

IFAC Council- and Related Meetings 2019

6-8 September 2019

Vienna, Austria

The IFAC Council- and Related Meetings 2019 took place in Vienna, Austria from 6-8 September at Fleming's Hotel, located in Vienna's central 8th district just steps away from the Austrian Parliament and many of Vienna's world-famous sights. The annual meetings, which included the Technical and Executive Boards, the Executive Committees, Berlin WC IPC, and Industry Committee were held in conjunction with the joint IFAC technical events NOLCOS and MECHATRONICS.

While there is an annual IFAC Informal Officers' meeting in Austria in the first half of each year this was the first time since the early 1980s that the IFAC Council- and Related Meetings took place in Austria. Previous IFAC Council meetings held in Austria in 1979 and 1983 took place in Laxenburg, home of the permanent IFAC Secretariat by invitation of the Austrian government since 1978, so this was the first time that the meetings took place in the city of Vienna, Austria's capital.

At the Council meeting two NMOs, Korea and the Netherlands, presented the second round of bids for the 2026 IFAC World Congress and the IFAC presidency for 2023-2026. The two NMOs had been narrowed down by the Council from an initial group of five NMOs who submitted initial Expressions of Interest and made first round presentations at the 2018 IFAC Council meeting in Brazil. The winning bid was Korea. Dong-II "Dan" Cho will serve as IFAC President for 2023-2026 and the 2026 IFAC World Congress is planned to be held in Busan, KR.

Dong-II "Dan" Cho was born in Seoul, Republic of Korea in 1958 and completed his studies at Carnegie Mellon University (US) and Massachusetts Institute of Technology (US). From 1987 to 1993 he was Assistant Professor in the Department of Mechanical and Aerospace Engineering at Princeton University (US). Since 1993 D. Cho has been a professor in the Department of Electrical and Computer Engineering at Seoul National University in Korea. He has been appointed to guest professorships at Chuo University (JP) and Harbin Institute of Technology (CN).

He has authored and coauthored more than 130 international journal articles. He is also active in technology transfer and is the holder or co-holder of more than 30 US and 80 Korean

patents. D. Cho was a co-founder of Chromux, Inc. (US), and he was the founder and CEO of SML Electronics, Inc. (KR). In addition, he has served on the board of directors for other companies, including a government corporation and KOSDAQ-listed companies.

D. Cho is dedicated to serve professional societies and has served on the editorial boards of many international journals. Currently, he is Senior Editor for *IEEE Journal of MEMS* and IFAC's *Mechatronics*. He served as the President of ICROS (Korean IFAC National Member Organization), Technical Board Member of IFAC, Council Member of IFAC, BOG Member of IEEE CSS, and BOG Member of IEEE EDS. He is currently a Vice President of IFAC (Chair of the Technical Board). Additionally D. Cho has also served as Advisor, General Chair, IPC Chair, and Organizing Committee Chairs in numerous international conferences, including those by IFAC, IEEE, Transducers Foundation, and ICROS.



Dong-II "Dan" Cho

He received the IFAC Outstanding Service Award in 2011 and the ICROS Award in 2015) He also received awards from the Minister of Information and Communication of Korea in 2006 and the Prime Minister of Korea in 2018. D. Cho was elected to Ordinary Member (2010-2012) and Senior Member (2013-2017, 2018-) of the National Academy of Engineering of Korea.

Other members of the IFAC 2026 World Congress team include Jay H. Lee, the General Chair of the 2026 IFAC World Congress and Hyungbo Shim who will serve as the IPC Chair. In addition there are three female IPC Co-Chairs representing three different continents:

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Forthcoming Technical Events

The IFAC Journals

Automatica

<http://www.journals.elsevier.com/automatica>

Control Engineering Practice

<http://www.journals.elsevier.com/control-engineering-practice>

Engineering Applications of Artificial Intelligence

<http://www.journals.elsevier.com/engineering-applications-of-artificial-intelligence>

Journal of Process Control

<http://www.journals.elsevier.com/journal-of-process-control>

Annual Reviews in Control

<http://www.journals.elsevier.com/annual-reviews-in-control>

Journal on Mechatronics

<http://www.journals.elsevier.com/mechatronics>

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>

IFAC-PapersOnLine

<http://www.journals.elsevier.com/ifac-papersonline>

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Maria Prandini (IT: Europe), Hyun Jim Kim (KR: Asia) and Martha Grover (US: North America).

Additionally the Council meeting included the approval of IFAC Major Awards and IFAC Fellow winners for the 2017-2020 trienniums. Newsletter readers will have the opportunity in this issue, as well as future issues to learn more about the awardees, who will receive their awards at the upcoming IFAC World Congress in Berlin, Germany in July 2020. Major Awards and Fellows are IFAC Council awards, with the suggested winners nominated by individual selection committees and voted on in a closed session of the IFAC Council. Further information about each IFAC award can be found in the Awards section of the IFAC website: <https://www.ifac-control.org/awards>

Other topics discussed at the Council meeting included: Election matters for the 2020-2023 triennium, the proposed new IFAC executive structure (a task force was appointed to look into further actions, including how to structure the roles currently filled by the IFAC Secretary and the IFAC Treasurer), proposed constitutional amendments (including a set number of ordinary council members), Open Access publishing transitions, towards Diamond (further details are in the President's Column of this Newsletter), updates and outcomes of various task forces (Inclusion & Diversity Strategy, Registration fees of IFAC Events, Event Website Archiving, Machine Learning in IFAC and ctrlrxiv), industry, reports from the Executive and Technical Boards, IFAC finances, IFAC Foundation, PUMB, the Activity Funds Committee (appointed at the meeting), the proposed distinguished lecturer program, IFAC journals (current editors whose contacts are near the end will be reappointed for another full term), President's report (which included event naming issues/the protection of IFAC technical event names) and the scam emails that have targeted members of the IFAC community over the past year) and forthcoming World Congress updates (Berlin 2020 and Yokohama 2023).

