

Reports from IFAC Conferences

Vienna International Conference on Mathematical Modelling (MATHMOD)

19-21 February 2025
Vienna, AT

The Vienna International Conference on Mathematical Modelling (MATHMOD) is a triennial event that brings together professionals, researchers, and experts to discuss both theoretical and applied aspects of mathematical modeling. Since its inception in 1994, MATHMOD has established itself as a leading platform for presenting emerging trends and advancements in the field.

This year's conference took place from 19- 21 February 2025 at TU Wien (Vienna Technical University) in Vienna, AT. Organized by the Institute for Analysis and Scientific Computing (ASC) and the Automation and Control Institute (ACIN) of Technische Universität Wien, MATHMOD 2025 welcomed 126 participants from 21 countries.

MATHMOD 2025 received 112 paper submissions, of which 96 were accepted for presentation. The contributions covered a broad spectrum of topics, including:

- Machine learning and data-driven modeling
- Model reduction techniques
- Infinite-dimensional systems
- Control-oriented modeling
- Mechanical system modeling
- Deformation processes
- Robotic systems
- Electrical, biological, chemical, and medical systems

The conference program was structured into three parallel tracks and featured five minisymposia (special sessions) dedicated to specific topics in mathematical modeling.

A highlight of MATHMOD 2025 was the plenary talks, which underscored the diverse applications of mathematical modeling in areas such as language processing, supply chain modeling, construction robotics, and quantum mechanics. The distinguished speakers and their topics were:

• Prof. Stefan Thurner (Medical University of Vienna & Complexity Science Hub, Vienna, Austria) – *“Modeling National Supply Chains with Data-Driven 1:1 Agent-Based Models – and Why It Is Important”*

• Prof. Oliver Sawodny (University of Stuttgart, Institute for System Dynamics, Germany) – *“Model-Based Control in Construction Robotics”*

• Prof. Yulan He (King's College London, UK) – *“Advances in Interpretable Language Models”*

• Prof. Markus Aspelmeyer (University of Vienna, Austria) – *“Solving the Gravity-Quantum Dilemma in Experiments”*

The conference's social program provided ample opportunities for networking in an informal setting. The welcome reception on the evening before the official start created a relaxed atmosphere for initial exchanges.



Andreas Kugi and the musicians at the
MATHMOD opening ceremony

MATHMOD 2025 officially commenced on February 19, 2025, with an opening ceremony, where Andreas Kugi and Andreas Körner warmly welcomed participants. In keeping with tradition,

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
Google Play bit.ly/3lazFjx
Web version ifac.floq.live

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

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

No.2

April 2025

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Upcoming IFAC Conferences

The IFAC Journals

Automatica

journals.elsevier.com/automatica

Control Engineering Practice

journals.elsevier.com/control-engineering-practice

Engineering Applications of Artificial Intelligence

journals.elsevier.com/engineering-applications-of-artificial-intelligence

Journal of Process Control

journals.elsevier.com/journal-of-process-control

Annual Reviews in Control

journals.elsevier.com/annual-reviews-in-control

Journal on Mechatronics

journals.elsevier.com/mechatronics

Nonlinear Analysis: Hybrid Systems

journals.elsevier.com/nonlinear-analysis-hybrid-systems

IFAC Journal of Systems & Control

journals.elsevier.com/ifac-journal-of-systems-and-control

IFAC-PapersOnLine

journals.elsevier.com/ifac-papersonline

the ceremony was accompanied by a musical performance by the Johann Sebastian Music School and a presentation titled “*Viennese Impressions Beyond Tourist Trails*” by Prof. Inge Troch

A big thank you goes to the members of the International Program Committee (IPC) for organizing the review process and hence ensuring the scientific quality of MATHMOD 2025. Finally, the organizers would like to thank all sponsors and co-sponsors of the conference, in particular IFAC and its technical committees TC 4.2 – Mechatronic Systems and TC 1.1 – Modelling, Identification and Signal Processing.

Submitted by: Andreas Kugi, Andreas Körner, TU Wien

18th IFAC Symposium on Information Control Problems in Manufacturing (INCOM 2024) 28-30 August 2024 Vienna, AT

The 18th IFAC Symposium on Information Control Problems in Manufacturing (INCOM 2024) took place from August 28-30 2024, at the prestigious premises of the Austrian Economic Chamber (WKÖ) in Vienna, Austria. Organized by TU Wien and Fraunhofer Austria, the symposium brought together 342 participants from 39 countries, providing a vibrant platform to discuss the latest advancements and challenges in the context of twin transformation, under the flagship topic of “sustainable transformation towards autonomous manufacturing systems”. With 367 submissions and an acceptance rate of 60.5%, the event showcased high-quality research and global participation.

The technical program featured 218 research presentations across seven parallel sessions per day, addressing key topics inter alia smart manufacturing, digital twins, and supply chain resilience. Contributions came from both academia and industry, emphasizing the critical role of collaboration in driving technological advancements in these fields.

