mechatronic Systems*. We are looking forward to welcoming you again at the next ACODS in 2026.

Submitted by: Radhakant Padhi (IN), ACODS 2024 NOC

## 7<sup>th</sup> IFAC Conference on Analysis and Control of Nonlinear Dynamics and Chaos (ACNDC 24)

5-7 June 2024

London, UK

The 7<sup>th</sup> IFAC Conference on Analysis and Control of Nonlinear Dynamics and Chaos (ACNDC 24) was hosted by the Department of Electrical and Electronic Engineering at Imperial College London, UK, from 5-7 June 2024. Formerly known as the IFAC Conference on Analysis and Control of Chaotic Systems, the conference has been rebranded to broaden its scope and attract, in addition to its traditional audience from the chaos scientific community, attendees from related emerging fields, including nonlinear systems analysis, control, and nonlinear networks.

One of the conference highlights was a series of three outstanding plenary talks delivered by distinguished academics in the field of nonlinear systems. Elena Panteley (L2S, CNRS, CentraleSupélec, France) opened the conference with an inspiring talk on emergent dynamics within nonlinear systems in networks. On the second day, Andrew Teel (University of California Santa Barbara, USA) gave a vibrant presentation on how to rigorously perform stochastic approximations of dynamical systems described by hybrid inclusions. The final plenary, presented by Nathan van de Wouw (TU Eindhoven, Netherlands), offered fascinating insights into model order reduction for dynamical systems using advanced control theoretic tools.



Each plenary talk was followed by single-track regular sessions. These sessions provided a unique opportunity to showcase recent advances in nonlinear systems and chaos by contributors from diverse backgrounds, leading to numerous fruitful discussions among the attendees. The conference concluded with a warm farewell reception during which the Young Author Award was announced to recognize emerging talents in the field. The three finalists of the award were Morgan Louedec, Jeanne Redaud, and José Alberto Villalobos. The winner was Morgan Louedec from Ensta Bretagne for the paper titled "Outer Enclosures of Nonlinear Mapping with Degenerate Ellipsoids" co-authored with Christophe Viel and Luc Jaulin.

Submitted by Giordano Scarciotti (UK), ACNDC 24 NOC chair



## IFAC Industry Connect Webinar: Making the Leap from Academia to Entrepreneurship

Tuesday, 25 June 2024 at 14:00 UTC (10:00AM EDT, 16:00 CET)

Making the leap from academia to entrepreneurship is a transformative journey that requires a significant shift in mindset and skill set. Academics are accustomed to a structured environment with a clear hierarchy, focused on research and theoretical knowledge. In contrast, entrepreneurship demands agility, risk-taking, and practical problem-solving. Academics need to transition from a risk-averse culture to one that embraces uncertainty. This shift can be daunting but is essential for turning innovative ideas into viable businesses. By leveraging their deep expertise and analytical skills, academics can create unique value propositions in the marketplace.

In this IndustryConnect Webinar we talk with the founders of two companies that started from academia and turned into successful businesses.

Control Station ([controlstation.com](http://controlstation.com)) was founded on the campus of the University of Connecticut in 1988. For over thirty years the company has harnessed the creative energies of its surroundings, producing an array of best-in-class technologies for improving production efficiency and throughput. Dennis Nash and Bob Rice, the co-founders of Control Station, will share their story and experiences.

ANT-X ([antx.it](http://antx.it)) is a spin-off company of Politecnico di Milano. Its mission is to bridge the gap between academic research and the needs of the drone industry. Simone Panza, a co-founder of ANT-X, will recount his journey and challenges.

Moderator: Atanas Serbezov

Registration Link:

<https://us02web.zoom.us/meeting/register/tZlvd-GpqDsoGNIJ--SGNqms2UmlpeXjmjNB>

**This Newsletter may be reproduced in whole or in part.**

**We encourage electronic distribution of this Newsletter, as well as reprinting in national and local automatic control periodicals.**

**Acknowledgement to IFAC would be appreciated.**

## IFAC Executive Officers' Meeting in Austria

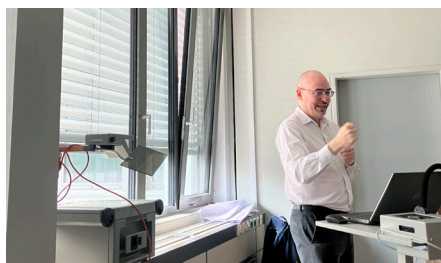
In early 2024 the IFAC Executive Officers continued the tradition begun under the IFAC presidency of Yoshikazu Sawaragi by gathering for an in-person meeting in Austria in the spring, this time from 18-20 April. This meeting always takes place in Austria in the spring due to its location as the home of the IFAC Secretariat, which has been located in the town of Laxenburg since 1978 upon invitation of the Austrian government.

