

Reports from IFAC Technical Events

IFAC is the main- or co-sponsor of around 40 technical events in non IFAC World Congress years. They consist of workshops, conferences, and symposia.

In this issue Newsletter readers have the opportunity to read up on several of the events that have taken place on several continents in 2019. The calendar of events is published in each issue of this Newsletter. It is also available on the IFAC website, and is immediately updated as events are approved.

15th IFAC Symposium on Large Scale Complex Systems (LSS 2019) 27- 28 May 2019 Delft, NL

The 15th IFAC Symposium on Large Scale Complex Systems (LSS 2019) took place in Delft, at the Delft University of Technology, The Netherlands, from 27-28 May 2019. The scope of the symposium covered complex, multi-agent, dynamical systems. The symposium focused on the recent developments on analysis, control and optimization for large-scale systems.



Left to right: Sergio Grammatico, Jacqueliën Scherpen, and Ming Cao

The International Program Committee (IPC) was chaired by Prof. Xiaofan Wang (Shanghai Jiaotong University, CN), and co-chaired by Prof. Mario Di Bernardo (University of Naples, IT) and Prof. Giulia Giordano (Delft University of Technology, NL). The IPC received 47 submissions out of which 33 were selected and

scheduled, 28 as regular papers published in the IFAC online proceedings, and five as extended abstracts, after a peer review process.

A welcome reception was held on Sunday evening prior to the workshop. During the workshop, over 40 people attended the two plenary sessions and the parallel regular sessions. The plenary speaker on 27 May was Prof. Gianni Ferrari-Trecate (EPFL, CH), who gave a talk on *Scalable Control Design*. The conference banquet was held at the historic Royal Delft Pottery at the end of the first day.

Prof. Jacqueliën Scherpen (University of Groningen, NL) gave the plenary talk *Model Reduction For Large-Scale Systems* on 28 May. On this day, the Best Student Paper Award was presented to Alessio La Bella (Politecnico di Milano, IT) for the paper *Two-layer Model Predictive Control of Systems With Independent Dynamics and Shared Control Resources*.

The IFAC LSS 2019 co-chairs (Ming Cao and Sergio Grammatico) and the National Organizing Committee (Giulia Giordano, Erik Steur, Simone Baldi, Riccardo Ferrari, Manon Kok, Mathias Staudigl, and Siep Weiland) are most obliged to everyone who contributed to make the IFAC LSS 2019 a pleasant event. The technical program and other relevant information can be obtained from the event website at <https://sites.google.com/view/ifacLSS19>.

Submitted by: Ming Cao (University of Groningen, NL) and Sergio Grammatico (TU Delft, NL), LSS 2019 NOC Co-Chairs

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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>

IFAC Workshop on Control of Smart Grid and Renewable Energy Systems (CGRES 2019)

10- 12 June 2019

Jeju, KR

The IFAC Workshop on Control of Smart Grid and Renewable Energy Systems was held in Jeju, Korea from 10-12 June 2019 in the Hyatt Hotel Jeju, located at the beautiful Jungmoon Beach. 150 participants from 22 countries attended the workshop and 95 papers were presented. The web site www.csgres2019.com contains preprints, photos and other details of the Workshop. Dan Cho (KR), Technical Board Chair/IFAC Vice President served as the IFAC President's representative.



Dan Cho (KR), IFAC Technical Board Chair/
IFAC Vice-President at CSGRES 2019

CSGRES 2019 was sponsored by the IFAC Technical Committee on Power and Energy Systems (TC 6.3) and co-sponsored by the IFAC TCs on Adaptive and Learning Systems (TC 1.2), Discrete Event and Hybrid Systems (TC1.3), Stochastic Systems (TC 1.4), Networked Systems (TC 1.5), Non-linear Control Systems (TC 2.3), Robust Control (TC 2.5), Chemical Process Control (TC 6.1), Mining, Mineral and Metal Processing (TC 6.2), Transportation Systems (TC 7.4), Control for Smart Cities (TC 9.3) and Technology, Culture and International Stability (TC 9.5).

CSGRES 2019 was aimed to discuss challenging issues of operating renewable energy resources and their interactions with power systems in efficient and reliable ways. Two key issues of the workshop were "Modeling and Control of Prosumer Resources" and "Management of G2V and V2G Electric Vehicle/Transportation Systems". Jeju Island is an ideal place to talk about these issues since the South Korean government has planned for the "Carbon-Free Jeju Island" by 2030.