The conference began with the pre-conference Doctoral Workshop on August 27, focusing on “Advances in Manufacturing and Logistics Management and Control Problems.” Organized by Prof. Fabio Sgarbossa (NTNU Trondheim) and Prof. Marco Macchi (Politecnico di Milano), the workshop saw the presentation of 31 PhD research proposals. The day concluded with a Welcome Reception at TUtheSky, where attendees enjoyed panoramic views of Vienna and excellent weather, setting the stage for informal discussions and networking.

The official opening ceremony on August 28 was led by NOC Chairs Prof. Fazel Ansari and Prof. Sebastian Schlund. Attendees were greeted with a video message from Leonore Gewessler, Austria’s Federal Minister for Climate Action, Environment, Energy, Mobility,

Innovation, and Technology. **(Editor’s Note: IFAC receives an association support subsidy from this ministry, now under a new name which is noted in German in each issue of this Newsletter.)** Prof. Jens Schneider, Rector of TU Wien, delivered an inspiring opening speech, highlighting the importance of technological innovation in solving global challenges. Several prominent keynote speakers contributed to the technical program:

- Prof. Torbjørn Netland (ETH Zürich) delivered an engaging keynote on “*Augmented Intelligence for Next-Level Manufacturing Excellence*,” discussing AI’s potential to revolutionize manufacturing.
- Prof. Dmitry Ivanov (HWR Berlin) presented his keynote on “*The Future of Supply Chain Simulation and Digital Twins*,” offering valuable insights into the future of simulation technologies in supply chain management.
- Prof. Andreas Kugi (TU Wien) spoke on “*Advanced Control for Sustainable Autonomous Manufacturing*,” emphasizing how advanced control systems can enhance sustainability in production.

A panel discussion on Smart and Sustainable Manufacturing was another key highlight of the event. The panel was headlined by Caroline Viarouge (CEO of EIT Manufacturing) and included expert contributions from Daniel Valtiner (Infineon Technologies Austria AG), Ana Paula Nishio De Sousa (UNIDO), Enzo Frazzon (Federal University of Santa Catarina), and Dmitry Ivanov (HWR Berlin). The discussion centered on how innovation can support the transition to sustainable manufacturing.



INCOM 2024 in Vienna, AT

The social highlight of the symposium was the Gala Dinner at the Hotel InterContinental, where participants enjoyed an elegant evening of networking and celebration. The event was opened by Prof. Peter Ertl, Vice-Rector of TU Wien, and featured a keynote address by Prof. Alexandre Dolgui (IMT Atlantique), who reflected on the history and evolution of the IFAC INCOM Symposium, sharing valuable insights into its impact on the field.

In addition to the stimulating technical sessions, INCOM 2024 recognized several outstanding contributions during the Closing and Awards Ceremony:

- Ryan O’Neil (Dalhousie University) received the Young Author Award.

From the IFAC President

Dear IFAC Friends and Colleagues,

In this edition, I will describe the eight IFAC journals in the fields of control systems, automation, and related areas. These journals are managed by IFAC in collaboration with Elsevier. Our flagship journals, *Automatica* and *Annual Reviews in Control*, have been leading the control field for nearly 50 years or more. Our application-focused journals have also been leaders in their respective fields for decades. A summary of the journals’ histories Focus, and Scope is provided below.

I would like to highlight one journal, *Engineering Applications of Artificial Intelligence (EAAI)*, which was initially published by Pergamon. It became an IFAC journal, aligning its scope and editorial structure to emphasize AI-driven methods in control, automation, and engineering systems. Over time, *EAAI*’s content expanded from traditional AI applications to cutting-edge technologies, including deep learning, hybrid AI systems, data-driven control, and autonomous control systems.

***Automatica*:** Theoretical and applied research in control and automation, Theory, algorithms, and application methods in control. ***Annual Reviews in Control*:** Review articles summarizing developments in control, Comprehensive surveys in various control-related disciplines.

***Mechatronics*:** Multidisciplinary studies in mechanical, electronic, and software systems, Integration of sensors, actuators, and software in mechatronics and robotics.

***Journal of Process Control*:** Process control research and its applications, Innovations in process monitoring, control, and optimization.

***Control Engineering Practice*:** Practical applications of control engineering, Reports on control systems and their real-world implementations.

***Engineering Applications of Artificial Intelligence*:** AI techniques in control and automation systems, AI-driven solutions for control and automation challenges.

***Nonlinear Analysis: Hybrid Systems*:** Hybrid systems combining discrete and continuous dynamics, Theoretical, computational, and application aspects of hybrid systems.

***IFAC Journal of Systems and Control*:** Broad systems and control research, Theory, application, and design in systems and control engineering.

These journals are integral to maintaining IFAC’s position as a leading global professional society, providing an excellent forum for IFAC NMOs and affiliates.

Sincerely,

Dongil “Dan” Cho,
IFAC President, 2023-2026

- Victória Melo (CeDRI) won the Best Paper Award.

- Jannick Fiedler (ETH Zürich) was honored with the Best PhD Research Proposal Award.

INCOM 2024 was an exceptional event, serving not only as a forum for presenting innovative research but also as a space for fostering collaboration between researchers and practitioners in the fields of manufacturing and logistics. The symposium successfully bridged the gap between academia and industry, creating opportunities for knowledge exchange and long-lasting partnerships.