Special thanks go to Andreas Kugi, General Chair of NOLCOS/MECHATRONICS as well as current IFAC TC 6.2. chair and the team at the TU Wien/Vienna Technical University (AT), for the invitation, hospitality and local arrangements. The next IFAC Council- and Related Meetings are planned to take place in conjunction with the IFAC World Congress in Berlin, DE in July 2020.

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

Acknowledgement to IFAC would be appreciated.

Introducing the IFAC Fellows 2017-2020

25 IFAC Fellows were recommended by the Fellow Selection Committee for the 2017-2020 triennium and approved at the IFAC Council meeting held in Vienna, Austria on 8 September 2019. The IFAC Fellow Award is given to persons who have made outstanding and extraordinary contributions in the field of interest of IFAC, in the role as an Engineer/Scientist, Technical Leader, or Educator.

The 2017-2020 IFAC Fellows are:

Arcak, Murat
Bartusiak, R. Donald
Biegler, Lorenz T.
Bushnell, Linda Grace
Caines, Peter Edwin
Campi, Marco Claudio
Chen, Jie (CN)
Di Benedetto, Maria Domenica
Egerstedt, Magnus Bertil
Farrell, Jay A.
Giua, Alessandro
Hill, David John
Nesic, Dragan
Nijmeier, Hendrik
Pantazi, Angeliki
Pappas, George J.
Poolla, Kameswar
Sepulchre, Rudolphe
Smith, Roy Stephen
Stewart, Gregory Edward
Sugie, Toshiharu
Sun, Jing
Tabuada, Paolo
Tomlin, Claire Jennifer
Wahlberg, Bo

The new IFAC Fellows will receive their pins and certificates at the President's Dinner held in conjunction with the IFAC World Congress in Berlin, Germany in July 2020. The listing of all Fellows (current, as well as previous awardees), as well as the citations for the 2017-2020 IFAC Fellows, can be found on the IFAC website at:

<https://www.ifac-control.org/awards/ifac-fellows>

Readers of this Newsletter will have the opportunity to read more about the new IFAC Fellows on these pages as well as in upcoming issues.

From the IFAC President

Dear Friends and Colleagues,

Imagine you can read all published articles for free and at the same time you can also publish for free while retaining the copyright. Sounds like the perfect publication model? Well, that is exactly what IFAC is offering for all of its events since the beginning of this month. This means that PapersOnLine (or short POL), which is where all IFAC event proceedings go, is classified as Diamond Open Access (which already sounds as cool and valuable as it is). This also means that POL fulfills the highest standards with respect to the ongoing discussions about Open Access (OA) including the claims of 'coAlition S' and the associated funding agencies.

But let me go one step back and start with an explanation of Diamond OA. While Gold OA and Green OA might be a household name for one or the other within the color naming system of OA types, Diamond OA (or also referred to as Platinum OA) is maybe lesser known. For Diamond OA, the article must be immediately open access right after publication without any embargo period, and neither the reader nor the author needs to pay anything. Furthermore, the author retains the copyright, while an open license can remove most restrictions on distribution, use and reuse.

In Sept. IFAC Council voted in favor of moving POL towards this Diamond Open Access model and the transition started on the 1st of October. Of course, authors will only experience this change after their next paper is accepted to an IFAC conference: Instead of transferring the copyright to IFAC, a Creative Commons (CC) license will be issued. A CC license enables the free distribution, sharing and reuse of an otherwise copyrighted paper, or more general pieces of 'work'. Therefore, these licenses are typically used for all kinds of open access work. More specifically, we offer the CC BY-NC-ND license as this keeps the most rights with the author. This license requires attribution, i.e. citation of the original author when copying, it does not allow others to copy and distribute the paper for commercial purposes and prohibits others to make derivative works e.g. by remixing the content. However, due to my missing law degree and the shortness of this column, I highly recommend the interested reader to look into one of the many well-explained websites describing the creative commons licenses.

To summarize: You don't pay to read any papers on POL, you don't pay to publish on POL and all authors retain the copyright of their paper from now on. All related fees are covered by IFAC (and not by the IFAC events!), making this the perfect deal for our community, not to say 'the best deal ever' (as some self-proclaimed deal-makers would put it).

So, don't hesitate, the next IFAC 'freebie' is just around the corner: Submission deadline of contributions for the IFAC World Congress is 31 October 2019!

With best regards from Stuttgart
Frank Allgöwer

Linda Bushnell

Linda Bushnell is a Research Professor in ECE at the University of Washington (US). She received her Ph.D. in EE from University of California- Berkeley (US) in 1994, her M.A. in Mathematics from University of California- Berkeley in 1989, her M.S. in EE from University of Connecticut (US) in 1987, and her B.S. in EE from University of Connecticut in 1985. She also received her MBA from the University of Washington (US) Foster School of Business in 2010. Her research interests include networked control systems and secure-control.



She is a Fellow of the IEEE for contributions to networked control systems. She is a 2017-2020 IFAC Fellow for contributions to the analysis and design of networked control systems. She is a recipient of the US Army Superior Civilian Service Award, NSF ADVANCE Fellowship, and IEEE Control Systems Society Distinguished Member Award.