At CSGRES 2019 five plenary speeches, 95 papers (84 oral, 11 poster) were presented. All the papers are included in the preprints of the Workshop, The NOC of CSGRES 2019, however, provides three options to authors to avoid self-plagiarism issues. The first option is to publish the paper in the IFAC PoL provided that its total similarity index is less than 25%. The second option is to submit the revised paper for possible publication in International Journal of Control and Automation and the last option is to make the paper appear only

in the preprints. Among 150 participants of the workshop, 25 were from industry such as Korea Electrical Power Company (KEPCO), Korea Power Exchange.

Five plenary speeches were given by prominent specialist on renewable energies and smart grid. The first plenary speech was given by Prof. Henrik Madsen of Denmark Technical University (DK). The title was "*How to Use AI and Big Data Analytics to Control the Future Smart Grids*" and it describes a methodologies for controlling the electricity load in future integrated energy systems using big data analytics, cyber physical models, IoT, and cloud computing.

The second plenary lecture was given by Prof. Sukumar Mishra of Indian Institute of Technology, Delhi (IN) and its title was "*Shift Towards Net-zero Demand Distributions System Using Distributed PV and EV Charging Station*". The third plenary lecture was given by Prof. Furong Li from the University of Bath (UK). "*Customer-led Distribution Systems*" was the title of the lecture, which presented experience from around the world to explore options in introducing horizontal market to distribution systems, discussing technical, commercial, regulatory and social challenges in addressing millions of low carbon technologies.

The fourth plenary was given by Prof. Yong Cheol Kang from Yeonsei University under the title of "*Wind Energy as a Promising Option for Enhancing Power Grid Flexibility Toward Energy Transition*". In this talk, it was shown that the wind energy technologies is a promising option for smoothing the output power fluctuation of a wind turbine generator (WTG). The fifth plenary speaker was Dr. WooHyun Hwang from KEPCO and the title of the speech was "*Status of Electric Vehicle Operation and Construction of Intelligent Power Network in Jeju Island*".

At the closing ceremony, three Young Paper Awards were announced. Additionally the ceremony included the proposal of the 11th IFAC symposium on Control of Power and Energy Systems (CPES 2021) in Moscow, RU, as well as a call for contributions on Smart Grid for the 21st IFAC World Congress in Berlin (DE).

During the workshop it was suggested that IFAC should elevate these workshops to a conference series, as a second triennial meeting, besides the current symposium series. In view of the increasing interest on Power and Energy in recent decades and the successful conclusion of two IFAC Workshops, one in Prague and another in Jeju, it is believed that TC 6.3 is in a position to have either another Symposium Series or Conference Series.

Submitted by: Young-IL Lee, Seoul National University of Science & Technology (KR), CSGRES 2019 NOC Chair

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<https://www.ifac-control.org/about/ifac-affiliate-registration>

From the IFAC President

Dear Friends and Colleagues,
Dear Scientists and World Travelers,

Already two years have passed since I took office as President of IFAC and I am once more surprised how time flies! This also implies that the World Congress taking place 12-17 July 2020 is coming closer and closer. Besides the fact that - for the organizing team - this results in even more work, commitment and time, this also means that the excitement and the thrill of anticipation grows exponentially: Only 11 more months until the World Congress 2020 in Berlin! The IFAC World Congress marks the biggest and most important meeting of its kind, promising to be a unique experience for everyone interested in automation, systems and control, newest innovations and tools, scientific discussions and inspiring presentations. As well as for the inclined travelers interested in culture, history, art, lifestyle, or more general memories and experiences that last for a lifetime. I hope you are already as excited as I am and you're sedulously working on your paper submission(s) as the deadline is 31 October.

If, surprisingly, you don't have a suitable contribution in form of a manuscript by Halloween, then don't worry, we've got another treat for you. On top of the usual paper submission, which will be published open access in Science Direct via IFAC-PapersOnLine, there is a variety of other opportunities to take an active role in the World Congress. Late February, for example, there is another deadline for 'Late Breaking Results' for your most recent ideas, which will be presented at the congress if accepted but will not be published in the congress proceedings or online. Furthermore, there will be technical competitions as well as a video clip contest. So, if you consider yourself an expert in fault-tolerant control and fault isolation, race car or drone control, for example, or you are a creative mind with advanced video clipping skills, then fame and glory might await you at the World Congress. Another possibility to gain a spot on the stage at the World Congress is the IFAC Control Orchestra. The idea is to bring together passionate musicians among the World Congress participants, practice on site during the IFAC World Congress and then perform live for all the Congress attendees during the closing ceremony. If you're interested but you did not sign up yet, this is the link for you: www.ifac2020.org/events.

