

11th Conference on Control Applications in Marine Systems, Robotics, and Vehicles (CAMS 2018)

10-12 September 2018
Opatija, Croatia

Since 1989 IFAC has sponsored a Conference on Control Applications in Marine Systems every three years. In 2016, the IFAC Technical Committee on Marine Systems decided to modify CAMS into a conference on Control Applications in Marine Systems, Robotics and Vehicles. This was done through the amalgamation of the IFAC Conferences on Control Applications in Marine Systems (CAMS), Manoeuvring and Control of Marine Craft (MCMC), and the IFAC Workshop on Navigation, Guidance and Control of Underwater Vehicles (NGCUV). CAMS will now take place every year, except during years with an IFAC World Congress.

The 11th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles (CAMS 2018) took place in Opatija, Croatia, from 10-12 September. For CAMS, this was a return to Croatia after eleven years, and was organized by the University of Zagreb (HR) through its Faculty of Electrical Engineering and Computing, with its Laboratory for Underwater Systems and Technologies (LABUST), and the NGO Center for Underwater Systems and Technologies (CUST).

The National Organizing Committee was chaired by Professor Zoran Vukic, of the Faculty of Electrical Engineering and Computing of the University of Zagreb. The key members of the committee were Nikola Miškovic, Đula Nad, Antonio Vasilijevic, and Ivana Mikolic. Vahid Hassani (NO) served as chair of the international program committee, with Nikola Miškovic as vice-chair, Marco Bibuli as Chair for Special Sessions, Workshops, and Tutorials, aided by thirty IFAC members from fifteen countries. The editor of the conference was Nikola Miškovic from the University of Zagreb.

The research areas covered by this event are increasingly appreciated and have become enablers for safer, smarter and greener marine systems and operations. The application areas cover important areas of research for the society, such as: maritime robotics; maritime transportation; offshore oil and gas exploration; fisheries and aquaculture; offshore renewable energy; ocean science; marine mining; coastal infrastructure; tourism, and others. A total of 92 submissions were received, of which 78 were accepted and presented in twelve sessions. As part of the CAMS conference, an IFAC Young Author

Prize was presented to Justin Matthew Kennedy from Queensland University of Technology (Brisbane, AU) for his paper "Bayesian Inference and Prediction of Wave-Induced Ship Motion Based on Discrete-Frequency Model Approximations".

The program included four invited keynote lectures, delivered by distinguished specialists, one of which was from industry (Janne Kuivalainen, ABB, FI), and other three from academia (Oussama Khatib, Stanford University, US, Andrew R. Teel, University of California -Santa Barbara, US, and Antonio Pascoal, University of Lisbon, PT).



Left to Right: Nadir Kapatanovic (HR),
Ivana Mikolic (HR) at CAMS 2018

The conference was extremely well-received by graduate-level and PhD students, researchers, professor, and active players in the field of marine systems and robotics. The chosen venue was pleasant, and part of the social program included an expedition across the Istrian peninsula exploring the history and natural beauty of Croatia.

The 12th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles will take place in Daejeon, Korea, from 18-20 September 2019.

Submitted by: Zoran Vukic/NOC Chair, University of Zagreb (HR) and Vahid Hassani/IPC Chair (NO)

**SEASON'S GREETINGS AND
BEST WISHES FOR 2019
TO ALL IFAC NEWSLETTER
READERS!**

No.6

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Control Engineering Practice

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Engineering Applications of Artificial Intelligence

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Journal of Process Control

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Journal on Mechatronics

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Nonlinear Analysis: Hybrid Systems

<http://www.journals.elsevier.com/nonlinear-analysis-hybrid-systems>

IFAC Journal of Systems & Control

<http://www.journals.elsevier.com/ifac-journal-of-systems-and-control>

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18th Conference on Technology, Culture & International Stability (TECIS 2018)

13-15 September 2018
Baku, Azerbaijan

The 18th conference of the IFAC TC 9.5 (TECIS 2018, formerly known as "SWIIS") was organised by the Austrian and Azerbaijan IFAC NMOs and took place in Baku, a beautiful city on the Caspian Sea in Azerbaijan from 13-15 September 2018.

TECIS 2018 provided a forum for professionals, researchers, experts, and practitioners from industry, non-governmental organizations (NGOs) and academia to give an overview of the state of the art, to present new research results and to exchange ideas and experiences in the field of the role of control and automation technologies and its praxis in promoting international stability. A related goal of this conference was to propose new approaches in dealing with globalization effects, and investigating international system complexity and the management of knowledge in that context.

As one of the first IFAC events after 38 years in this new IFAC national member country and according to the scope of TECIS, this event offered scientists from Azerbaijan, Kazakhstan, Russia and across the Caspian Sea region generally the opportunity to present their research results at an IFAC sponsored international event.

The 170 contributions included eight plenary talks, five invited papers and 25 regular sessions. They covered a very broad field of subjects including Social Aspects of Technology Transfer, Globalisation Impact of International Stability, Control Education and International Stability, Engineering Ethics, Cultural Effects, Knowledge Management and Intelligent Systems, Complex Adaptive Systems, Technology and Environmental Stability, Cost Oriented Automation (COA) and End of Life Management (EoL).