L. Bushnell has been a member of the IEEE since 1985, a member of the IEEE CSS since 1990, and a member of the IEEE Women in Engineering since 2013. She is Treasurer of the American Automatic Control Council (AACC), Member of the Technical Board for the International Federation of Automatic Control (IFAC), Associate Editor for *Automatica*, and Associate Editor for the *IEEE Transactions on Control of Network Systems*.

Paulo Tabuada

Paulo Tabuada was born in Lisbon, Portugal, one year after the Carnation Revolution. He received his "Licenciatura" degree in Aerospace Engineering from Instituto Superior Tecnico (Lisbon, PT) in 1998 and his Ph.D. degree in Electrical and Computer Engineering in 2002 from the Institute for Systems and Robotics, a private research institute associated with Instituto Superior Tecnico.



Between January 2002 and July 2003 Tabuada was a postdoctoral researcher at the University of Pennsylvania (US). After spending three years at the University of Notre Dame (US) as an assistant professor, he joined the Electrical

and Computer Engineering Department at the University of California- Los Angeles (US), where he is currently the Vijay K. Dhir Professor of Engineering.

P. Tabuada's contributions to cyber-physical systems have been recognized by multiple awards including the NSF CAREER award in 2005, the Donald P. Eckman award in 2009, the George S. Axelby award in 2011, the Antonio Ruberti Prize in 2015, and the grade of Fellow awarded by IEEE in 2017. In addition he is a 2017-2020 IFAC Fellow.

He has served as program chair and general chair for several conferences in the areas of control and of cyber-physical systems such as NecSys, HSCC, and ICCPS. He currently serves as the chair of HSCC's steering committee and he served on the editorial board of the *IEEE Embedded Systems Letters* and the *IEEE Transactions on Automatic Control*.

Murat Arcak

Murat Arcak is a professor at the University of California- Berkeley in the Electrical Engineering and Computer Sciences Department. He received the B.S. degree from Bogazici University (Istanbul, TR) in 1996 and the M.S. and Ph.D. degrees from the University of California-Santa Barbara (1997 and 2000, respectively). His research is in large-scale control problems involving interconnected systems and complex performance requirements, with applications in traffic control for smart cities, and modeling and control for biology.

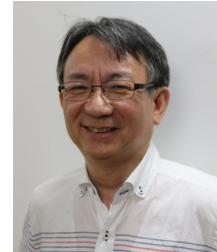


M. Arcak received a CAREER Award from the National Science Foundation in 2003, the Donald P. Eckman Award from the American Automatic Control Council in 2006, the Control and Systems Theory Prize from the Society for Industrial and Applied Mathematics (SIAM) in 2007, and the Antonio Ruberti Young Researcher Prize from the IEEE Control Systems Society in 2014. He is a member of SIAM, and fellow of IEEE and IFAC.

Toshiharu Sugie

Toshiharu Sugie is a Professor Emeritus at Kyoto University (JP). He received the B.E., M.E., and Ph.D. degrees in engineering from Kyoto University in 1976, 1978 and 1985, respectively. From 1978 to 1980 he was a research member of Musashino Electric Communication Laboratory at NTT (Musashino, JP). From 1984 to 1988 he was a research associate in the Department of Mechanical Engineering, University of Osaka (Prefecture, Osaka, JP). In 1988, he joined Kyoto University, where he was a Professor of Department of Systems Science

from 1998 to 2019. His research interests are in control for uncertain systems, identification, and control application to mechanical systems. His research publications include 170 international conference papers, 240 journal papers and four books.



T. Sugie was an associate editor of several international journals, and served as an editor for *Automatica* (2008-2017). He was President of the ISCIE (Institute of Systems, Control and Information Engineers, JP) in 2011, and a Vice President of SICE (Society of Instrument and Control Engineers, JP) in 2014-2015. In addition to being an IFAC Fellow, he is an IEEE Fellow.

Alessandro Giua

Alessandro Giua is professor of Automatic Control at the Department of Electrical and Electronic Engineering (DIEE) of the University of Cagliari, Italy. He received a laurea degree from the University of Cagliari in 1988 and a Master and Ph.D. degree in computer and systems engineering from Rensselaer Polytechnic Institute (Troy, NY, USA) in 1990 and 1992. He has also held faculty or visiting positions in several institutions worldwide, including Aix-Marseille University, France and Xidian University, Xi'an, China. His research interests include discrete event systems, hybrid systems, networked control systems, Petri nets and failure diagnosis.



He is currently editor-in-chief of the IFAC journal *Nonlinear Analysis: Hybrid Systems*, a senior editor of the *IEEE Trans. on Automatic Control*, and a department editor of the Springer journal *Discrete Event Dynamic Systems*.

A. Giua is a member of the IFAC Publications Committee and has been chair of the IFAC Technical Committee 1.3 on Discrete Event and Hybrid Systems (2008-2014). He also serves in the IEEE Control Systems Society as Vice President for Conference Activities (starting in 2020), having previously held the roles of General Chair of the 55th Conference on Decision of Control (2016) and member of the Board of Governors (2013-15).

In addition to being an IFAC Fellow A. Giua is a Fellow of the IEEE, a recipient of the IFAC Out-

standing Service award and a laureate of the People's Republic of China Friendship Award.

Hendrik "Henk" Nijmeijer

Henk Nijmeijer is a full professor at Eindhoven (NL), and chairs the Dynamics and Control group. He has published a large number of journal and conference papers, and several books, and is or was at the editorial board of numerous journals. He is presently an editor of *Communications in Nonlinear Science and Numerical Simulations*.



He is a fellow of the IEEE since 2000 and was awarded in 1990 the IEE Heaviside premium. He is appointed honorary knight of the 'golden feedback loop' (NTNU) in 2011.