Even though the World Congress lasts a total of five days, it is actually a challenge for us to fit all formats, ideas, competitions, social gatherings, presentations and special sessions into this week. And I don't want to withhold my personal highlight from you: There will be a floating pool at the river 'Spree' at the banquet (which is by the way also included in the student registration). With the current summer temperatures in Germany, jumping in such a pool sounds just like the perfect refreshment!

With the best wishes from sunny Stuttgart,
Frank Allgöwer

10th IFAC Symposium on Intelligent Autonomous Vehicles (IAV 2019) 3- 5 July 2019 Gdansk, PL

The 10th IFAC Symposium on Intelligent Autonomous Vehicles (IAV 2019) was held from 3-5 July 2019 in Gdansk, Poland. With traces of early medieval settlement discovered on the top of archeological remains of the Roman settlement of Iron Age and a history of 1000 years, today Gdansk is an important point on the tourist map of the world. One of the greatest treasures of the Baltic Sea has long been amber, which is one of the famous symbols of the city, which, due to its uniqueness, is also called the amber capital of the world.

IAV 2019 was organized by the Gdansk University of Technology, under the Patronage of His Magnificence Rector of the GUT, at its Faculty of Electronics, Telecommunications and Informatics. It provided an opportunity for participants to get to know each other and present and discuss research and development work within autonomy, mobility and applied intelligence.

Advanced mobile vehicles and robots have long been one of the main issues in engineering. They have various applications in emergency, lifeguarding and entertainment as well as in various industrial, civil and military systems. Among them, you can distinguish robots that can move in an open environment or operate only in predetermined confined spaces. Open world robots are very demanding because they have to map their environment, adapt to changes and make their own decisions. In addition, current trends in robotics point to different social aspects and the importance of robot friendliness for humans. Students and young scientists in this field were able to discuss theoretical and practical problems, describe scientific and commercial applications, and explore the directions and possibilities for future research.

The same as with the past nine symposia, IAV 2019 continues to provide an excellent opportunity to present and discuss research and development work in the general area of intelligent autonomous vehicles. Researchers and practitioners in the field of land, air and marine robotics were brought together to discuss common problems of theoretical and practical applications, describe scientific and commercial applications and explore the possibilities for future research.

Papers describing original research were expected to cover the following areas: architectures for intelligent autonomous systems (land, marine, aerial and space); smart sensors, networks and sensor integration for autonomous vehicles and robots; navigation, guidance and control, motion control, controller design, stability analysis; fault detection and diagnosis in intelligent autonomous systems; decision mak-

ing for autonomous driving in a real-time; planning and mission control; multiple vehicle systems and networks of autonomous vehicles; human vehicle interaction; medical robots, domestic robots, service and rehabilitation robots; applications of Autonomous Intelligent Vehicles: case studies, test evaluations.

The selected subjects were grouped in the following ten technical sessions: Controller Design and Control Systems (CSD); Robot Vision (VIS); Estimation and Sensor Fusion (EST); Advanced Driver Assistance Systems (DAS); Intelligent Transportation Systems (ITS, two issues); Path Planning, Localization and SLAM (SLM, two issues); Robot Navigation and Sensors (NAV); Multi-Vehicle Systems (VEH). Moreover, there was a Poster Interactive Session, which included the submissions related to the accompanying IAV Student Workshop).

In addition to the technical sessions, there were keynote addresses and lectures covering the state-of-the-art in IAV, including:

- Klaus Schilling, Robotics & Telematics, J.Maximilians-University Wuerzburg, DE "Autonomous Reaction Capabilities for Networked Control of Cooperating, Distributed Small Satellites"
- Manuel López Martínez, European GNSS Agency, Prague, CZ: "European GNSS: Contribution for Autonomous Vehicles"
- Ikuo Yamamoto, Nagasaki University, Nagasaki, JP: "Autonomous Underwater Vehicles and Aviation Robots"
- Bogdan Wiszniewski, Polish Space Agency & Gdansk University of Technology: "Building Polish Space Sector – from Small Islands of Excellence to a National Innovation Ecosystem"
- Maciej Marcin Michałek, Poznan University of Technology, PL: "Agile Maneuvering with Intelligent Articulated Vehicles: a Look from a Control Perspective"
- Roman Szewczyk, Industrial Institute of Automation and Measurements, Warsaw, PL: "Industry 4.0 in Agriculture"

On the third day of the conference, the Discussion Panel titled "Autonomous Navigation of Vehicles – Opportunities and Challenges" was conducted by Jacek Stefanski from the Gdansk University of Technology. Moreover, a special session on "Mode Switching Strategies in Cellular-V2X" was prepared by Bassam Alrifaa and Christoph Stiller. We have met our goal of enabling people to meet and present and discuss research work in a wide range of autonomy, mobility and applied intelligence.