The plenaries were presented by:

- IFAC President Frank Allgower (DE) *From the Classical Feedback Loop to the New Cybernetics of the 21st Century*
- Telman Aliyev (AZ) *Technologies and Systems of Noise Control of the Beginning and Dynamics of Development of Accidents and their Applications*
- Muhammad Sarfraz (KW) *Shape Control & Designing Objects*
- Fikret Aliev (AZ) *Algorithm For Solving The Problem Of Optimal Stabilization By Output And Their Application*
- Thomas Duda (CH) *Addressing Challenges in the Oil, Gas and Power Industry in the Light of Industry 4.0 and Big Data*
- Petros Groumpos (GR) *Intelligent Control and Cognitive Control for a Global Coherence and Sustainable Economic Growth For the Humankind*

- Norbert Jesse (DE) *Organizational Evolution - How Digital Disruption Enforces Organizational Agility*
- Larry Stapleton (IE) *New Hope through Advanced Control and Automation Systems: Delivering e-Citizen Services in a Post-Conflict, Transition Region - The Case of PBC and PASS*

Many students, mostly from local universities, attended the event. Out of seven finalists for the Young Author Award the paper of Ines Bula (TU Wien/UBT) was selected for the award by the selection committee.



Left to right:
NOC Chair Bahadur Ibrahimov (AZ),
YAP winner Ines Bula (XK),
IPC Chair Peter Kopacek (AT)

The modern conference hotel, with a tremendous conference infrastructure, was located on the Caspian Sea promenade of Baku. A technical visit was organised to the (historical) oil fields of Bibiheybat and the brand new building of the Oil University. The social program included a banquet dinner at the Elite Events Hall, in the Elite Polo Club with famous Azerbaijani music (including a 65 member orchestra) and traditional dancers, as well as a welcome party at the Ateshgah fire temple. To give the international participants an impression of Azerbaijan's landscape and history some cultural visits were also organized.

We are extremely grateful to the International Program Committee (IPC) members for reviewing of the papers, the members of the National Organising Committee (NOC) for the successful organisation of the event and especially to all attendees for participating in and contributing to this event and we hope that you enjoyed the familiar atmosphere which stimulated intensive and successful discussions.

Submitted by: Peter Kopacek (IPC chair, AT) and Bahadur Ibrahimov (NOC chair, AZ)

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In addition check out the IFAC Blog at
<http://blog.ifac-control.org/>

From the IFAC President

Dear IFAC Friends and Colleagues,

Change. Some find it scary. Others necessary. And in IFAC we obviously believe that a rapidly changing environment is reason enough to also adjust how our old friend IFAC should operate.

The Federation is over 60 years old and was founded in times when the Iron Curtain was dividing the world into two parts. All? Well not entirely! One small community of indomitable control engineers held out, decided to stand together founding the Federation of Automatic Control. But let me not lecture you about IFAC history (even by using Asterix quotes). The point is that while some grown traditions, operations and values are most essential to IFAC, other structural circumstances need to be updated from time to time. Just imagine that the original constitution was written in a time where every correspondence had to be written by letter, officially translated and sent around the globe by horse (ok, the last one is an exaggeration).

These days, the changes have accelerated, not only concerning the structural environment, but also with respect to our field. Systems engineering, automation and control are more timely, more relevant and more needed than ever. For IFAC, this means change. IFAC needs to once more rethink its executive structure, its meeting cycle and agility to adapt to the challenges and possibilities of the future. This was one important theme during the Council and Related Meetings in Florianópolis, Brazil, early September 2018.

One outcome of the discussions in Council, as already hinted towards, is the executive structure. After long time planning, discussion and revisions, we presented a new executive structure for IFAC to Council, which is designed to be better suited to IFAC's needs and goals and to make IFAC more efficient. The key elements of the new structure are a flat hierarchy, more flexibility with an additional Vice-President and Board, and an emphasis on the most important topics within IFAC. Furthermore, to increase the agility of IFAC, an accelerated meetings cycle was implemented in the last year, where an additional Fall Officers Meeting complements the Spring Officers Meeting and the annual Council and Related Meetings.

Other most timely discussions included measures to decrease registration fees for IFAC events, an IFAC Conference App to improve the experience of our conference participants, but also to introduce a more sustainable solution with respect to natural resources, the initiation of an inclusion and diversity strategy for IFAC and many more ideas. The discussions in the IFAC Council were very forward and goal oriented and I want to compliment and thank the Council Members very much.

For many of the above-mentioned items that were initiated in Florianópolis, the hard work has just started. There are a lot of issues and yet open questions that need careful consideration, but I will keep you posted!

Wishing you all a merry holiday season and all the best for a healthy, happy and successful year 2019.

With warm regards from cold Stuttgart,
Frank Allgöwer

**9th Symposium on Robust Control Design
& 2nd Workshop on Linear Parameter
Varying Systems
(ROCOND '18 & LPVS '18)
3-5 September 2018
Florianopolis, Brazil**

The 9th IFAC Symposium on Robust Control Design (ROCOND'18) was jointly organized with the 2nd IFAC Workshop on Linear Parameter Varying Systems (LPVS'18), and held at the Majestic Palace Hotel, in Florianopolis, Brazil from 3-5 September 2018. The main goal of this joint organization was to allow the simultaneous attendance to both events and therefore foster fruitful discussions and interactions among the participants which likely have a large intersection of research topics. To this end, a single registration gave access to all plenaries, technical sessions and social events.