With the successful conclusion of this year's event, preparations are already underway for INCOM 2027, which promises to continue the tradition of excellence by bringing together the global community to advance research and technology in manufacturing and logistics systems.

Submitted by: Fazel Ansari (AT), INCOM 2024 NOC chair

European Control Conference 2024 (ECC 2024) 25-28 August 2024 Stockholm, SE

The European Control Conference (ECC) 2024 took place in Stockholm, Sweden, from June 25-28. This year's conference attracted over 1100 participants from academia, government agencies, and industry, gathering at KTH, the Royal Institute of Technology. Attendees from 47 countries across all continents enjoyed the sunny and beautiful city of Stockholm while learning and sharing knowledge in the field of control systems. In addition the IFAC Council and Related Meetings 2024 were held in conjunction with this conference. Over three days, 9 keynote speakers captivated the audience with remarkable and insightful presentations. Additionally, 593 papers were presented and discussed in various sessions, and a dedicated day was focused on fostering industry collaboration.

On June 25 before the official opening, the ECC24 offered fifteen pre-conference workshops addressing current and future topics in control systems. Experts from academia, research institutes, and industry led these workshops, delving deeper into areas like

multi-agent learning and control, soft robotics control design, and task and motion coordination. The workshops aimed to spark discussion and collaboration among participants by exploring new approaches and applications not covered in the main conference. This allowed researchers and practitioners to gain advanced knowledge and practical skills in specific areas of control systems.

The Opening ceremony gathered more than 1000 participants on Wednesday, June 26. Anders Rantzer, General Co-Chair of ECC24, warmly welcomed the audience and introduced the first opening session speaker, Mats Persson, Minister for Education, Government of Sweden. The minister emphasized the government's strong commitment to research and development, highlighting the importance of such investments for competitiveness. Dong-il "Dan" Cho, President of the International Federation of Automatic Control (IFAC), spoke about IFAC's role in fostering technical discussions and global collaboration among diverse researchers. M. Elena Valcher, President of the European Control Association, recalled her first participation at a European Control Conference in 1999; little did she know she would one day become the EUCA president.



The conference's lunch events provided attendees with valuable opportunities to learn, connect, and exchange ideas in a more informal setting. This year's lunch events centered on themes relevant to both aspiring and seasoned professionals in the control systems field. Aware of the importance of creating spaces to promote the participation of women, the Women in Control lunch event took place in the second day. The event was a unique networking opportunity for women focused on offering new perspectives on the current role of control engineering, along with discussions on programs, opportunities, and personal stories from women, in both academia and industry. Throughout the conference, an exhibition was held in the main building, consisting of 5 portraits of women who worked in control engineering over the decades and left their mark. The control engineering field will not reach its full potential, as long as a big portion of the contributors are not finding their way in to the field. By highlighting early female role models, the conference demonstrated the importance of diversity and inclusion, to promising young students and professionals.

The ECC24 dedicated a full day to fostering collaboration between academia and industry. This industry day, held on Thursday, June 27th, offered a plenary session, two panels, a tutorial session and three sessions dedicated to the presentation of industry abstracts. The day was a platform for researchers, practitioners, and industry representatives to share knowledge, explore new frontiers, and build lasting

IFAC Affiliates Statistics

As of the date of 8 April 2025, the IFAC database contains 8328 affiliates. 47% of these (3891) registered to the IFAC Portal and thereby provide useful data about IFAC volunteers around the globe.

Career stage is not a mandatory field in the affiliate profile. In average only 43% of the registered affiliates indicated the career stage information. Among the top 20 countries/regions in terms of number of registered people, the response rate to this question ranges from 20% (Japan) and 33% (Korea, Austria) to 64% (Brazil) and 67% (India).

Average - Among all affiliates having filled this career stage field, 27% are in early stage, 45% are in middle stage and 28% are in the late stage of their career. Countries/regions such as Australia (26% early, 52% middle, 22% late), Brazil (25%, 42%, 34%), France (22%, 48%, 30%), Italy (29%, 45%, 26%), Mexico (25%, 54%, 21%) are close to this average distribution.

Early/Late - Countries/regions with the highest rates of people in early stage of the career are Turkey (47%, 39%, 14%) and India (42%, 48%, 10%). These are also in the group of countries with the lowest rates of people in the late stage of the career together with Austria (30%, 60%, 10%), China (38%, 50%, 12%). Countries/regions with the lowest rates of people in early stage of their career are Romania (7%, 43%, 50%), Portugal (6%, 44%, 50%) and Spain (7%, 60%, 33%).

Equally distributed - The countries/regions that have lowest rates of people in the middle stage of the career are also those with almost equally distributed proportions of people in the three stages of the career: Canada (31%, 38%, 31%), Netherlands (37%, 37%, 27%), Sweden (36%, 33%, 30%), UK (34%, 36%, 30%), USA (33%, 37%, 30%). Other countries/regions in this top 20 group of countries/regions in terms of registered affiliates are Germany (38%, 39%, 23%), Japan (14%, 55%, 31%), Korea (31%, 45%, 24%).