We had several institutional sponsors, including the Polish Space Agency, Polish Academy of Science, Polish Society for Measurement, Automation Control and Robotics, Polish Consultants Society, as well as INTEL Technology Poland, Industrial Research Institute (PIAP) for Automation and Measurements (now placed within the Research Network of Łukasiewicz), Aerologin, Arrow Electronics and Aldec, as

well as a number of Media Patronships, like Robotics, Sensors, Intelligent Unmanned Systems, PAR (Measurements Automation Robotics), and Radio Gdansk and student television "Struna".



At the IAV 2019
Young Author Award presentation:
Filippo Bertonecelli (IT), Juqi Hu (CA), Anna Witkowska (PL), Zdzisław Kowalczyk (PL),
Faïza Khelladi (FR) Samuel Pinto (US)
Alexander Wischniewski (DE)

The conference can also boast the implementation of prize programs, both in its main scientific track (the flagship IFAC award programs), as well as in the area of robot construction and proficiency competitions designed for young people. Among others, selection of the candidates for IAV 2019 Young Author Award nominations were based on the notes of reviewer reports on the papers presented at the conference whose primary author was a student at the time of the initial submission. Ten nominations resulted from the work of the IAA 2019 YAA Committee. Next, based on the detailed reviewers' assessments, the IAV YAA Nominations were limited to seven papers. For the nominees eligibility criteria were additionally chosen to be the main author of the paper, a student at the time of paper submission, a presenter of the paper at the conference, and 30 years of age or younger at the time of the event. The IAV 2019 YAA Committee selected the best paper among those eligible based on the quality of the paper, contribution of the research, reviewers report as well as on the quality of the presentation at the conference. The IFAC IAV 2019 YAA winner was Alexander Wischniewski (DE) with the paper "Vehicle Dynamics State Estimation and Localization for High Performance Race Cars", co-authored by Tim Stahl, Betz Johannes, and Boris Lohmann. The winner was provided with a certificate, as were each of the finalists, during the IAV closing ceremony.

The accompanying IAV conference, IAV Cup 2019, which took place on the pitch of the Academic Sport Center at the Gdansk University of Technology, had nearly 30 competitors. Similarly to last year's trial edition of this competition, three competitions were held: Drone Race (professional and open tracks), Agile Marker Search and Construction Challenge. We estimate that around 150 people visited the event throughout the day (at the peak it was 88 people), despite the less than ideal weather. During the tournament, viewers could admire the exhibited items such as search drones, mag-

netic field mapping robots, or a mobile robot wandering the wall. During this event, stands of two business partners of the IAV Cup competition, Arrow Electronics and Aldec were organized. The tournament was supported by local Radio Gdansk and student television (Struna.tv). The selected winners received 13 material prizes funded by the business partners. The main organizer of the IAV cup competition was doctoral student Marek Tatała and students of the SafelIDEA Scientific Circle (at TUG, ETI Faculty).

In the scientific part of the IAV conference the participation was: 105 authors, 13 authors, 21 others (including students), together about 140 participants, and the other 150 people participated in the one-day IAV Cup (including the Robot Exhibition and the Drone Race). We also had the opportunity to organize an IFAC TC 7.5 meeting, as well as discuss plans to hold the next IAV event in the Czech Republic in 2022.

Submitted by: Zdzisław Kowalczyk (PL), IPC Chair, IAV 2019

3rd IFAC/IEEE Workshop on Control of Systems Governed by Partial Differential Equations (CPDE 2019) 20- 24 May 2019 Oaxaca, MX

The 3rd IFAC/IEEE CSS Workshop on Control of Systems Governed by Partial Differential Equations (CPDE 2019), sponsored by the IFAC Technical Committee 2.6 on Distributed Parameter Systems, was held together for the first time with the XI Workshop on Control of Distributed Parameter Systems (CDPS 2019) in the city of Oaxaca, Mexico, from May 20-24, 2019, under the financial and technical support of the IEEE Control Systems Society. These workshops were held together with the aim to unite mathematicians and engineers and to encourage interaction and fruitful collaborations.