At the opening reception (Left to Right):
Jacqueliën Scherpen (NL), Françoise
Lamnahbi-Lagarigue (FR)
and Emilia Fridman (IL)

The Technical Committees TC 2.5 (Robust Control) and TC 2.2 (Linear Control Systems) were the main sponsors for ROCOND'18 and LPVS'18, respectively, but several other IFAC TCs have also collaborated. ROCOND'18 was also technically co-sponsored by IEEE Control Systems Society (CSS). Moreover, it should be mentioned the support of the Brazilian Society of Automation (SBA), the IFAC National Member Organization, for hosting this joint event in Brazil. The technical program, jointly organized by the two International Program Committees, was composed by:

Five plenary sessions (three were organized by ROCOND'18 and the other two were organized by LPVS'18), presented by Prof. José Geromel (UNICAMP, Brazil), Prof. Ricardo S. Sánchez Peña (ITBA, Argentina), Prof. Karl H. Johansson (KTH Royal Institute of Technology, Sweden), Prof. Andrés Marcos (University of Bristol, UK), and Prof. Mario Sznaiar (Northeastern University, USA), and

19 technical sessions comprising the presentation of 112 regular papers (81 from ROCOND'18 and 31 from LPVS'18).

The IFAC Young Author Prize for the best paper of an author younger than 30 years by 3 September 2018 was awarded at the closing

ceremony. The award committee, composed of Yoshio Ebihara, Maurício Carvalho de Oliveira, Valter Leite (Chair), Dimitri Peaucelle, and Daniel Sbarbaro-Hofer selected five finalists from 15 nominations:

- Anne Romer for the paper *Data-Driven Inference of Conic Relations via Saddle-Point Dynamics*, by Anne Romer, Jan Maximilian Montenbruck, and Frank Allgower.
- Tobias Holicki for the paper *A Swapping Lemma for Switched Systems* by Tobias Holicki and Carsten W. Scherer.
- Carla Souza for the paper *ISS Stabilization of Discrete-Time LPV Systems with Interval Time-Varying State Delay and Saturating Actuators*, by Carla Souza, Valter J. S. Leite, Eugenio B. Castelan, and Luis Silva.
- Guilherme Kairalla Kolotelo for the paper *H_2 and H_∞ Filtering for Continuous-Time Switched Affine Systems* by Guilherme Kairalla Kolotelo, Lucas Egidio, and Grace S. Deaecto.
- Diego Navarro-Tapia for the paper *Linear Parameter Varying Control Synthesis for the Atmospheric Phase VEGA Launcher* by Diego Navarro-Tapia, Andres Marcos, Samir Bennani, and Christophe Roux.

From the five finalists, two winners were selected: Anne Romer (DE) for the paper *Data-Driven Inference of Conic Relations via Saddle-Point Dynamics*, authored by Anne Romer, Jan Maximilian Montenbruck, and Frank Allgower, and Tobias Holicki for the paper *A Swapping Lemma for Switched Systems*, authored by Tobias Holicki and Carsten W. Scherer.

A photo gallery of technical and social events is available on the conference website at <http://rocond18.ufsc.br/>

An interesting social program was offered to participants. In addition to the welcome reception, conference banquet and closing ceremony, a Women in Control lunch was organized by Prof. Lucíola Campestrini (UFRGS, Brazil) with the participation of fifteen academics and students.

It is important to highlight that in addition to the joint technical event, the organizers also hosted the 2018 IFAC Council and Related Meetings, which also took place at the Majestic Palace Hotel from 1-3 September 2018. (Editor's Note: A more extensive report specifically covering the IFAC Council and Related Meetings was published in the October 2018 edition of this Newsletter.) We would like to thank IFAC for the opportunity of bringing such an important meeting to Brazil and acknowledge the IFAC Secretariat as well as the SBA (the Brazilian IFAC NMO) for the support given in its organization.

The planning of this joint event took about three years, requiring a great deal of effort not only from the Organizing Committees but also from many people whose support was very much important to the organization, including the IPC members, reviewers, volunteers and

other people behind the scenes. The organizers would like to thank everyone that helped to make this joint conference possible.

Finally, we would like to thank all the authors and participants for making the joint IFAC ROCOND'18 and LPVS'18 a success. We hope every attendee enjoyed the conference program and the Florianopolis environment.

Submitted by: Eugênio B. Castelan, UFSC/

Who's Who in IFAC

Policy Committee Chair

Lucy Pao (US) is a professor in the Electrical, Computer, and Energy Engineering Department at the University of Colorado-Boulder (CU Boulder, US). She is also a Fellow of the Renewable and Sustainable Energy Institute (2009-present), a joint institute between CU Boulder and the US National Renewable Energy Laboratory (NREL). She has completed sabbaticals at Harvard University (Cambridge, MA, 2001-2002), the University of California, Berkeley (US, 2008), NREL (Golden, CO, US, 2009), the Hanse-Wissenschaftskolleg Institute for Advanced Study in Delmenhorst, Germany (2016-2017) and the ForWind Center for Wind Energy Research at Oldenburg University, DE (2016-2017). She earned B.S., M.S., and Ph.D. degrees in Electrical Engineering from Stanford University (Stanford, CA, US). Her research has primarily focused on combined feedforward and feedback control of flexible structures, with applications ranging from atomic force microscopy to disk drives to digital tape drives to megawatt wind turbines and wind farms.



L. Pao's past honors include a US National Science Foundation CAREER Award, a US Office of Naval Research Young Investigator Award, an IFAC World Congress Young Author Prize, and a World Haptics Conference Best Paper Award. She was elevated to Fellow of the Institute of Electrical and Electronics Engineers (IEEE) in 2012 and to Fellow of IFAC in 2013.