As mentioned in earlier issues of the Newsletter, IFAC will soon erase the data concerning affiliates who never connected to the portal. This was initially planned for January 2025 and is postponed for technical reasons but will apply in the near future.

All material proposed for publication in the IFAC Newsletter should be sent to 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.

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.

on “Automation and Control in the Electric Power Grid to 2050.” During the panels, industry experts delved into the future of self-driving vehicles and control systems, and explored the applications of digital twins in various industries, examining their potential to revolutionize sectors such as manufacturing, health care, and urban planning.

The conference culminated in a matchmaking event on Friday, June 28 where academic job seekers could connect with leading companies in the control field, including ABB, Optimization AB, DLR, Mitsubishi Electric Research Laboratories, Net Insight AB, Alstom, SkySails, Scania, GNK Aerospace, TOPTICA Photonics AG, Jaguar Land Rover, and others.

Social events included a welcome reception in the lovely Stockholm City Hall, the same place, the Noble Prize Dinner is held; student activities, a dinner boat trip along the coast and a conference dinner at the Vasa Museum.

Submitted by: Johan Karlsson (SE), ECC 2024
NOC chair

7th IFAC Conference on Engine and Powertrain Control, Simulation and Modeling (ECOSM 2024) 30 October- 1 November 2024 Dalian, CN

After the 5th conference held in Changchun, China in 2018 and the 6th virtual conference held in Sophia University, Japan in 2021, the 7th IFAC Conference on Engine and Powertrain Control, Simulation and Modeling (ECOSM 2024) was held in Dalian, China from October 30 to November 1, 2024. A total of 111 registered participants attended the conference from 8 different countries around the world. 91 papers were accepted and presented during the conference; among them 76 regular papers are accepted by IFAC-PapersOnLine.

In the program, there were 6 plenary talks from Per Tunestål - Lund University, Sweden; Kuk-Jin Yoon - KAIST, Korea; Yasuo Moriyoshi - Chiba University, Japan; Keqiang Li - Tsinghua University, China; Hong Chen - Tongji University, China, and Feng Ding- UAES, China. These plenary talks showed the newest developments on engine control, internal combustion engine, automated driving, model predictive control and connected vehicles.

As parts of the conference, a pre-conference workshop on New Trend in Powertrain Control and Carbon Neutralization, and a tutorial on Reinforcement Learning Theory were organized on November 29 and November 30, respectively. Moreover, an Industrial Powertrain Control Tech Summit on Smart mobility, Connectivity, Electrification, AI, Big Data, and Powertrain Control with 6 distinguished engineers was held.

A mini live house show was performed during

the banquet by Japanese band organized by Toyota engineers. The Young Author Award was proposed as part of the banquet being Mengge Sun from Tongji University (China) the winner. Meanwhile, 12 regular papers were selected to be presented in the poster session as PhD show case, and two presenters are selected as Best Poster Award by the award committee.

In summary, the conference was plenty of technical activities and social events to stimulate the research on the conventional field of engine and powertrain, and on the emerging field of automated driving and connected vehicle. Moreover, the gap between academic and industry was tried to be reduced during this conference. We hope the participants not only enjoyed the friendly and academic atmosphere, but also enjoyed the services from the committee and the volunteers.

Submitted by: Tielong Shen, ECOSM 2024,
NOC Chair

5th IFAC Workshop on Cyber Physical Human Systems (CPHS 2024) 12- 13 December 2024 Antalya, TR

The 5th IFAC Workshop on Cyber Physical Human Systems (CPHS) was held from 12-13 December 2024 in Antalya, Türkiye. This biennial event brings together researchers, practitioners and industry leaders to discuss advancements and challenges in the rapidly evolving field of CPHS. The event hosted 74 papers from 16 countries and 4 continents. A total of 142 participants registered for the conference, including 30 attendees without paper presentations.

Plenary Talks: The workshop featured keynote speeches, including Amazon Vice President Ruhi Sarikaya's talk on “Artificial General Intelligence,” and Technical University of Munich Professor Sandra Hirche's presentation on “Learning-based Control in Neurorehabilitation - from Theory to Practice”.

Professional Development Poster Session: This session provided a platform for faculty members, recruiters, and search committees to engage directly with undergraduate and graduate

students, as well as postdoctoral researchers, seeking academic and industrial research positions. Designed to foster meaningful connections in an informal setting, this event featured an interactive workshop focused on essential communication skills.

Participants honed their “elevator pitches” to effectively present their research and developed critical networking skills to support their success in research and professional careers. Fellows Program: Thanks to an award from NSF's CNS Division, we have sponsored travel and registration costs for 19 students affiliated with US institutions to participate in CPHS 2024. Beyond providing financial support to cover (or largely offset) meeting participation costs, we aimed to create a sense of community among CPHS Fellows by establishing formal Mentorship and Orientation structures. Women in CPHS Panel: The panel focused on fostering impactful discussions around Diversity, Equity, and Inclusion (DEI) within the CPHS field. Featuring esteemed leaders such as Anuradha Annaswamy from MIT, Sandra Hirche from TUM, and Raziye Tekin from Roketsan, the panel highlighted diverse perspectives and experiences, inspiring dialogue on creating more inclusive and equitable opportunities in academia and industry.