The CPDE is the triennial IFAC meeting bringing together scientists interested in modelling and control of distributed parameter systems and their applications. The first two editions of CPDE were held in Paris (France) in 2013 and in Bertinoro (Italy) in 2016. The CDPS started in 1998 with the aims of study and development of mathematical machinery for solving control problems in distributed parameter systems. The controller design for these systems resides at the intersection of mathematics, systems and control theory, control systems technology, and computer and information science. The CPDE-CDPS 2019 aimed at providing a forum to foster and develop this important and emerging field of research under the IFAC flag-ship, and with the technical co-sponsorship of the IEEE Control Systems Society.

The joint CPDE-CDPS 2019 covered new state-of-the-art developments in modelling and control of distributed parameter systems and its applications. This covers approaches and techniques for the modelling, analysis, control,

and observer/estimator design for systems governed by partial differential equations and also (but is not limited to) methods such as differential geometric and algebraic approaches, semigroup and operator theory, Lyapunov-based and backstepping techniques, passivity and dissipativity, optimal control, controllability and observability analysis, stability theory, model reduction for control, computational methods, real-time control, actuator and sensor placement, experimental design.



Emilia Fridman (IL), IFAC Council member at CPDE 2019

The workshop program consisted of five plenary talks, 17 invited talks, as well as 21 invited and 18 contributed session papers. These papers were selected from 47 submitted papers of authors from 20 countries, and received a total of over 100 reviews. All accepted papers will be published in IFAC-PapersOnLine. 70 participants attended the workshops: 21 from Mexico, 13 from the United States, ten from France, seven from Germany and Chile, two from Finland and Canada and one from Argentina, Austria, Belgium, Brazil, Israel, Italy, the Netherlands and Spain. Around half of the participants were students or young researchers. All sessions were very well-attended and the event was of a very high technical quality. There were many discussions and exchanges during the coffee breaks, the lunches and during the evenings in the beautiful city of Oaxaca.

The five highly interesting plenary talks were: *"Multi-Agent Systems – Continuum Models and PDE-Based Control"* by Thomas Meurer from Christian-Albrechts University in Germany. *"Decay Rates for Kelvin Voigt damped wave equations"* by Nicolas Burq from the Université Paris-Sud in France. *"New Optimal Control and Null Controllability Results For the Navier-Stokes-like Systems"* by Enrique Fernández-Cara from the University of Sevilla in Spain. *"Robust Delayed and Sampled-Data Control of Parabolic PDEs"* by Emilia Fridman from Tel Aviv University in Israel and *"Adaptive Identification and Control of Linear Dynamic PDE and Retarded Systems"* by Yuri Orlov from the Scientific Research and Advanced Studies Center of Ensenada in Mexico.

17 invited lectures have extraordinarily complemented the program, giving an in deep presentation of particular research topics. They were delivered by Miroslav Krstic (University of California- San Diego, US), Sergei Avdonin (University of Alaska Fairbanks, US), Héctor Ramírez Estay (Universidad Técnica Federico Santa María, CL), Yann Le Gorrec (National Engineering Institute in Mechanics and Microtechnologies, FR), Marius Tucsnak (Université

de Bordeaux, FR), Alberto Mercado (Universidad Técnica Federico Santa María, CL), André Fraguela Collar (Universidad Autónoma de Puebla, MX), Pedro González Casanova (Universidad Nacional Autónoma de México, MX), Denis Dochain (Université Catholique de Louvain, BE), John A. Burns (Virginia Polytechnic Institute, US), Irena Lasiecka (University of Memphis, US), Constanza Sánchez de la Vega (Universidad de Buenos Aires, AR), Jaime Ortega (Universidad de Chile, CL), Kirsten Morris (University of Waterloo, CA), Lars Grüne (University of Bayreuth, DE), Hans Zwart (University of Twente, NL) and Jesús Álvarez (Universidad Autónoma Metropolitana-Iztapalapa, MX).

The workshop was also accompanied by a pre-conference 3-days Spring School, aiming at introducing the main topics to students and young researchers interested in entering the field. *"An Introduction To Modelling and Control of Systems Governed By PDEs"*, consisting of three minicourses: *"Theoretical and Numerical Aspects Of Controllability Of Parabolic PDEs and Systems"* by Enrique Fernández-Cara (University of Sevilla, ES); *"Motion Planning and Tracking Control For PDEs"* by Thomas Meurer (Kiel University, DE), and *"Modelling and Control of Distributed Parameter Systems: The Port Hamiltonian Approach"* by Yann Le Gorrec (National Engineering Institute in Mechanics and Microtechnologies, FR). The course was very well attended by 26 participants.