She has given plenary lectures at the 2013 IEEE Conference on Decision and Control and the 2016 American Control Conference. Other recent awards include the 2012 IEEE Control Systems Magazine Outstanding Paper Award (with K. Johnson), the 2015 Society for Industrial and Applied Mathematics (SIAM) Journal on Control and Optimization Best Paper Prize (with J. Marden and H. P. Young), the 2017 Control Engineering Practice Award from the American Automatic Control Council, and

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the Scientific Award 2017 from the European Academy of Wind Energy.

Selected recent and current professional society activities include General Chair of the 2013 American Control Conference, member of the IEEE Control Systems Society (CSS) Board of Governors (2011-2013 and 2015), and IEEE CSS Fellow Nominations Chair on the Member Activities Board (2016-present).

L. Pao's IFAC activities during the current 2017-2020 triennium include serving as Chair of the IFAC Policy Committee, as a member of the IFAC Executive Board, as a member of the IFAC Nichols Medal Selection Committee, and as a member of the IFAC Fellow Selection Committee.

Coordinating Committee 9 (CC) Chair

Larry Stapleton (IE) is a world leader in human factors and digital systems. He was awarded a PhD for his work on organisational factors in advanced, large-scale management systems in 2001 following which he established the IN-SYTE Research Centre at WIT (Waterford, IE).



He has advised the European Commission and national governments both inside and outside the EU, business development groups and enterprise networks, Enterprise Ireland and other agencies including national and European regulatory authorities in advanced engineering sectors. He is associate editor for international journals and is a full technical board member of the International Federation of Automation and Control (IFAC) comprising several thousand members across fifty countries. He is a member of the European network of Professors in Industrial Engineering Management (EPIEM) and, in this capacity, has run European academies in Management and Leadership. As well as his work at WIT, he holds numerous international academic positions, including international guest professorships and visiting positions, regularly speaking at international conferences.

L. Stapleton has received several "Best Professor" awards, including the 2017 award for his work at the Centre for Executive Education at the Technical University of Vienna (AT). He has held a Visiting Scholar position at the Institute of Banking for over 10 years, driving the highly successful "Banking in the Digital Age" and "Digital Financial Services and Data Analytics" programme.

Coordinating Committee 6 (CC) Chair

Jay H. Lee (KR) obtained his B.S. degree in Chemical Engineering from the University of Washington- Seattle (US), in 1986, and his Ph.D. degree in Chemical Engineering from California Institute of Technology, Pasadena (US), in 1991. From 1991 to 1998, he was with the Department of Chemical Engineering at Auburn University, AL (US), as an Assistant Professor and an Associate Professor. From 1998-2000, he was with School of Chemical Engineering at Purdue University (West Lafayette, IN, US) and then with the School of Chemical Engineering at Georgia Institute of Technology, Atlanta (US) from 2000-2010.

Since 2010, J. Lee is with the Chemical and Biomolecular Engineering Department at Korea Advanced Institute of Science and Technology (KAIST), where he was the department head from 2010-2015. He is currently a Professor, Associate Vice President of International Office, and Director of Saud Aramco-KAIST CO₂ Management Center at KAIST. He has held visiting appointments at E. I. Du Pont de Nemours (Wilmington, DE, US) in 1994 and at Seoul National University (Seoul, Korea) in 1997.



J. Lee was a recipient of the National Science Foundation's Young Investigator Award in 1993 and was elected as an IEEE Fellow and an IFAC (International Federation of Automatic Control) Fellow in 2011 and AIChE Fellow in 2013. He was also the recipient of the 2013 Computing in Chemical Engineering Award given by the AIChE's CAST Division and the 2016 Roger Sargent Lecturer at Imperial College, UK. He is currently an Editor of Computers and Chemical Engineering and also the chair of IFAC Coordinating Committee on Process and Power Systems. He published over 180 manuscripts in SCI journals with more than 13000 Google Scholar citations. J. Lee's research interests are in the areas of system identification, state estimation, robust control, model predictive control, and reinforcement learning with applications to energy systems, bio-refinery, and

Coordinating Committee 2 (CC) Chair

Alessandro Astolfi (UK) was born in Rome, Italy, in 1967. He graduated in Electrical Engineering from the University of Rome "La Sapienza" (IT) in 1991. In 1992 he joined ETH Zurich (CH) where he obtained a M.Sc. in Information Theory in 1995 and the Ph.D. degree with Medal of Honor in 1995 with a Thesis on Discontinuous Stabilization of Nonholonomic Systems. In 1996 he was awarded a Ph.D. from the University of Rome "La Sapienza" for his work on nonlinear robust control.

Since 1996 A. Astolfi has been with the Electrical and Electronic Engineering Department of Imperial College London, London (UK), where he is currently Professor of Nonlinear Control Theory and Head of the Control and Power Group (2010-). From 1998 to 2003 he was also an Associate Professor at the Dept. of Electronics and Information of the Politecnico di Milano. Since 2005 he has also been a Professor at Dipartimento di Ingegneria Civile e Ingegneria Informatica, University of Rome "Tor Vergata". He has been a visiting lecturer in Nonlinear Control in several universities, including ETH Zurich, CH, 1995-1996; Terza University of Rome (1996); Rice University, Houston (1999); Kepler University, Linz (2000); SUPELEC, Paris (2001). A. Astolfi has recently been appointed KIOS Distinguished Visiting Professor at the University of Cyprus (2018-).