H. Nijmeijer was an IFAC Council Member from 2011-2017. He is scientific director of the Dutch Institute of Systems and Control (DISC) since January 2015. He is recipient of the 2015 IEEE Control Systems Technology Award and a member of the Mexican Academy of Sciences. In addition H. Nijmeijer is Graduate Program director of the TU/e Automotive Systems program.

Jing Sun

Jing Sun is a Michael G. Parsons Collegiate Professor and the chair of the Naval Architecture and Marine Engineering Department at the University of Michigan (US). She received her Ph. D. degree from the University of Southern California (US) in 1989, and her B. S. and M. S. degrees from University of Science and Technology of China (CN) in 1982 and 1984 respectively.



From 1989-1993 J. Sun was an assistant professor in the Electrical and Computer Engineering Department, Wayne State University (US). She joined Ford Research Laboratory in 1993 where she worked in the Powertrain Control Systems Department. After spending almost 10 years in industry, she came back to academia and joined the faculty of the College of Engineering at the University of Michigan in 2003. Besides her primary appointment in the Naval Architecture and Marine Engineering Department, J. Sun also holds courtesy appointments in the Electrical Engineering and Computer Sci-

ence Department and Mechanical Engineering Department in the same university.

Her research interests include modeling, control, and optimization of dynamic systems, with applications to marine and automotive systems. Her current research focuses on real-time optimization and decision making for connected and electrified transportation systems.

J. Sun has published over 280 peer reviewed journal and conference papers and holds 41 US patents. She has co-authored a textbook on robust adaptive control. In addition to being an IFAC Fellow J. Sun is a Fellow of National Academy of Inventors, a Fellow of IEEE, and a Fellow of the Society of Naval Architects and Marine Engineers. She is a recipient of the 2003 IEEE Control System Technology Award.

J. Sun has served the control systems community in many capacities. She is currently serving on the IEEE Control System Society Executive Committee as the Vice President for Finance Activities. She served as the General Chair for the 2017 American Control Conference, and the Program Co-Chair for the 2019 IEEE Conference on Control Applications and Technologies.

George J. Pappas

George J. Pappas is the UPS Foundation Professor and Chair of the Department of Electrical and Systems Engineering at the University of Pennsylvania (US). He also holds a secondary appointment in the Departments of Computer and Information Sciences, and Mechanical Engineering and Applied Mechanics. He is member of the GRASP Lab and the PRECISE Center. He has previously served as the Deputy Dean for Research in the School of Engineering and Applied Science.



G. Pappas' research focuses on control theory and in particular, hybrid systems, embedded systems, hierarchical and distributed control systems, secure control systems as well as learning for control with applications to distributed robotics and internet of things. He is a Fellow of IEEE, and has received various awards such as the Antonio Ruberti Young Researcher Prize, the George S. Axelby Outstanding Paper Award, the O. Hugo Schuck Best Paper Award, the IEEE Control Systems Magazine Outstanding Paper Award, the National Science Foundation PECASE, and the George H. Heilmeier Faculty Excellence Award. Many of G. Pappas' former doctoral students and postdocs are now holding leading positions in academia and industry.

IFAC Publications Workshop at the Chinese Control Conference Guangzhou, CN

The Chinese Control Conference was held in Guangzhou, China on 29 July 2019. As the annual control conference with the greatest attendance, this provided the opportunity to promote IFAC's, and therefore Elsevier's, editorial processes and to use this opportunity for recruitment of future editors for the stable of IFAC journals. The burgeoning number of papers published in our journals from Chinese researchers has not been matched by their presence on editorial boards. The availability of IFAC President Frank Allgöwer and *IFAC Journal of Systems & Control* Editor-in-Chief Bob Bitmead at the CCC sparked content specialist Li Hong from Elsevier's Beijing office to organize and promote this event. This was a well-attended and a highly engaged two-hour information session explaining the focus on quality in publications and the central role of the editors – associate, subject, and in-chief – in achieving this result.

A big-picture view of publishing as part of the research certification, dissemination and researcher evaluation processes was developed and, in this context, a number of recent developments, such as open access publishing, were discussed. Frank Allgöwer provided an IFAC-wide view of its publication portfolio and explained the importance of these journals to the mission of IFAC. He further identified the editors as the linchpin of the quality management.



Bob Bitmead presenting

Li Hong provided a brief introduction in Chinese and English to the group and discussed the longstanding relationship between Elsevier and IFAC. She provided the viewpoint of a scientific publisher to the importance of quality and the core role played by the editors. This added breadth to the discussion and an overview of the context of publishing in modern research. Between the three speakers, the themes were very concordant and emphasized the close working relationship between researchers, publishers and a learned society, IFAC. The workshop was attended by control systems researchers of a wide range of experience and seniority. Follow-up discussions have commenced and a contact list has been generated to explore bringing on board more Chinese editors.

Submitted by: Bob Bitmead (US), *IFAC Journal of Systems & Control* Editor-in-Chief

9th IFAC Symposium on Advances in Automotive Control (AAC 2019)

24- 27 June 2019

Orléans, FR

The 9th AAC was held from 24-27 June 2019 at the Orléans conference center in France. This international symposium series, which is supported by IFAC and organized by the IFAC Technical Committee 7.1 (Automotive Control) takes place every three years. The objective of this IFAC symposium is to contribute to future research and development on automotive control through active exchange between industry and academia. The automotive world is facing a paradigm shift with political announcements about the scheduled death of the internal combustion engine and the emergence of autonomous vehicles. This creates many exciting challenges for our community. These challenges create a need for a mix of industrial and academic actors, for which this symposium is the ideal forum.