Thomas Meurer (DE), at CPDE 2019

The scientific activity of the joint CPDE-CDPS 2019 was complemented with a social and cultural program to enjoy Oaxaca, with a pleasant environment for the attendees and accompanying persons. The Conference Banquet offered the specialties of the Oaxacan cuisine. The highlight of the social event was the visit to the pre-Columbian archeological site of Monte Alban, which was one of the earliest cities of Mesoamerica and the preeminent Zapotec center for about a thousand years. The site is of breathtaking beauty and is situated on a mountain nine kilometers from the city of Oaxaca.

Submitted by: Jaime A. Moreno (MX), Universidad Nacional Autónoma de México, CPDE 2019 NOC Co-Chair

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/>

Honors for IFAC Advisor Wook Hyun Kwon

Wook Hyun Kwon (KR), IFAC Advisor, was recently designated as a "Man of National Merit For Science and Technology in 2019" by the Ministry of Science and ICT of the Korean Government.

The Korean government has designated 48 scientists and engineers in the areas of natural sciences, life sciences, and engineering in 2018 and 2019, among those who lived in Republic of Korea since its founding in 1948 and has made significant contributions to Korean societies. 33 persons are deceased and 15 persons alive. Among them, 15 engineers were designated, of which ten are deceased and five living (including Kwon). The average age of the 15 living persons at the time of designation was about 85 and Professor Kwon was one of the youngest designated persons. All designated persons are introduced in the webpage www.koreascientists.kr.

W.H. Kwon was cited in the plaque as a man with outstanding achievements in both the academic area of automatic control and also industrial applications, in particular his academic achievements in receding horizon controls and his role model to promote entrepreneurship for graduate students. The certificate of merit was awarded by the president and presented by the prime minister of the Korean government on 22 April 2019.

W. H. Kwon played the major role in creating the current Korean IFAC NMO, Institute of Control, Robotics and System (ICROS) in 1994, which succeeded the old Korean IFAC NMO. He played a key role to create the Asian Control Conference (ASCC) in 1992, which has had close cooperation with IFAC partially from his efforts.

W. H. Kwon had substantial interest in IFAC as early as 1987 when he worked hard to make Korean Association of Automatic Control (KAAC) become the Korean NMO of IFAC. He was the contact point/NMO representative for the Korean NMO. Professor Kwon hosted the 1992 IFAC Workshop on Algorithm and Architecture for Real-Time Control in September in Seoul, for which he was Chair of the National Organizing Committee. For 1993-1996, he served IFAC as Vice-Chair of Technical Committee on Algorithm and Architecture for Real-Time Control (TC-AARTC) and for 1996-1999 as Chair of TC-AARTC. For 1999-2002, he served as Vice-President of IFAC and Chair of the Executive Board. For 2002-2005, he served as IFAC'S President-Elect and Chair of Administrative and Finance Committee.

For 2005-2008, W.H. Kwon served as IFAC's President. During his presidential term, he successfully oversaw the 50th Anniversary of IFAC in Heidelberg, DE on 15 September 2006 with the help of Rolf Iserman (DE), where he donated 500,000 USD to IFAC. The IFAC Foundation was created with these initial funds that he

donated, which initially assisted students from developing countries to be able to attend IFAC technical meetings and to receive regional education in automatic control. IFAC Papers-OnLine (POL) publication was prepared during his term and its launch was announced at the opening speech of the IFAC World Congress 2008. He made the 2008 IFAC World Congress Seoul a very successful and memorable congress in different aspects. He himself raised major funding for the success of the Seoul congress, which donated 50,000 USD to IFAC after the congress. This congress received the best conference award from Seoul Metropolitan City among all the conferences held in Seoul for the two years of 2007 and 2008. During his term, he made an extra visit to the IFAC Secretariat in Laxenburg every winter and discussed IFAC matters with the staff, which represented his devotion to IFAC.



Left to right:
Prime Minister Nak-yeon Lee (KR)
Soncha Yi (wife of Wook Hyun Kwon) &
Wook Hyun Kwon

For 2008-2011, W. H. Kwon served as IFAC's Immediate Past President. Since the legal foundation of the IFAC Foundation in 2008, he served as a member of the IFAC Foundation Experts and he became an IFAC Advisor in 2011. For 2011-2014 and 2014-2017, he served as a member of the IFAC Fellow Selection Committee. W.H. Kwon says that Steve Kahne (US), IFAC Advisor and IFAC President 1993-1996, was his mentor for IFAC.