His research interests are focused on mathematical control theory and control applications, with special emphasis for the problems of discontinuous stabilization, robust and adaptive control, observer design and model reduction. He is the author of more than 140 journal papers, of 30 book chapters and of over 240 papers in refereed conference proceedings. He is the recipient of the IEEE CSS A. Ruberti Young Researcher Prize (2007), of the IEEE RAS Google Best New Application Paper Award (2009), of the IEEE CSS George S. Axelby Outstanding Paper Award (2012) and the IFAC Automatica Best Paper Award (2017). A. Astolfi was the recipient of the Institute of Measurement and Control Sir Harold Hartley Medal for outstanding contributions to the technology of measurement and control (2016).

A. Astolfi is "Distinguished Member" of the IEEE CSS, Member of the Academia Europaea (2016), Fellow of the Institute of Electrical and Electronic Engineers (2009) and Fellow of the Institute of Engineering and Technology (2005).

He served as Editor in Chief of the European Control Conference (2013-2017), Senior Editor of *IEEE Trans. on Automatic Control* (2012-2017), Area Editor of the *International Journal of Adaptive Control and Signal Processing* (2008-2017), and Associate Editor of *Automatica* (1998-2017), *IFAC Annual Review in Control* (2012-2016), *European Journal of Control* (1999-2013), *IEEE Trans. on Automatic Control* (2005-2012), *International Journal of Control* (2001-2017), *Systems and Control Letters* (1999-2011), *Journal of the Franklin Institute* (2007-2014), *IMA Journal of Mathematical Control and Information* (2008-2017). He is Editor in

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Chief of *Foundation and Trends in Systems and Control* (2013--), and Editor-in-Chief of the *IEEE Trans. on Automatic Control* (2018--). He served as Chair of the IEEE CSS Conference Editorial Board (2010-2017), IPC Chair of the American Control Conference 2015 and served in the IPC of numerous international conferences.



He was a Member of the Administrative Council of the European Control Association (2006-2011), Elected Member of the IEEE Control Systems Society Board of Governors, 2011 – 2013, Member of the Executive Committee of the UK Automatic Control Council, (2005-2011), Member of the IEEE Fellow Committee (2016). He is currently Chair of the IEEE Control Systems Society A. Ruberti Young Researcher Prize Committee (2015--).

A. Astolfi served as Chair of IFAC TC 2.1 (Control Design) from 2008 to 2014 and he is currently Chair of the IFAC CC 2 on Design Methods. He has also been IPC Vice-Chair and Invited Sessions Supervisor for the IFAC World Congress 2011 (Milan, IT). He is an IFAC Fellow (2017) and received the IFAC Outstanding Service Award (2017).

Coordinating Committee 5 (CC) Chair

Hervé Panetto (FR) is a professor of Enterprise Information Systems at University of Lorraine, TELECOM Nancy (FR). He teaches information systems modelling and development, and conducts research at CRAN (Research Centre for Automatic Control), Joint Research Unit with CNRS where he is managing a research project on the use of ontology for formalising models related to the interoperability of production systems, and mainly their enterprise information systems. He has been elected member of the Academia Europaea in 2018.

He received his PhD in production engineering in 1991. He has strong experience in information systems modelling, semantics modelling and discovery, and database development. His research field is based on information systems modelling for enterprise applications and processes interoperability, with applications in enterprise modelling, manufacturing processes modelling, furniture data modelling.

H. Panetto is working in ERP and MES integration from a business to manufacturing perspective. He is expert at AFNOR (French National standardisation body), CEN TC310 and ISO TC184/SC4 and SC5. He participated in many European projects including IMS FP5-IST Smart-fm project (awarded by IMS) and the FP6 INTEROP NoE (Interoperability Research for Networked Enterprises Applications and Soft-

ware). He is serving as expert-evaluator for the European Commission, FNR, AERES and ANR in the domain of ICT. He was visiting Professor in 2013-2015 in the frame of a Science Without Borders PVE project with PUC Parana, Brazil and full visiting Professor in 2016 at the UTFPR, Curitiba, Brazil.

H. Panetto is editor or guest editor of books and special issues of international journals. He is author or co-author of more than 150 papers in the field of Automation Engineering, Enterprise Modelling and Enterprise systems integration and interoperability.



After being chair of the IFAC Technical Committee 5.3 "Enterprise Integration and Networking" from 2008 to 2014 he is now serving as chair of the IFAC Coordinating Committee (CC) 5 on "Manufacturing and Logistics Systems" since 2014. He received the IFAC France Award 2013 from the French NMO, the INCOSE 2015 Outstanding Service Award and the IFAC 2017 Outstanding Service Award. He is co-organiser of the yearly OTM/IFAC/IFIP El2N workshop on "Enterprise Integration, Interoperability and Networking". He is General Co-chair of the OTM Federated conferences.

He is member of the editorial boards of *Annual Reviews in Control*, *Computers In Industry*, the *International Journal of Computer Integrated Manufacturing*, the *International Journal on Universal Computer Science*, the scientific journal *Facta Universitatis*, the series *Mechanical Engineering*, and an Associate Editor of the international *Journal of Intelligent Manufacturing* (JIM), Springer, the *Enterprise Information Systems* (EIS) journal, Taylor & Francis and the *Journal of Industrial Information Integration* (JIII), Elsevier.