The IFAC AAC 2019 Editor, in collaboration with members of the International and National Program Committee, implemented a rigorous reviewing process, with either one or two rounds of review for each submission. All of the 134 submitted contributions received at least two review reports, and over 60% received three or more reports. Based on the reviews received, 112 high-quality contributions were accepted for presentation. The technical program was rich and varied with seven industrial or academic plenary sessions and 109 technical papers split between 23 sessions. Each half day of the four-day symposium started with a plenary lecture; followed by three parallel tracks of regular or invited sessions, comprising three to six talks. The official program was complemented by two technical training sessions. The 23 thematic sessions ranged over the following topics: Active Safety and Driver Assistance Systems, Alternative Power Systems, Vehicle Dynamics and Control, Combustion Engine Control, Design and Engineering, and Engine Control with Alternative Fuels.

IFAC AAC 2019 was a success in terms of diversity: The 201 attendees came from all over the world. 17 countries were represented and the top ten countries were: France, Germany, Sweden, USA, Italy, China, the Netherlands, Japan, Hungary, and the United Kingdom. We are also pleased to have attracted industrial sponsorships from PSA Group and Mathworks, as well as the Région Centre-Val de Loire state authority.

A smartphone application was developed by Conference Compass especially for AAC 2019. Available for Apple and Android smartphones, it was installed 187 times: 40% for Apple iPhone and iPad and 60% for Android phones. The app provided a real gain to the symposium and the possibility to interact with our attendees. We used the app to promote the social events and plenary sessions. The participants

really appreciated the interactivity that was created thanks to this application.

Two young authors received the IFAC Young Author Award: Jean Kuchly (FR) and Robert Austin Dollar (US) for their papers respectively entitled: “*Projected Gradient and Model Predictive Control: Optimal Energy and Pollutants Management for Hybrid Electric Vehicles*” and “*Automated Vehicles in Hazardous Merging Traffic: A Chance-Constrained Approach*”. In cooperation with the IFAC Foundation, financial support was also provided to one young author from a developing country in the form of a grant.

The National Organizing Committee proposed an outstanding social program with an event every evening. The welcome party took place on Sunday. On Monday a visit of the PRISME Lab was organized, as well as a VIP dinner to acknowledge the contributions of the main actors to the organization of the symposium. The gala dinner took place on Tuesday at Champerolles Castle, and included a visit to the castle. A private concert and a guided visit to the organ of the Cathedral “Sainte Croix” was organized on Wednesday by Arnaud Riffet and Nicolas Deletang specially for the conference participants and a closing reception was held at the famous “Hotel Grosloir” of the King of France. To close AAC 2019 a sound and light show “*Jeanne, la force de l’âme*” was projected onto the Cathedral of Orléans.



IFAC AAC participants in Orleans, FR

We would like to thank the authors for presenting their most recent work to IFAC AAC 2019, and each of the high-profile invited speakers Dominick Karbowski (US), Jonathan Morrison (UK), Christian Fleck (DE), Alexandre Wagner (DE), Christopher Onder (CH), Christine Rouselle (FR) and Eric Lalliard (FR) for their inspiring plenary talks. Special thanks go to Dominick Karbowski who agreed to open the symposium on Monday morning. Thanks also to all the supporters and sponsors, to the members of the organizing committee and all the volunteers for all the hard work required for the organization and the logistics. Finally, our most heartfelt thanks go to the members of the International Program Committee and the reviewers, whose roles were fundamental in ensuring the high quality of the accepted contributions, and to the attendees at IFAC AAC 2019, making it a memorable event

Submitted by: Dominique Nelson-Gruel (Editor), Yann Chamailard (NOC chair), Guillaume Colin (NOC vice-chair), & Alain Charlet (Co-editor), Univ. Orleans (FR)

12th IFAC Symposium on Advances in Control Education (ACE 2019)

7- 9 July 2019

Philadelphia, PA, US

The 12th ACE was held at the Philadelphia Marriott Downtown Hotel in the center of Philadelphia, PA (US), from 7- 9 July 2019 (<https://ifac-ace2019.org>). The symposium was held in conjunction with the American Control Conference 2019 from 10-12 July 2019.

IFAC ACE is an international forum on recent developments and advances in control education that includes academic researchers and lecturers in control, R&D specialists in instrumentation, control and industrial automation, and practicing control engineers from a variety of industrial sectors. The goal of the symposium is to bring together experts from the field of control and education that will contribute to demonstrating, discussing, evaluating and linking existing resources in the control education area; increasing awareness of the automatic control importance in our society; and linking different sources and authors active in development and provision of open educational resources.

Bozena Pasik-Duncan (University of Kansas, US), NOC General Chair, patterned this symposium after the previous symposiums she has organized. The program included plenary lectures, panel sessions, technical sessions, interactive sessions, software demonstrations and poster presentations. Seventy-two participants from over twenty countries attended. A STEM workshop for high school students and teachers was also included as a component of ACE.

Anthony Rossiter (University of Sheffield, UK) served as the International Program Committee (IPC) Chair of the committee consisting of 90 members. Sonja Glavaski-Radovanovic, Chief Scientist from Energy Digitalization at Energy & Environment Directorate of Pacific Northwest National Labs (US), served as vice-chair from industry and IFAC Advisor Stephen Kahne, Embry-Riddle Aeronautical University (US) was Honorary Chair of the Symposium. The IPC Vice-Chair from industry was Atanas Serbezov (Rose-Hulman Institute of Technology and consultant to Eli Lilly and Company, US). Many others contributed by chairing sessions and panels.