Submitted by: Wook Hyun Kwon (KR), IFAC Advisor, IFAC President 2008-2011

Who's Who in IFAC: Awards Committee Chair Karl H. Johansson

The IFAC Awards Committee regulates and controls all award-related activities. It reports to the Executive Board on its work each year. For the 2017-2020 the committee is being chaired by Karl H. Johansson.

Karl H. Johansson (SE) is Professor with the School of Electrical Engineering and Computer Science at KTH Royal Institute of Technology in Stockholm. He is also Distinguished Professor of the Swedish Research Council and Wallenberg Scholar of the Knut and Alice Wallenberg Foundation. He received MSc and PhD degrees from Lund University under the supervision of Profs. Karl Johan Åström and Anders Rantzer. He has held visiting positions at UC Berkeley, California Institute of Technology, NTU Singapore, Institute of Advanced Stud-

ies Hong Kong UST, Norwegian University of Science and Technology, and Zhejiang University. He was Director of the ACCESS Linnaeus Center for seven years. Currently, he is Director of the Stockholm Strategic Research Area ICT The Next Generation, a member of the Scientific Council for Natural and Engineering Sciences within the Swedish Research Council and a member of the Research Strategy Group of the Wallenberg AI, Autonomous Systems and Software Program.

K. Johansson's research interests are in networked control systems, cyber-physical systems and applications in transportation, energy and automation networks. Within these areas he has co-authored more than 600 journal and conference papers and holds five patents. He has advised or co-advised 22 PhD students and 36 postdocs. His work has been recognized by several awards from IFAC, IEEE and ACM. He has given many invited plenary and keynote presentations, for example, over the last year at IEEE CCTA (2019), IEEE ICCA (2019), IFAC WCTS (2019), IFAC ROCOND (2018) and ACM MOBIHOC (2018). He was awarded Future Research Leader from the Swedish Foundation for Strategic Research in 2005. He is Fellow of the IEEE and the Royal Swedish Academy of Engineering Sciences and he is IEEE Distinguished Lecturer.



K. Johansson is providing service to the research community. He served two terms on the IEEE Control Systems Society Board of Governors and is currently on the European Control Association Council. He is past Chair of the IEEE Simon Ramo Medal Committee and current Chair of the IEEE Control Systems Society Fellow Nominations Committee. He has been on the Editorial Board of *IEEE Transactions on Automatic Control* and *IET Control Theory and Applications*. He is a Senior Editor of *IEEE Transactions on Control of Network Systems* and Associate Editor of *European Journal of Control*. He was the General Chair of the ACM/IEEE Cyber-Physical Systems Week in Stockholm 2010 and IPC Chair of many conferences.

Within IFAC, K. Johansson currently serves as IFAC Awards Committee Chair and as a member of the IFAC Executive Board. He was involved in establishing the IFAC Technical Committee on Networked Systems (together with Prof. Sandro Zampieri and several others) and served as its Vice-Chair from 2005-2008 and Chair from 2008-2011. He was IPC Co-Chair (together with Prof. Asu Ozdaglar) for the 1st IFAC Workshop NECSYS in Venice 2009.

K. Johansson was Associate Editor for the IFAC journal *Automatica* from 2003-2006.

Automatica Paper Prize Award: Call for Nominations

Description and Presentation of the Award

The Prize is given for outstanding contributions to the theory and/or practice of control engineering or control science, as documented in papers published in the IFAC Journal *Automatica*. In each triennium, three such prizes are given, with funds provided by the publisher of *Automatica*, Elsevier Science Ltd.. For this triennium, the Prize will be presented during the Awards Ceremony at the 21st IFAC World Congress, to be held in Berlin, Germany, 12-17 July 2020.

Eligibility

To be considered for the Automatica Paper Prize, papers must have appeared in *Automatica* during the three calendar year period: January 2017 through December 2019, that are Volumes 75 to 110. Papers authored by members of the Selection Committee and by Editors of the journal are not eligible.

Nominations

A complete nomination should include:

- A nomination letter that contains the full title of the paper and name(s) of the author(s), as well as the issue (year, month, number) of *Automatica* where the paper has appeared.
- A brief description of the contributions of the paper, and why (in the opinion of the nominator) the paper deserves the prize.

Submission

Nominations should be submitted in electronic form no later than 1 February 2020 to:

Prof. Rodolphe Sepulchre
Chair, IFAC Automatica Paper Prize
Selection Committee
Department of Engineering, University of
Cambridge, UK
Email: r.sepulchre@eng.cam.ac.uk

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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.