Coordinating Committee 3 (CC) Chair

Klaus Schilling (DE) is professor and chair for Robotics and Telematics at the Computer Science Department of the University of Würzburg (DE). In parallel he is president of the research company „Center for Telematics“. Before returning to academia he had responsibilities in the space industry for system and control design of satellites in interplanetary (such as HUYGENS to the Saturnian moon Titan and ROSETTA for

cometary exploration) and Earth observation missions.

His research interests emphasize control systems for autonomous and teleoperated robots, in particular self-organizing control principles in multi-robot systems. The broad application range extends from industrial automation in factories ("industry 4.0") to space exploration. His team built the first German pico-satellite UWE-1, launched 2005 to optimize protocol parameters for "Internet in Space", and realized the UWE pico-satellite program to demonstrate crucial sensor and control technologies for formations of pico-satellites in orbit. He published more than 350 papers.

For his work K. Schilling has received major awards, including an ERC Synergy Grant (2018) and ERC Advanced Grant (2012), and the Walter Reis Award for Innovations in Robotics 2012 for Medical Robotics as well as in 2008 for Service Robotics. In 2017 his team was the winner of the "Airbus Space Challenge" on advanced spacecraft production approaches. Since 2010 he is a member of the International Academy of Astronautics (IAA).



In international professional societies K. Schilling has served in IEEE as chairman of "TC on Networked Robotics" and in the International Federation of Automatic Control (IFAC) as coordinating chair since 2014 for the area "Computers & Control" (CC 3) after having been TC chair for "Telematics: Control via Communication Networks" as well as for "Aerospace". He received an "Outstanding Service Award" from the International Federation of Astronautics in 2018 and from IFAC in 2014.

Coordinating Committee 1 (CC) Chair

Hideaki Ishii (JP) received the M.Eng. degree in applied systems science from Kyoto University (JP) in 1998, and the Ph.D. degree in electrical and computer engineering from the University of Toronto (CA) in 2002.

He was a Postdoctoral Research Associate with the Coordinated Science Laboratory at the University of Illinois at Urbana-Champaign (USA) from 2001 to 2004, and a Research Associate with the Department of Information Physics and Computing, The University of Tokyo (JP) from 2004 to 2007.

Currently, H. Ishii is an Associate Professor in the Department of Computer Science, Tokyo Institute of Technology (JP). He has held visiting positions at the University of Stuttgart (DE), CNR-IEIT (FR), Politecnico di Torino (IT), the City University of Hong Kong (HK, CN), and the Technical University of Berlin (DE).

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His research interests are in networked control systems, multi-agent systems, hybrid systems, cyber security of power systems, and probabilistic algorithms.

H. Ishii received the Tejima Memorial Research Award (Young Researcher Award) from the Tokyo Institute of Technology in 2017, the IEEE Control Systems Magazine Outstanding Paper Award in 2015, and the Humboldt Research Fellowship from the Alexander von Humboldt Foundation in 2014. He is also a recipient of several awards from the Society of Instrument and Control Engineers (SICE), Japan, including the Control Division Research Award (Kimura Award) in 2013 and Outstanding Paper Awards in 2013 and 2014.



Within IFAC, H. Ishii is currently the Chair of the Coordinating Committee on Systems and Signals since 2017. He was the Chair of the IFAC Technical Committee on Networked Systems (TC 1.5) from 2011 to 2017. He was the conference chair for the 6th IFAC Workshop on Distributed Estimation and Control in Networked Systems (NecSys'16) held in Tokyo (JP) in September 2016. He is the IPC Chair for the 22nd IFAC World Congress to be held in Yokohama, Japan, in July 2023.

H. Ishii was a member of the IEEE Control Systems Society Board of Governors from 2014 to 2016. He has served as an Associate Editor for the *IEEE Control Systems Letters* and *Mathematics of Control, Signals, and Systems* and previously for *Automatica*, the *IEEE Transactions on Automatic Control*, and the *IEEE Transactions on Control of Network Systems*.

Coordinating Committee 4 (CC) Chair

Klaus Janschek (DE) received the Dipl.-Ing. degree in Electrical Engineering (1979) and PhD (Dr.techn.) in Control Systems Engineering (1982) from Technische Universität (Graz, AT). From 1982 to 1985 he held industry affiliations in control systems development (fatigue and vehicle test systems), aerospace guidance, navigation and control). Since 1995 through the present he is full professor of Automation Engineering and Managing Director of the Institute of Automation at the Faculty of Electrical and Computer Engineering (ECE) and affiliated faculty member to the Faculty of Mechanical Engineering, Technische Universität (TU, Dresden, DE). From 2001-2006 he served as Dean of Studies for Mechatronics Engineering and 2009 to 2012 as Dean of Faculty ECE, both at TU Dresden.

Visiting positions (scholar/professor) have been at Stanford University's Aeronautics & Astronautics Department (Stanford, CA, US)

in 2005, Universidade Tecnológica Federal do Paraná (Campus Curitiba, BR in 2007); Universidade Federal de Santa Catarina (UFSC, Florianópolis, BR in 2009, 2012, 2014, and 2016), guest professorship from 2012-2015 and grant holder for 111-project 2017-2021 at East China University for Science and Technology (ECUST, Shanghai, CN and Zhejiang University (Hangzhou, CN, 2017-2020).