Young Author and Student Participation: IFAC and IEEE generously supported student participation in the form of funds for travel support. These funds supported the attendance of 43 students and early career researchers. Support for future CPHS researchers: A CPHS student support fund is created in Bilkent University, Turkey, by the surplus from the workshop budget. This fund aims to encourage student participation in related conferences and meetings, enhancing their academic and professional development.

Industry sponsors: The event attracted several industry sponsors including Baykar, Amazon, FNSS, Aselsan and HARP.

Submitted by: Yildiray Yildiz (TR), CPHS 2024
General Chair

The IFAC Council and Related Meetings 2025 are scheduled to take place from 16-19 July 2025 in Paris, FR!

The meetings are being held in conjunction with Mechatronics and Robotics Symposia.
ifac2025-msrob.com/

Some accommodation information is available at: ifac2025-msrob.com/accommodation/

Information such as the schedule will be updated here:

ifac-control.org/news

cloud.ifac-control.org/apps/forms/s/SQswJaiPjCSLNdbnzPck5TEo

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linkedin.com/company/international-federation-of-automatic-control/

X
x.com/IFAC_Control

YouTube
www.youtube.com/@ifacyoutube3132

IFAC Distinguished Lecturer Lecture Report January-February 2024 India (multiple locations)

Mustafa Khammash, an IFAC Pawel J. Nowacki Distinguished Lecturer, visited India in early 2024 to deliver a series of lectures at leading institutions, including the Indian Institute of Science (IISc) Bangalore, the National Center for Biological Sciences (NCBS), and the Indian Institute of Technology Madras (IIT Madras). His visit also included a student workshop, discussions with faculty and students, and a special industry outreach event hosted by Swissnex Bangalore. The trip was hosted by faculty from IISc, NCBS, and IIT Madras, with additional support from Swissnex Bangalore. He was accompanied by Dr. Ankit Gupta, a senior scientist from his lab, who co-taught the student workshop at NCBS and gave his own lecture at IIT Madras.

At IISc Bangalore on January 29, he visited the Robert Bosch Centre for Cyber-Physical Systems and presented a talk on *Genetic Control Systems*, discussing how principles from control theory can be applied to design and analyze regulatory circuits in biological systems. The lecture explored feedback mechanisms in synthetic and natural gene networks. On January 30, at NCBS Bangalore, Khammash and Gupta led a student workshop on the *Analysis of Stochastic Models of Biomolecular Interactions*. This session provided theoretical and computational insights into how randomness influences gene circuits, equipping students with advanced techniques for modeling biological noise.

On January 31, at the NCBS Simons Foundation, he delivered a lecture titled *Cybergenetics: Theory and Implementation of Biomolecular Control Systems*. This talk explored the intersection of cybernetics and synthetic biology, highlighting how engineered feedback loops can regulate gene expression and cellular behavior. The hosts at NCBS were Prof. Mukund Thattai and Prof. Madan Rao. Khammash and Gupta had several engaging discussions with them and their students.

At IIT Madras on February 5, Khammash gave an *IBSE Colloquium Lecture on Cybergenetics: Theory and Implementation of Genetic Control Systems*. This talk focused on stochastic dynamics in genetic circuits, emphasizing challenges in experimental implementation and mathematical modeling, and highlighting achievements in biomolecular controller designs and their potential applications. Dr. Gupta also gave a lecture at IIT Madras on *Computational Techniques for Analyzing and Identifying Stochastic Reaction Networks*. At IIT Madras, Prof. Khammash was hosted by Prof. Nirav Pravinbhai Bhatt. Prof. Khammash and Dr. Gupta had fruitful discussions with Prof. Bhatt and his students, leading to an ongoing collaborative project.

A special Industry Roundtable was held at Swissnex Bangalore on January 30, titled *Cybergenetics: A New Paradigm at the Frontier of Engineering Biology*. This event brought together industry leaders, faculty, and members of the public, facilitating discussions on how cybergenetic technologies can impact biotechnology, medicine, and synthetic biology applications. Prof. Khammash also visited the International Centre for Theoretical Sciences (ICTS) in Bangalore, where he met with researchers and students.



IFAC Distinguished Lecturer Mustafa Khammash pictured in India with Dr. Viloo Patel and Dr. Ankit Gupta

Mustafa Khammash's visit to India strengthened interdisciplinary collaboration between control theory, synthetic biology, and biotechnology, fostering knowledge exchange between academia and industry. His lectures and discussions showcased the growing importance of cybergenetics and biomolecular control, reinforcing IFAC's role in advancing cutting-edge research in control and dynamical systems in biology.