The 2023-2026 Executive Officers (who all traveled to Austria to attend the meetings) are:

- Dong-il „Dan“ Cho (KR), IFAC President
- Hajime Asama (JP), Immediate Past President
- Maria Prandini (IT, IFAC President-Elect
- Richard Braatz (US), Vice President, Conference Board Chair
- Silvia Mastellone (CH), Vice President, Finance
- Carlos Eduardo Pereira (BR), Vice President, Technical Board Chair
- Dimitri Peaucelle (FR), IFAC Secretary & Vice President, Operations
- Sarah K. Spurgeon (UK), Vice President, Publications Board Chair

Meetings and the annual technical lecture took place at the Vienna Technical University/TU Wien. Special thanks go to Andreas Kugi and the colleagues at TU Wien who made these arrangements possible!

The well-attended technical lecture took place on Thursday afternoon and was given by Richard Braatz (Massachusetts Institute of Technology /MIT, located in MA, US). It was titled "Machine Learning-based Lifetime Prediction and Charging Optimization of Lithium-ion Batteries". In addition to the in-person audience at the TU Wien there were international participants streaming the lecture online (a new addition to this IFAC tradition since the pandemic).



Richard Braatz presenting the annual technical lecture in Austria

On Thursday evening the Executive Officers gathered for the President's Dinner with the Secretariat staff as well as many friends of IFAC (such as representation from the Austrian BMK federal ministry which provides IFAC with an association support subsidy, noted in the imprint of each issue of this Newsletter), Austrian IFAC officials, and other organizations. The dinner was held at Le Salzgröss, a French restaurant in Vienna's central and historic first district.

The meetings took place on Friday and Saturday with a jam-packed agenda. Items included updates from the respective Executive Officers, preparing for the upcoming IFAC Council and Related meetings in Stockholm, upcoming IFAC elections, as well as brainstorming and information from IFAC's various task forces and committees.

Planning for the 2025 meetings in Austria is already underway.

### IFAC Council- and Related Meetings 2024 in Stockholm, SE 24-26 June 2024

**The constantly updated draft schedule is available at:**

[ifac-control.org/news/stockholm-schedule](http://ifac-control.org/news/stockholm-schedule)

### The IFAC Conference App is available!

The App is paid for by IFAC and can be used free of charge by IFAC conference organizers and attendees.

How to download:  
App Store [apple.co/3mpaER7](https://apple.co/3mpaER7)  
Google Play [bit.ly/3lazFjx](https://bit.ly/3lazFjx)  
Web version [ifac.floq.live](http://ifac.floq.live)

You can also search for 'IFAC' in the Apple App Store or in the Google Play Store.

New! Log in is shared with the IFAC Affiliates Portal. There is no need for double registration.

**The IFAC Calendar of Conferences is constantly updated as additional technical events (Workshops, Symposia, and Conferences) are approved. Please check back often for the current status. The complete version of the IFAC Calendar of Conferences is available online at:**

[www.ifac-control.org/conferences/@@conference-view](http://www.ifac-control.org/conferences/@@conference-view)

### Impressum:


Medieninhaber und Herausgeber:  
International Federation of Automatic Control (IFAC), Zurich  
Schlossplatz 12, 2361 Laxenburg, Austria

Verlagsort und Redaktion: Dr. Dimitri Peaucelle,  
Schlossplatz 12, 2361 Laxenburg  
[newsletter@ifac-control.org](mailto:newsletter@ifac-control.org)

Editor: Dimitri Peaucelle  
Deputy Editor: Moritz Schulze Darup  
Layout: Elske Haberl  
published bimonthly

ISSN 0254-3109

Das Sekretariat der IFAC befindet sich seit 1978 aufgrund eines Übereinkommens mit der Österreichischen Bundesregierung und mit der Österreichischen Akademie der Wissenschaften in Laxenburg und wird derzeit aus Mitteln des Bundesministeriums für Klimaschutz, Umwelt, Energie, Mobilität, Innovation und Technologie „BMK“ gefördert.