K. Janschek was Elected Review Board Member (2008-2011, 2012-2015) for Automation, Control Systems, Robotics and Mechatronics and Head of Review Board on Systems Engineering (2012-2015) at DFG – Deutsche Forschungsgemeinschaft (German Research Foundation). At VDI – Verein Deutscher Ingenieure, Measurement and Automation Engineering Society (GMA, which is the IFAC NMO for Germany) he was Elected Board Member, Branch Chair of Mechatronics, Robotics and Actuators (2002-2018), as well as Chair of the Technical Committee on Mechatronics (1999-2010) and Program-Co-Chair of the VDI German Mechatronics Conferences (biannual, since 2005).

K. Janschek's service in IFAC has comprised positions as the IPC Chair of the 4th IFAC Symposium on Mechatronic Systems (2006, Heidelberg, DE) and IPC Co-Chair of the 8th IFAC Symposium on Mechatronic Systems (2019, Vienna, AT), Vice-Chair of Technical Committee 4.2 (Mechatronics) from 2009-2011, and then from 2012-2014; Chair of the Application Paper Prize (APP) Selection Committee (2011-2014); Chair of the Mechatronics Paper Prize Selection Committee (2017-2020); Member of the Technical Board and Coordinating Committee Chair of CC 4 "Mechatronics, Robotics & Components" from 2014-2020, as well as serving as Coordinating (General) Chair of the 21st IFAC World Congress, which is scheduled to be held from 12-17 July 2020 in Berlin, Germany.

His research interests focus on guidance-navigation-control, data fusion, mobile robotics, optical data processing, optomechatronics and model-based systems design. K. Janschek is the author of more than 180 publications and three books.

Reminder: Deadlines for IFAC Fellows and Major Awards

IFAC Fellow Nominations: 6 January 2019

IFAC Fellow References: 15 January 2019

IFAC Major Awards (Nominations & References): 15 February 2019

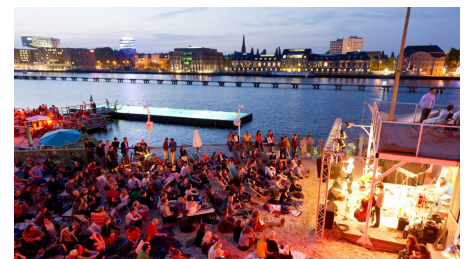
Please contact the IFAC Secretariat if you have questions or require any assistance!

21st IFAC World Congress Update (IFAC 2020) 12-17 July 2020 Berlin, Germany

Berlin is preparing and calling for the 21st IFAC World Congress, 12-17 July 2020. Time is flying and now only around 18 months are left until the time that the world-wide automation and control society is scheduled to meet in Berlin, Germany's vibrant capital, the crossroads of innovation, science and culture.

The preparations are well underway, and program special features such as topical days, control and automation competitions and demonstrations will be announced shortly.

For the congress dinner the unique event location Arena Berlin <http://www.arena.berlin/en/> has been booked. The Arena, located at the Spree River, is a formerly industrial complex consisting of several listed heritage buildings and a beautiful city panorama. It can be easily reached from the congress hotel by public transport and a short walk within fifteen minutes. The Arena complex consists of a large hall for the dinner, the "Glashaus" hosting bars and live music, an open space with a city beach and the famous "Badeschiff" on the Spree River. The latter is a harbored barge which functions as a floating swimming pool. Interestingly, the Berlin Wall went right through these buildings.



Arena Berlin, location of the IFAC 2020 Congress Dinner

A very special cultural event is planned with the first "IFAC Control Orchestra". The idea is to form a musical orchestra consisting solely of people from the control community, to practice and entertain on site during the world congress and to present a live performance during the congress. A first announcement about the control orchestra was been made public on the IFAC 2020 webpage <https://www.ifac2020.org/> and enrollments are very welcome at any time.

Please note the following IFAC 2020 key dates:

15 Sep 2019 Open Invited Track Proposals
15 Oct 2019 Invited Sessions Proposals
31 Oct 2019 Draft Manuscript Submission
28 Feb 2020 Late Breaking Results Submission