Submitted by: Mustafa Khammash (CH), IFAC Pawel J. Nowacki Distinguished Lecturer

IFAC Activity Fund Report CYBATHON 2024 Durban, ZA (hub) 2024

Activity Organizer: Riaan Stopforth, Robotics Association of South Africa / University of KwaZulu-Natal; stopforth@ukzn.ac.za

IFAC Sponsor: South African Council for Automation and Control (IFAC NMO for South Africa)

CYBATHLON 2024, which happened in Switzerland, with a hub in Durban, South Africa, is the Olympics competition of the prosthetic industry – a platform that challenges teams from all over the world to develop assistive technologies suitable for everyday use with and for people with disabilities. South Africa was represented at the international Cybathlon 2024 competition in the Arm Prosthesis category by the TOUCH PROSTHETICS HAND.

Interested school learners were invited to interact with the UKZN team and its "pilot" (prosthetic hand user and amputee) Mr. Lungile Dick. Information was provided about the

hand, after which learners were able to chat to the team to ask them how the hand works. They were able to see the 3D printed parts involved, the control mechanisms, and how the robotic and mechatronics integration happened. There will also be a competition where selected learners were able to perform some of the Cybathlon tasks and compete with the pilot.



motivational speaker, spoke to the school learners, to motivate them when they are faced with difficulties, and to work and pursue through them.

After this school event, the actual Cybathlon event happened. The live feed was streamed to Switzerland, and they added their commentary, and broadcasted the video link worldwide. The Touch Hand team came in 10th out of 16 teams around the world. The competition that was streamed to Switzerland (with the guidance of Switzerland telling our camera man what to record), can be seen at:

Qualification Race 1:

youtube/1vml30aAw0U?si=YnJMi_Vy-EjE0w7SL

Qualification Race 2:

youtubeBzbeBSoXb5U?si=sVe_aZe1ICSgT-VH

The official ARM discipline broadcast from Switzerland, with the Touch Hand team can be viewed at the link below. First qualifying race starts at 1 hour 28 minutes, and the 2nd qualifying race starts at 2 hours 01 minutes.

youtube.com/watch?v=AizvmG1oNLE

Thank you to IFAC for the support with this event. Numerous learners were able to learn what engineering is about, and how important it is to know the fundamentals to be able to control devices and systems. IFAC received numerous exposure with logos on the banners around the venue.

IFAC Activity Fund Committee website:

ifac-control.org/areas/activity-fund

IFAC Email Aliases are available!

Sign up with the address with which you are registered with IFAC at:

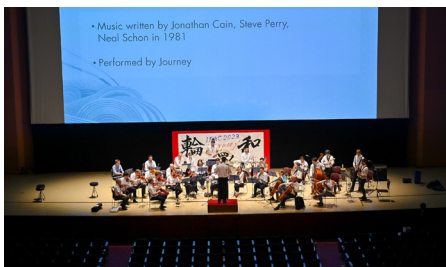
<https://hera.ifac-control.org/ifacmail/>

If you need any assistance to complete the process please contact the IFAC Secretariat via email at secretariat@ifac-control.org.

Performance of the IFAC Control Orchestra at IFAC 2026

We are excited to announce the comeback of one of the highlights of the IFAC World Congress 2020 & 2023: The IFAC Control Orchestra! Sign up to learn more!

After the virtual performance in 2020, the IFAC World Congress 2023 featured the first live performance ever by the IFAC Control Orchestra. At the closing ceremony, 33 musicians from the automatic control community performed three pieces live on-stage in front of an estimated audience of 2000 attendees: the festive ballad "You Raise Me Up" by Norwegian composer Rolf Lovland ([youtube.com/watch?v=pUkssoyOyU8](https://www.youtube.com/watch?v=pUkssoyOyU8)), the fast-paced modern pop song "Blinding Lights" by Canadian singer The Weeknd ([youtube.com/watch?v=Lhn-6SduXvs](https://www.youtube.com/watch?v=Lhn-6SduXvs)), and the well-known rock classic "Don't stop believin'" by the American band Journey ([youtube.com/watch?v=511FhHJKI7U](https://www.youtube.com/watch?v=511FhHJKI7U)).



IFAC Control Orchestra Performance 2023 in
Yokohama, JP

The organizers of the 23rd IFAC World Congress 2026 in Busan, KR are now planning a comeback of the IFAC Control Orchestra. Once again, the plan is to form an orchestra ensemble including only musicians from the automatic control community, to practice on site during the IFAC World Congress, and to put on a live performance during the congress.

For this event, we are looking for interested people from the automatic control community who have some previous musical experience and who are interested in being part of a highly dynamic, distributed, nonlinear, adaptive, fuzzy, MIMO, fault-tolerant, learning-based feedback control system with experimental verification and validation.

If you would like to join the IFAC Control Orchestra, or would just like to be informed about the next steps, then subscribe to our e-mail list at ifac2026.org/

fairBbs.do?selAction=view&FAIRMENU_IDX=21664&BOARD_IDX=72535.

Further information on the orchestra including links to the IFAC 2020 performance can be found on ifac-control.org/about/ifac-control-orchestra.

Submitted by: Julian Berberich (DE), IFAC Control Orchestra Organizer

**The IFAC Story E-book
is available!
ISBN 978-3-902823-73-1**

ifac-control.org/about/the-ifac-story

To our readers: To comply with the Austrian 'Media Act', every publication must contain a declaration once a year concerning ownership and purpose, as below.