 **Bundesministerium  
Klimaschutz, Umwelt,  
Energie, Mobilität,  
Innovation und Technolog**

## Calendar of IFAC Conferences

Title	2024	Place	Further Information
17 <sup>th</sup> IFAC Symposium on Control of Transportation Systems CTS 2024	July 01 – 03	Ayia Napa Cyprus	<a href="https://ifaccts2024.wixsite.com/ifac-cts2024">ifaccts2024.wixsite.com/ifac-cts2024</a> <a href="mailto:ifac.cts2024@gmail.com">ifac.cts2024@gmail.com</a>
8 <sup>th</sup> IFAC Conference on Analysis and Design of Hybrid Systems ADHS 2024	July 01 – 03	Boulder, CO USA	<a href="https://colorado.edu/conference/adhs2024">colorado.edu/conference/adhs2024</a> <a href="mailto:majid.zamani@colorado.edu">majid.zamani@colorado.edu</a>
10 <sup>th</sup> IEEE, IFAC et al. International Conference on Control, Decision and Information Technologies CoDIT 2024	July 01 – 04	Valletta Malta	<a href="https://codit2024.com/">codit2024.com/</a>
Conference on American Control Conference (in cooperation with IFAC) ACC 2024	July 08 – 12	Toronto Canada	<a href="https://acc2024.a2c2.org/">acc2024.a2c2.org/</a>
12 <sup>th</sup> IFAC Conference on Fractional Differentiation and its Applications ICFDA 2024	July 09 – 12	Bordeaux France	<a href="https://icfda2024.sciencesconf.org/">icfda2024.sciencesconf.org/</a>
12 <sup>th</sup> IFAC Symposium on Control of Power and Energy Systems CPES 2024	July 10 – 12	Rabat Morocco	<a href="https://cpes2024.org/">cpes2024.org/</a> <a href="mailto:cpes2024@unicaen.fr">cpes2024@unicaen.fr</a>
12 <sup>th</sup> IFAC Symposium on Advanced Control of Chemical Processes ADCHEM 2024	July 14 – 17	Toronto Canada	<a href="https://adchem2024.org/">adchem2024.org/</a>
20 <sup>th</sup> IFAC Symposium on System Identification SYSID 2024	July 17 – 19	Boston, MA USA	<a href="https://conferences.ifac-control.org/sysid2024/">conferences.ifac-control.org/sysid2024/</a>
16 <sup>th</sup> APCA/IFAC International Conference on Automatic Control and Soft Computing CONTROLO 2024	July 17 – 19	Porto Portugal	<a href="https://controlo2024.pt/">controlo2024.pt/</a> <a href="mailto:info@controlo2024.pt">info@controlo2024.pt</a>
2 <sup>nd</sup> IFAC Workshop on Aerospace Control Education WACE 2024	July 22 – 24	Bertinoro (Forlì) Italy	<a href="https://wace2024.org/">wace2024.org/</a> <a href="mailto:info@wace2024.org">info@wace2024.org</a>
26 <sup>th</sup> International Symposium on Mathematical Theory of Networks and Systems (in cooperation with IFAC) MTNS 2024	August 19 – 23	Cambridge United Kingdom	<a href="https://mtns2024.eng.cam.ac.uk/">mtns2024.eng.cam.ac.uk/</a>
8 <sup>th</sup> IFAC Conference on Nonlinear Model Predictive Control NMPC 2024	August 21 – 24	Kyoto Japan	<a href="https://nmipc2024.org/">nmipc2024.org/</a> <a href="mailto:secretariat@nmipc2024.org">secretariat@nmipc2024.org</a>
18 <sup>th</sup> IFAC Symposium on Information Control Problems in Manufacturing INCOM 2024	August 28 – 30	Vienna Austria	<a href="https://incom2024.org/">incom2024.org/</a> <a href="mailto:incom2024@tuwien.ac.at">incom2024@tuwien.ac.at</a>
15 <sup>th</sup> IFAC Conference on Control Applications in Marine Systems, Robotics and Vehicles CAMS 2024	September 03 – 05	Blacksburg (VA) USA	<a href="https://ifac-cams2024.org/">ifac-cams2024.org/</a> <a href="mailto:cams2024@vt.edu">cams2024@vt.edu</a>
4 <sup>th</sup> IFAC Conference on Modelling, Identification and Control of Nonlinear Systems MICNON 2024	September 04 – 06	Lyon France	<a href="https://conferences.ifac-control.org/micnon2024/">conferences.ifac-control.org/micnon2024/</a>
7 <sup>th</sup> IFAC Workshop on Mining, Mineral and Metal Processing MMM 2024	September 04 – 06	Brisbane Australia	<a href="https://conferences.ifac-control.org/mmm2024/">conferences.ifac-control.org/mmm2024/</a>
10 <sup>th</sup> IFAC/CACHE Conference on Foundations of Systems Biology in Engineering FOSBE 2024	September 08-11	Corfu Island Greece	<a href="https://fosbe2024.iceht.forth.gr">fosbe2024.iceht.forth.gr</a> <a href="https://fosbe2024@iceht.forth.gr">fosbe2024@iceht.forth.gr</a>
2 <sup>nd</sup> Conference on Modelling and Simulation SIMS EUROSIM 2024	September 10 – 12	Oulu Finland	<a href="https://scansims.org/events.php?sid=39&amp;src=db1557571001">scansims.org/events.php?sid=39&amp;src=db1557571001</a>
12 <sup>th</sup> IFAC Symposium on Biological and Medical Systems BMS 2024	September 11 – 13	Villingen-Schwenningen Germany	<a href="https://www.bms-24.org/">https://www.bms-24.org/</a> <a href="mailto:bms2024@hfu.eu">bms2024@hfu.eu</a>