Submitted by: Klaus Janschek (DE),
Coordinating/General Chair, IFAC 2020

Calendar of IFAC Events

Title	2019	Place	Further information
12 th IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems, DYCOPS 2019	April 23 – 26	Florianópolis Brazil	http://dycopscab2019.sites.ufsc.br/dycops.cab2019@gmail.com
3 rd IFAC Workshop on Control of Systems Governed by Partial Differential Equations, CPDE 2019	May 22 – 24	Oaxaca Mexico	http://www.smm.org.mx/eventos/cdps-cpde/smm@smm.org.mx
15 th IFAC Symposium on Large Scale Complex Systems LSS 2019	May 26 – 28	Delft Netherlands	https://sites.google.com/view/ifac1519 M.W.Otte@tudelft.nl
SICE, ISCIE, JSME, IEEE, IFAC Conference on Asian Control Conference (in cooperation with IFAC) ASCC 2019	June 09 – 11	Kitakyushu, Fukuoka Japan	www.ascc2019.org/ascc2019@ascc2019.org
IFAC Workshop on Control of Smart Grid and Renewable Energy Systems CSGRES 2019	June 10 – 12	Jeju Republic of Korea	http://csgres2019.com/yilee@seoultech.ac.kr
9 th IFAC Symposium on Advances in Automotive Control AAC 2019	June 24 – 27	Orléans France	https://aac19.sciencesconf.org/aac2019@univ-orleans.fr
Conference on European Control Conference (in cooperation with IFAC) ECC 2019	June 25 – 28	Naples Italy	http://ecc19.eu/technical@ecc19.eu
1 st IFAC Workshop on Control of Transportation Systems WCTS 2019	June – July 30 – 01	Haifa Israel	https://wcts2019.net.technion.ac.il/wcts2019@technion.ac.il
10 th IFAC Symposium on Intelligent Autonomous Vehicles IAV 2019	July 03 – 05	Gdansk Poland	http://www.konsulting.gda.pl/iav2019/iav2019@konsulting.gda.pl
3 rd IFAC Workshop on Thermodynamic Foundations for a Mathematical Systems Theory, TFMST 2019	July 03 – 05	Louvain-la-Neuve Belgium	https://sites.uclouvain.be/tfmst2019/denis.dochain@uclouvain.be
12 th IFAC Symposium on Advances in Control Education ACE 2019	July 07 – 09	Philadelphia, PA USA	https://ifac-ace2019.org/ e-mail: not yet available
Conference on American Control Conference (in cooperation with IFAC) ACC 2019	July 10 – 12	Philadelphia, PA USA	http://acc2019.a2c2.org/ e-mail: not yet available
16 th INSTICC et. all Conference on Informatics in Control, Automation and Robotics ICINCO 2019	July 29 – 31	Prague Czech Republic	http://www.icinco.org/icinco.secretariat@insticc.org
13 th IFAC Workshop on Intelligent Manufacturing Systems IMS 2019	August 12 – 14	Oshawa Canada	http://not yet available e-mail: not yet available
5 th IFAC Conference on Intelligent Control and Automation Sciences ICONS 2019	August 21 – 23	Belfast United Kingdom	http://www.qub.ac.uk/icons2019/s.mcloone@qub.ac.uk
21 st IFAC Symposium on Automatic Control in Aerospace ACA 2019	August 27 – 30	Cranfield United Kingdom	http://not yet available e-mail: not yet available

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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 Verkehr, Innovation und Technologie „BMVIT“ gefördert.

 Bundesministerium
Verkehr, Innovation
und Technologie

Calendar of IFAC Events

Title	2019	Place	Further information
9 th IFAC IEEE IFIP IFORS et al. Conference on Manufacturing Modelling, Management and Control MIM 2019	August 28 – 30	Berlin Germany	https://blog.hwr-berlin.de/mim2019/mim2019@hwr-berlin.de
18 th IFAC Symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing MMM 2019	August 28 – 30	Stellenbosch South Africa	https://www.ifacmmm2019.org/info@ifacmmm2019.org
11 th IFAC Symposium on Nonlinear Control Systems NOLCOS 2019	September 04 – 06	Vienna Austria	http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org
8 th IFAC Symposium on Mechatronic Systems MECHATRONICS 2019	September 04 – 06	Vienna Austria	http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org
7 th IFAC Symposium on System Structure and Control SSSC 2019	September 09 – 11	Sinaia Romania	http://www.ace.ucv.ro/sssc2019/sssc-tds@automation.ucv.ro
15 th IFAC Workshop on Time Delay Systems TDS 2019	September 09 – 11	Sinaia Romania	http://www.ace.ucv.ro/tds2019/sssc-tds@automation.ucv.ro
14 th IFAC Symposium on Analysis Design and Evaluation of Human Machine Systems, HMS 2019	September 16 – 19	Tallinn Estonia	https://cs.ttu.ee/hms2019/secretariat-IFACHMS2019@ttu.ee
8 th IFAC Workshop on Distributed Estimation and Control in Networked Systems, NECSYS 2019	September 16 – 17	Chicago, IL (Wintrust Hall) USA	http://necsys2019.csl.illinois.edu/ e-mail: not yet available
12 th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles, CAMS 2019	September 18 – 20	Daejeon Republic of Korea	http://not yet available e-mail: not yet available
1 st IFAC Workshop on Robot Control WROCO 2019	September 18 – 20	Daejeon Republic of Korea	http://not yet available e-mail: not yet available
1 st IFAC Workshop on Control Methods for Water Resource Systems CMWRS 2019	September 19 – 20	Delft Netherlands	http://www.cmwrs2019.org/ e-mail: not yet available
5 th IFAC Symposium on Telematics Application TA 2019	September 25 – 27	Chengdu China	http://not yet available e-mail: not yet available
19 th IFAC Conference on Technology, Culture and International Stability TECIS 2019	September 26 – 28	Sozopol Bulgaria	http://www.tecis19.tu-plovdiv.bg/tecis@tu-plovdiv.bg
8 th IFAC/CACHE Conference on Foundations of Systems Biology in Engineering FOSBE 2019	October 14 – 19	Valencia Spain	http://fosbe2019.ai2.upv.es/ e-mail: not yet available
16 th IFAC/IEEE (Czechoslovakia Section) Conference on Programmable Devices and Embedded Systems PDES 2019	October 29 – 31	High Tatras Slovakia	http://not yet available e-mail: not yet available
3 rd IFAC Workshop on Linear Parameter Varying Systems LPVS 2019	November 04 – 06	Eindhoven Netherlands	http://not yet available e-mail: not yet available
15 th European Workshop on Advanced Control and Diagnosis ACD 2019	November 21 – 22	Bologna Italy	https://eventi.unibo.it/acd2019/acd2019@unibo.it
Title	2020	Place	Further information
Conference on American Control Conference (in cooperation with IFAC) ACC 2020	July 01 – 03	Denver, CO USA	http://acc2020.a2c2.org/ e-mail: not yet available
21 st IFAC World Congress 2020	July 12-17	Berlin Germany	http://www.ifac2020.org/info@ifac2020.org