Offenlegung: Das Medienwerk 'IFAC Newsletter' wird als Organ der 'International Federation of Automatic Control' (IFAC) verlegt und ist Eigentum dieser Internationalen Föderation, deren Tätigkeit der Förderung von Wissenschaft und Technik automatischer Regelung und Steuerung dient. Die Föderation hat ihren Sitz in Zürich (CH) und ist nach Schweizer Recht als gemeinnütziger Verein angemeldet. Sie verfolgt weder wirtschaftliche noch praktische Ziele.

Das Sekretariat der IFAC befindet sich seit 1978 aufgrund eines Übereinkommens mit der Österreichischen Bundesregierung mit der Österreichischen Akademie der Wissenschaften in Laxenburg.

Der 'IFAC Newsletter' erscheint sechsmal jährlich in englischer Sprache unter der Redaktion des Generalsekretärs der IFAC, Dr. Dimitri Peaucelle (Frankreich). Die Zeitschrift dient der Information über die Aktivitäten der IFAC. Sie wird kostenlos an Abonnenten in 50+ Länder versandt. Die Kosten werden von der IFAC aus Beiträgen der derzeit 45 Mitgliedsländer getragen.

Präsident der IFAC für 2023-2026 ist Prof. Dongil "Dan" Cho (KR), Vizepräsidenten sind Prof. Dr. Silvia Mastellone (CH), Prof. Dr.-Ing. Carlos Eduardo Pereira (BR), Dr. Dimitri Peaucelle (FR), Prof. Richard Braatz (US) und Prof. Sarah K. Spurgeon (UK). Alle Funktionen werden ehrenamtlich ausgeübt.

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The portal gives access to IFAC services:

- Share with and consult information about other Affiliates
- Receive the IFAC Newsletter
- Receive alerts about the IFAC Conferences in your field/s of interest
- Get reduced registration fees at IFAC Conferences. Conferences are typically 10€ (or the local equivalent) less expensive for IFAC Affiliates, than for non-affiliates
- Participate in IFAC Technical Activities
- Organize IFAC Conferences
- Participate in IFAC Journals
- Be nominated to IFAC Awards
- Apply to the IFAC Activity fund
- More to come in the future!

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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
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 Innovation, Mobilität, und Infrastruktur „BMIMI“ gefördert.

 **Federal Ministry
Innovation, Mobility
and Infrastructure
Republic of Austria**

Calendar of IFAC Conferences

| Title | 2025 | Place | Further Information |
|---|----------------------|-----------------------------|---|
| 10 th IFAC Conference on Networked Systems NECSYS 2025 | June 02 – 06 | Hong Kong Hong Kong (CN) | necsys25.org/ |
| 14 th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems DYCOPS 2025 | June 16 – 19 | Bratislava Slovakia | www.dycops2025.org/ miroslav.fikar@stuba.sk |
| 11 th IFAC Symposium on Advances in Automotive Control AAC 2025 | June 16 – 18 | Eindhoven Netherlands | aac2025.tue.nl/ |
| 14 th IFAC Symposium Advances in Control Education ACE 2025 | June 17 – 21 | Budapest Hungary | conf.uni-obuda.hu/ifac_ace_2025/ ifacace2025@uni-obuda.hu |
| 5 th IFAC Workshop on Control of Systems Governed by Partial Differential Equations CPDE 2025 | June 18 – 20 | Beijing China | cpde2025.bjut.edu.cn/index.html#/home jyzhan@bjut.edu.cn |
| IFAC Workshop on Smart Energy Systems for efficient and sustainable smart grids and smart cities SENSYS 2025 | June 18 – 20 | Bari Italy | conferences.ifac-control.org/sensys2025/ |
| EUCA/IFAC Conference on European Control Conference (in cooperation with IFAC) ECC 2025 | June 24 – 27 | Thessaloniki Greece | ecc25.euca-ecc.org/ ecc2025@symvoli.gr |
| 2 nd IFAC Workshop on Control of Complex Systems COSY 2025 | June/July 30 – 02 | Gif-sur-Yvette France | sssc-tds-cosy-2025.sciencesconf.org/ sssc-tds-cosy-2025@sciencesconf.org |
| 9 th IFAC Symposium on System Structure and Control SSSC 2025 | June/July 30 – 02 | Gif-sur-Yvette France | sssc-tds-cosy-2025.sciencesconf.org/ sssc-tds-cosy-2025@sciencesconf.org |
| 19 th IFAC Workshop on Time Delay Systems TDS 2025 | June/July 30 – 02 | Gif-sur-Yvette France | sssc-tds-cosy-2025.sciencesconf.org/ sssc-tds-cosy-2025@sciencesconf.org |
| 11 th IFAC Conference on Manufacturing Modelling, Management and Control MIM 2025 | June/July 30 – 03 | Trondheim Norway | conferences.ifac-control.org/mim2025/ mim2025@mtp.ntnu.no |
| 9 th International Conference on Control, Automation and Diagnosis ICCAD 2025 | July 01 – 03 | Barcelona Spain | iccad-conf.com/ contact@iccad-conf.com |
| 11 th IFAC Symposium on Robust Control Design ROCOND 2025 | July 02 – 04 | Porto Portugal | conferences.ifac-control.org/rocond2025/ rocond2025@ifac-mail.org |
| 6 th IFAC Workshop on Linear Parameter Varying Systems LPVS 2025 | July 02 – 04 | Porto Portugal | conferences.ifac-control.org/lpvs2025/ lpvs2025@ifac-mail.org |
| 15 th IFAC Workshop on Adaptive and Learning Control Systems ALCOS 2025 | July 02 – 04 | Mexico City Mexico | alcos2025.itam.mx alcos2025@itam.mx |
| AACC, IFAC, et al. Conference on American Control Conference (in cooperation with IFAC) ACC 2025 | July 08 – 11 | Denver, CO USA | acc2025.a2c2.org/ paulson.82@osu.edu |
| 14 th IFAC Symposium on Robotics ROBOTICS 2025 | July 15 – 18 | Paris France | ifac2025-msrob.com |
| 10 th IFAC Symposium on Mechatronic Systems MECHATRONICS 2025 | July 15 – 18 | Paris France | ifac2025-msrob.com |
| 11 th IEEE, IFAC et al International Conference on Control, Decision and Information Technologies CoDIT 2025 | July 15 – 18 | Split Croatia | codit2025.org/ |