# Calendar of IFAC Conferences

Title	2024	Place	Further Information
3 <sup>rd</sup> SACAC Control Conference Africa (in cooperation with IFAC) CCA 2024	September 16 – 17	Balaclava Mauritius	<a href="https://cca2024.org/info@cca2024.org">https://cca2024.org/ info@cca2024.org</a>
4 <sup>th</sup> IFAC Workshop on Internet Based Control Education IBCE 2024	September 18 – 20	Ghent Belgium	<a href="http://ibce24.ugent.be">ibce24.ugent.be</a>
18 <sup>th</sup> IFAC Workshop on Time Delay Systems TDS 2024	September 24 – 27	Udine Italy	<a href="mailto:tds2024@uniud.it">tds2024.uniud.it</a> <a href="mailto:tds2024@uniud.it">tds2024@uniud.it</a>
Univ. Stuttgart, IST / IFAC Symposium on Systems Theory in Data and Optimization SysDo 2024	Sept./Oct. 30 – 02	Stuttgart Germany	<a href="http://sysdo2024.de">sysdo2024.de</a>
4 <sup>th</sup> AACC, IFAC Conference on Modeling, Estimation and Control Conference MECC 2024	October 27 – 30	Chicago (IL) USA	<a href="http://mecc2024.a2c2.org">mecc2024.a2c2.org</a>
7 <sup>th</sup> IFAC Conference on Engine and Powertrain Control, Simulation and Modeling E-COSM 2024	Oct./Nov. 30 – 01	Dalian China	
21 <sup>st</sup> INSTICC International Conference on (in cooperation with IFAC) Informatics in Control, Automation and Robotics, ICINCO 2024	November 18 – 20	Porto Portugal	<a href="http://icinco.scitevents.org">icinco.scitevents.org</a> <a href="mailto:icinco.secretariat@insticc.org">icinco.secretariat@insticc.org</a>
18 <sup>th</sup> INSTICC/IFIP IFAC Workshop on Enterprise Integration, Interoperability and Networking EI2N 2024	November 21 – 22	Porto Portugal	<a href="http://in4pl.scitevents.org/EI2N.aspx">in4pl.scitevents.org/EI2N.aspx</a> <a href="mailto:in4pl.secretariat@insticc.org">in4pl.secretariat@insticc.org</a>
5 <sup>th</sup> INSTICC et al. International Conference on Innovative Intelligent Industrial Production and Logistics IN4PL 2024	November 21 – 22	Porto Portugal	<a href="http://in4pl.scitevents.org/Home.aspx">in4pl.scitevents.org/Home.aspx</a> <a href="mailto:in4pl.secretariat@insticc.org">in4pl.secretariat@insticc.org</a>
5 <sup>th</sup> IFAC Workshop on Cyber-Physical-Human Systems CPHS 2024	December 12 – 14	Antalya Turkey	<a href="http://cphs2024.org/">cphs2024.org/</a>
Title	2025	Place	Further Information
11 <sup>th</sup> Vienna International Conference on Mathematical Modelling MATHMOD 2025	February 19 – 21	Vienna Austria	<a href="mailto:mathmod.at/mathmod@acin.tuwien.ac.at">mathmod.at/ mathmod@acin.tuwien.ac.at</a>
11 <sup>th</sup> IFAC Conference on Manufacturing Modelling, Management and Control MIM 2025	June/July 30 – 03	Trondheim Norway	
15 <sup>th</sup> IFAC Workshop on Adaptive and Learning Control Systems ALCOS 2025	July 02 – 04	Mexico City Mexico	
13 <sup>th</sup> IFAC Symposium on Nonlinear Control Systems NOLCOS 2025	July 09-11	Reykjavik Iceland	
15 <sup>th</sup> IFAC Symposium on Intelligent Manufacturing Systems IMS 2025	September 11 – 12	Koszalin Poland	
7 <sup>th</sup> IFAC Symposium on Telematics Applications TA 2025	September 15 – 18	Padova Italy	
1 <sup>st</sup> IFAC Workshop on Engineering and Architectures of Automation Systems EAAS 2025	September 15 – 18	Padova Italy	
7 <sup>th</sup> IFAC Conference on Intelligent Control and Automation Sciences ICONS 2025	September 15 – 18	Padova Italy	