The plenary talks were:

Shaping the Future of Higher Education: The Role of Systems and Controls by Bonnie Ferri, Vice Provost for Graduate Education and Faculty Development Professor, School of Electrical and Computer Engineering, Georgia Institute of Technology, Atlanta, GA, US. Ferri won the 2018 IEEE Undergraduate Teaching Award for her pioneering work in hands-on learning and flipped classroom techniques.

Teaching Feedback and Control to Non-Specialists by Iven Mareels and Pedro Albertos.

Iven Mareels, Director, IBM Research, Australia and honorary professor at the University of Melbourne. He has received numerous awards for his contributions to control engineering research and education. Pedro Albertos, emeritus professor at Universitat Politècnica de València (ES), contributed to the talk. He is a past president of IFAC and a world recognized expert in real-time control. Pedro Albertos and Iven Mareels are co-authors of the book *Feedback and Control for Everyone*, which won the IFAC Harold Chestnut Control Engineering Textbook Prize at the 2017 IFAC World Congress.

Included along with invited talks ranging from classroom teaching methodologies and techniques to remote labs in control engineering education and online delivery tools were panel discussions and a demonstration and poster session.

Panel sessions:

Panel on Improving Students' Learning in Control Education with Data and Feedback Driven Methodologies. The panel was organized by Steffi Korn (Uppsala University, SE), Damiano Varagnolo (Norwegian University of Technology and Science, NO) and Atanas Serbezov. Panelists were Ryan Baker (University of Pennsylvania, US), Cristina Stoica Maniu (Centrale Supélec, FR), and Ramon Vilanova I Arbos (Universitat Autònoma de Barcelona, ES). This panel discussion explored possibilities, benefits, and drawbacks of data- and feedback-driven methodologies in a control curriculum to: improve information gathering and feedback sharing mechanisms; improve teaching methods by assessing the level at which students master the concepts and fulfill the program goals; avoid compartmentalization and provide continuity by assessing its structural functionality with respect to its program goals; and improve collaboration between course instructors by fostering multidisciplinary partnerships and team works.

Panel on Industry, Academia and Government: Best Practices for Interaction. Co-Chaired by Bozenna Pasik-Duncan and Atanas Serbezov. Panelists were Irina Dolinskaya (National Science Foundation, US), Frank Doyle (Harvard University, US), Sonja Glavaski (Pacific Northwest National Lab, US), Iven Mareels (IBM – Australia), Tariq Samad (University of Minnesota, US) and Dawn Tilbury (NSF & University of Michigan, US). The panel discussed topics on transferring technology from university to industry, NSF industry partnership programs; developing “win-win opportunities” for pathways to technology; facilitating and amplifying communication; bridging the gap between academia and industry; and increasing industry participation in and impact from IFAC activities.

IFAC Technical Committees: Educational Activities and Their Best Practice. Co-chaired by Bozenna Pasik-Duncan and Iven Mareels. Panelists were Bozenna Pasik-Duncan, Mariana Netto (IFSTTAR, France), Hitay Ozbay (Bilkent University, Turkey), Claudia Califano (Università Di Rome, Italy), Matjaz Colnaric, University of Maribor, Slovenia) and Lars Eriksson (Linköping University, Sweden). Panel topics

included stochastic adaptive control and its broader impact to education; a case study on teaching applied control design; a brief report on educational activities of IFAC TC 2.2 (Linear Control Systems); recent educational activities in the nonlinear control field; which computer-related competences are required for a control graduate; and teaching and attracting students to model-based automotive control.

Participants were given the opportunity to network and meet with experts at the session of interactive demonstrations and poster presentations. A reception open to all participants was held for women in IFAC where they were able to have a conversation with plenary speaker Bonnie Ferri. Other social events such as a continental breakfast each morning, dinner on Monday night, and the opening and closing receptions gave participants an informal way to meet. Participants also had the opportunity to take a historical walking tour of Philadelphia and enjoy the Reading Terminal Market across the street.

All participants were invited to the workshop for high school students and teachers, *The Power, Beauty and Excitement of Cross-Boundaries Nature of Control—a Field that Spans Science, Technology, Engineering & Mathematics (STEM)*. Conference graduate students and young professionals joined invited students from the Marine Advanced Technology Education (MATE) Center, a national partnership of organizations working to improve marine technical education. We were also joined by some high school participants who happened to be in the hotel for a chess tournament. They heard about our event and asked to join us!

This outreach event is designed to increase the general awareness of the importance of systems and control technology and its cross-disciplinary nature among high school students and teachers. Control is used in many common devices and systems: cell phones, computer hard drives, automobiles, and aircraft, but is usually hidden from view. The control field spans science, technology, engineering and mathematics (STEM). The success of all STEM disciplines depends on attracting the most gifted young people to science and engineering professions. Early exposure to middle and high school students and their teachers is a key factor. The goal of these outreach efforts is to promote an increased awareness of the importance and cross-disciplinary nature of control and systems technology.

STEM workshop presentations:

- *What is Control System and Why Should I Care*, Daniel Abramovitch (Agilent Technologies, US)
- *How We Can Improve Water Supply in the Developing World with Control Engineering*, Margret Bauer (University of Pretoria, ZA)
- *Stepping Inside the Brain Using Virtual Reality*, Dominique Duncan (University of Southern California, US)
- *STEM is for Everyone!*, Ramla Qureshi (Women Engineers Pakistan, PK)

- *Demonstrations of Control*, Peter Martin (Quanser Inc., CA)

The MATE participants found their first experience at an international conference to be quite memorable and found the “customized STEM workshop to be incredible”. The students liked how the presentations covered various topics and appreciated the international atmosphere. One student commented, “It was astounding to see that water, a resource that we take for granted sometimes is so powerful and has a huge impact on daily lives.... It made me realize that water isn’t an infinite resource and we have to start conserving to make a change and preserve it.” Another student liked the applications using virtual reality. Overall the graduate students and young professionals observed outstanding presentations on how to teach control.