Calendar of IFAC Conferences

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|---|----------------------|-----------------------|---|
| 13 th IFAC Symposium on Nonlinear Control Systems NOLCOS 2025 | July 23 – 25 | Reykjavik Iceland | conferences.ifac-control.org/nolcos2025/ |
| 23 rd IFAC Symposium on Automatic Control in Aerospace ACA 2025 | August 02 – 06 | Harbin China | |
| 17 th IFAC Symposium on Large Scale Complex Systems: Theory and Applications LSS 2025 | August 12 – 14 | Dublin Ireland | |
| 16 th IFAC Conference on Control Applications in Marine Systems, Robotics and Vehicles CAMS 2025 | August 25 – 28 | Wuhan China | conferences.ifac-control.org/cams2025/ |
| 8 th IFAC Conference on Sensing, Control and Automation Technologies for Agriculture AGRICONTROL 2025 | August 27 – 29 | Davis, CA USA | https://agricontrol25.sf.ucdavis.edu/ zdkong@ucdavis.edu |
| 15 th IFAC Symposium on Intelligent Manufacturing Systems IMS 2025 | September 11 – 12 | Koszalin Poland | ims2025.pl/ |
| 7 th IFAC Symposium on Telematics Applications TA 2025 | September 15 – 18 | Padova Italy | j3c.org/ info@j3c.org |
| 1 st IFAC Workshop on Engineering and Architectures of Automation Systems EAAS 2025 | September 15 – 18 | Padova Italy | j3c.org/ info@j3c.org |
| 7 th IFAC Conference on Intelligent Control and Automation Sciences ICONS 2025 | September 15 – 18 | Padova Italy | j3c.org/ info@j3c.org |
| 5 th IFAC Workshop on Thermodynamics Foundations of Mathematical Systems Theory TFMST 2025 | September 19 – 21 | Hangzhou China | tfmst2025.net/#/ gaochou@zju.edu.cn |
| 66 th International Conference of Scandinavian Simulation Society SIMS 2025 | September 23 – 24 | Stavanger Norway | nfea.no/arrangementter/sims-2025/ damiano.rotondo@uis.no |
| 5 th AACC Conference on Modeling, Estimation and Control MECC 2025 | October 5 – 8 | Pittsburgh, PA USA | mecc2025.a2c2.org/ |
| Optimization and Automation in Mining, Minerals and Metal Processing MMM 2025 | October 5 – 8 | Lima Peru | conferences.ifac-control.org/mmm2025/ mmm2025@pucp.edu.pe |
| IFAC Workshop on Control Aspects of Multi-Satellite Systems CAMSAT 2025 | October 5 – 8 | Würzburg Germany | informatik.uni-wuerzburg.de/camsat frankenberger@informatik.uni-wuerzburg.de |
| 16 th INSTICC et al. International Workshop on Enterprise Integration, Interoperability and Networking EI2N 2025 | October 23 – 24 | Marbella Spain | in4pl.scitevents.org/EI2N.aspx |
| 6 th INSTICC et al International Conference on Innovative Intelligent Industrial Production and Logistics IN4PL 2025 | October 23 – 24 | Marbella Spain | in4pl.scitevents.org/ in4pl.secretariat@insticc.org |
| 3 rd IFAC Workshop on Control Methods for Water Resource Systems CMWRS 2025 | November 6 – 7 | Douai France | conferences.ifac-control.org/cmwrns-imt-nord-europe/ |
| 1 st IFAC Workshop on Blockchain Intelligence and Knowledge Automation BIKAI 2025 | November 8 – 9 | Macao China | |
| 16 th IFAC Symposium on Analysis, Design and Evaluation of Human -Machine Systems HMS 2025 | November 18 – 21 | Beijing China | conferences.ifac-control.org/hms2025/ yinzhong@usst.edu.cn |