Award winners Paul Beuchat (CH) & Cinthia Viviana Rojas Palacio (CO) at ACE 2019

At the closing ceremony, awards were presented to Cinthia Viviana Rojas Palacio (Universidad Nacional de Colombia sede Medellín, CO) for the ACE 2019 IFAC Foundation Young Authors Support Grant for presenting her paper at the symposium; Paul Beuchat (ETH, Zurich, CH) was the winner of the IFAC Young Author Award for the paper *A Teaching System for Hands-On-Quadcopter Control* (co-authored with Yvonne Rebecca Stürz and John Lygeros (ETH Zurich, CH); and Mihaela Ghita (Ghent University, BE) who received second place of the Young Author award for her paper *An Interdisciplinary, Low-Cost Methodological Framework for Analyzing Dynamical Material Properties for Control-Related Applications* (co-authored with Isabela Roxana Birs, Cristina Ioana Muresan (Technical University of Cluj-Napoca, RO), Maria Ghita, Copot Dana, Clara Ionescu (Ghent University, BE)

Many thanks go to our sponsors IFAC and AACC (American Automatic Control Council, the US IFAC National Member Organization), in particular to Douglas Lawrence, ACC 2019 General Chair, Frank Allgöwer (DE), IFAC President, and Richard Braatz (US), AACC President. Their support and efforts made it possible for us to hold this symposium. We also greatly appreciate our co-sponsors: University of Kansas (Lawrence, KS, US), SIGNITION LP, IEEE Women in Engineering and IEEE Control Systems Society Women in Control.

Submitted by: Bozenna Pasik-Duncan, NOC Chair (US) & Anthony Rossiter, IPC Chair (UK)

9th IFAC Conference on Manufacturing Modeling, Management & Control (MIM 2019)

27- 30 August 2019
Berlin, DE

The 9th MIM took place in Berlin, Germany from 27-30 August 2019. The MIM 2019 mission was to connect Control, Industrial Engineering, OR and Computer Science for better management decision-support systems in digital, resilient and sustainable manufacturing and supply chains in the era of Industry 4.0. The central theme of the 9th IFAC/IFIP/IFORS/IISE/INFORMS Conference on Manufacturing Modelling, Management and Control (MIM 2019) was Digital, Resilient and Sustainable Manufacturing 4.0. The conference covered all topics related to design, modeling and management of modern manufacturing systems in digitalization era.

Digitalization, resilience, and sustainability shape current and future trends in manufacturing modelling, management, and control. The aim of MIM 2019 was to bring together researchers and practitioners in automatic control, optimization, computer science, industrial and manufacturing engineering and supply chain management, to present and discuss emerging topics in modern manufacturing modeling, management, and control. MIM 2019 followed a rich tradition of previous IFAC conferences and symposia in Manufacturing and Logistics held in Germany. MIM 2019 focused in particular on the most innovative methods proposed in the last few years in the context of digitalization, risk management, and resilience in production and logistics systems in the 21st century.

MIM 2019 is a triennial conference of the IFAC Technical Committee 5.2 on Manufacturing Modeling for Management and Control, which is currently composed of 86 members from 22 countries organized in seven working groups.

With over 3.5 million inhabitants Berlin, the location of MIM 2019, is the largest city of the Federal Republic of Germany. The metropolis carries the UNESCO title of City of Design and is one of the most visited centers on the European continent. Berlin's architecture, festivals, nightlife and varied living conditions are known all over the world. Berlin School of Economics and Law is one of Berlin's largest universities of applied sciences. HWR Berlin is an academic center specialized in business and administration skills for the public and private sector, as well as public security, law and engineering. Over 11,000 students are registered at the HWR Berlin, enrolled in undergraduate, master and doctoral study programs.

The national organization committee was led by Prof. Dr. Susanne Meyer and the late Prof. Dr. Harald Gleissner. Specific thanks to the International Program Committee led by Prof. Dr. Alexandre Dolgui, as well as the editors: A. Dolgui, D. Ivanov and F. Yalaoui. We have received

more than 850 submissions from 61 countries. Finally, after a careful peer-review process with a voluntary involvement of 94 members of International Program Committee from 31 countries chaired by Prof. Alexandre Dolgui (FR) and more than 700 reviewers, 540 articles have been selected for presentation at the conference. We would like to emphasize the outstanding program of MIM 2019 with seven plenary talks, five keynote talks, 540 presentations in 18 parallel tracks with 121 invited, special and regular sessions, four industrial sessions, and several thematic special sessions (e.g., meet the editor session with editors-in-chief of the leading international journals).



Dmitry Ivanov speaking at MIM 2019

Several exhibitors (e.g., The AnyLogic Company, SupplyOn AG, Springer), industrial tours at BMW, Fraunhofer IPK, Rolls Royce, Siemens, and Stadler, and three industrial workshops shaped the industrial program of the IFAC MIM 2019. An educational seminar and a PhD workshop contributed to the educational aspects in the research domain of MIM 2019.

The outstanding plenary talks have been delivered by:

- Prof. Dr. Richard Hartl: *Solution Approaches and Incentive Schemes In Collaborative Logistics Planning*
- Prof. Dr. Lenny Koh: *What Really Matters Today and In the Future – From Physical To Digital To Autonomous*
- Prof. Dr.-Ing. Holger Kohl: *Modular Shop-floor-IT – Intelligent Process Management of Customer-Specific Products*
- Mr. Andreas Oroszi: *Digitalization at Festo – Our Way In Digital Transformation*
- Prof. Dr. Boris Sololov: *Planning and Scheduling By Optimal Control: Fundamentals and Applications To Cyber-Physical and Industry 4.0 Systems*
- Prof. Dr. Srinivas (Sri) Talluri: *Models for Evaluating and Monitoring Efficiency of Supply Chain Network Designs*
- Prof. Dr. Christopher Tang: *Supply Chain Operations in the Industry 4.0 Era*

In addition, exciting track keynotes have been delivered by Prof. Dr. Cihan H. Dalgı, Prof. Dr. Dorit S. Hochbaum, Prof. Dr. Erwin Pesch, Prof. Dr. Subhash C. Sarin, and Prof. Dr. Manoj K. Tiwari.

All of these exceptional contributions have interested the overall 740 attendees from 51 countries at the MIM 2019 conference.

The social program of MIM 2019 was comprised of the welcome reception, a boat trip along the Spree River, and the gala dinner in the heart of Berlin at Alexanderplatz in bcc (Berlin Congress Center).

We would like to thank the sponsors of MIM 2019: main national scientific sponsor German Research Foundation (Deutsche Forschungsgemeinschaft (DFG)), main industrial sponsor Siemens AG, lead sponsor The AnyLogic Company, and sponsor SupplyOn AG.

Finally, we want to thank Prof. Dr. Andreas Zaby, President of Berlin School of Economics and Law, for his unconditional support to organizers of the MIM 2019 conference.

IFAC MIM 2019 has been very a fruitful conference with successful interactions as well as a nice stay in Berlin with its outstanding art and cultural heritage and some of the world's most exciting nightlife.

Submitted by: Alexandre Dolgui (IPC Chair, FR), Susanne Meyer (NOC Chair, DE), and Dmitry Ivanov (General Chair, DE)

2020 IFAC World Congress Important Deadlines

22 October 2019

Invited session proposals

31 October 2019

Draft manuscript submission

30 November 2019

Workshop proposals

February 2020

Notification of acceptance

28 February 2020

Late Breaking Results submission

31 March 2020

Final paper submission

March 2020

Notification Late Breaking Results

10 April 2020

Final submission Late Breaking Results

Check out the 2020 IFAC World Congress website for further information!

<https://www.ifac2020.org/>

IFAC is on social media!
Direct links to IFAC's presence on Facebook, LinkedIn, and Twitter can be found on the IFAC website.

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

Check out IFAC's YouTube channel for new and historical IFAC video materials!
<https://www.ifac-control.org/>

Calendar of IFAC Events

Title	2019	Place	Further information
3 rd IFAC Workshop on Linear Parameter Varying Systems LPVS 2019	November 04 – 06	Eindhoven Netherlands	https://lpvs2019.tue.nl lpvs2019@tue.nl
15 th European Workshop on Advanced Control and Diagnosis ACD 2019	November 21 – 22	Bologna Italy	https://eventi.unibo.it/acd2019 acd2019@unibo.it
NCACI, IFAC, IEEE, ACA et al. Conference on Australian and New Zealand Control Conference (in cooperation with IFAC) ANZCC 2019	November 27 – 29	Auckland New Zealand	https://anzcc.org.au/ANZCC2019/ e-mail: not yet available
6 th IFAC Conference on Sensing, Control and Automation Technologies for Agriculture AGRICONTROL 2019	December 04 – 06	Sydney Australia	http://www.robotics.unsw.edu.au/agricontrol2019 agricontrol2019@unsw.edu.au
13 th IFAC Workshop on Adaptive and Learning Control Systems ALCOS 2019	December 04 – 06	Winchester United Kingdom	https://sites.google.com/site/2019alcos/ etar@ecs.soton.ac.uk
Title	2020	Place	Further Information
6 th ACDOS/IFAC Conference on Advances in Control and Optimization of Dynamical Systems ACODS 2020	February 16 – 19	Chennai India	https://web.iitm.ac.in/acods2020/ acods2020@gmail.com
Conference on European Control Conference (in cooperation with IFAC) ECC 2020	May 12 – 15	Saint Petersburg Russia	http://ecc20.eu/ info@ecc20.eu
15 th IFAC Workshop on Discrete Event Systems WODES 2020	May 12 – 15	Rio de Janeiro Brazil	https://wodes2020.eventos.ufrj.br e-mail: not yet available
14 th International Conference on Automatic Control and Soft Computing CONTROLO 2020	July 01 – 03	Bragança, Portugal	https://controlo2020.ipb.pt/ controlo2020@ipb.pt
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 WC 2020	July 12 – 17	Berlin Germany	http://www.ifac2020.org/ info@ifac2020.org
24 th International Symposium on Mathematical Theory of Networks and Systems (in cooperation with IFAC) 24 th MTNS 2020	August 24 – 28	Cambridge United Kingdom	https://mtns2020.eng.cam.ac.uk/ erd30@eng.cam.ac.uk
22 nd European Conference on Power Electronics and Applications EPE'20 ECCE Europe	September 07 – 11	Lyon France	https://epe-ecce-conferences.com/epe2020/ epe2020@supergrid-institute.com
4 th IFAC Workshop on Advanced Maintenance Engineering, Services and Technologies AMEST 2020	September 10 – 11	Cambridge United Kingdom	http://not yet available e-mail: not yet available

The IFAC Calendar of Events is constantly updated as additional technical events (Workshops, Symposia, and Conferences) are approved. The online complete version of the IFAC Calendar of Events is available at:

<https://www.ifac-control.org/events/>

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