Control Engineering Practice Paper Prize Award: Call for Nominations

Description and Presentation of the Award

The Prize is given for outstanding contributions to the practical application of control techniques and advanced control theory, as published in papers in the IFAC Journal *Control Engineering Practice*. The papers should meet the following criteria:

- High-quality application paper,
- Practically relevant results based on profound theory,
- Supported by strong industrial results,
- Simulation studies are only acceptable if it is demonstrated that the simulation model is representative of a genuine industrial application.

In each triennium, three such prizes are given, with funds provided by the publisher of *Control Engineering Practice*, Elsevier Science Ltd. For this triennium, the Prize will be presented during the Awards Ceremony at the 21st IFAC World Congress, to be held in Berlin, Germany, 12-17 July 2020.

Eligibility

To be considered for the Control Engineering Practice Paper Prize, papers must have appeared in *Control Engineering Practice* during the three calendar year period: January 2017 through December 2019, that are Volumes 58 to 93. Papers authored by members of the Selection Committee and by Editors of the journal are not eligible.

Nominations

A complete nomination should include:

- A nomination letter that contains the full title of the paper and name(s) of the author(s), as well as the issue (year, month, number) of *Control Engineering Practice* where the paper has appeared.
- A brief description of the contributions of the paper, and why (in the opinion of the nominator) the paper deserves the prize.

Submission

Nominations should be submitted in electronic form no later than 1 February 2020 to:

Prof. Masayuki Fujita
Chair, IFAC Control Engineering Practice
Paper Prize Selection Committee
Department of Systems and Control
Engineering,
Tokyo Institute of Technology, Japan
Email: fujita@ctrl.titech.ac.jp

Annual Reviews in Control Paper Prize Award: Call for Nominations

Description and Presentation of the Award

The Prize is given for outstanding contributions to comprehensive and visionary views of the field of Systems and Control, documented in either a survey article (review papers on main methodologies or technical advances), or a vision article (cutting-edge and emerging topics with visionary perspective on the future of the field or how it will bridge multiple disciplines), or a tutorial article (fundamental guides for future studies) published in the IFAC Journal *Annual Reviews in Control*. In each triennium, one such prize is given, with funds provided by the publisher of *Annual Reviews in Control*, Elsevier Science Ltd. For this triennium, the Prize will be presented during the Awards Ceremony at the 21st IFAC World Congress, to be held in Berlin, Germany, 12-17 July 2020.

Eligibility

To be considered for the Annual Reviews in Control Paper Prize, papers must have appeared in *Annual Reviews in Control* during the three calendar year period: January 2017 through December 2019, that are Volumes 43 until 48. Papers authored by members of the Selection Committee and by Editors of the journal are not eligible.

Nominations

A complete nomination should include:

- A nomination letter that contains the full title of the paper and name(s) of the author(s), as well as the issue (year, month, number) of *Annual Reviews in Control* where the paper has appeared.
- A brief description of the contributions of the paper, and why (in the opinion of the nominator) the paper deserves the prize.

Submission

Nominations should be submitted no later than 1 February 2020, and in electronic form. They should be addressed to:

Prof. Arjan van der Schaft
Chair, IFAC Annual Reviews in Control
Paper Prize Selection Committee
University of Groningen, the Netherlands
Email: a.j.van.der.schaft@rug.nl

Editor's Note: The Annual Review in Control Paper Prize Award will be awarded for the first time for the 2017-2020 triennium, and was approved at the 2018 IFAC Council meeting.

The IFAC Story E-book (updated version) is available!
ISBN 978-3-902823-73-1

<https://www.ifac-control.org/about/the-ifac-story>

Calendar of IFAC Events

Title	2019	Place	Further information
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
11 th INSTICC, IFAC et al. Internat. Joint Conference on Computational Intelligence IJCCI 2019	September 17- 19	Vienna Austria	http://www.ijcci.org/ ijcci.secretariat@insticc.org
12 th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles, CAMS 2019	September 18 – 20	Daejeon Republic of Korea	http://cams-wroco.org/ e-mail: not yet available
1 st IFAC Workshop on Robot Control WROCO 2019	September 18 – 20	Daejeon Republic of Korea	http://cams-wroco.org/ 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	https://ifactelematics2019.swjtu.edu.cn/index.htm ifacta2019@swjtu.edu.cn
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
14 th OTM/IFAC/IFIP International Workshop on Enterprise Integration, Interoperability and Networking EI2N 2019	October 23 – 24	Rhodes Greece	otmconferences.org/index.php/workshops/ei2n-2019 Georg.Weichhart@profactor.at
16 th IFAC/IEEE (Czechoslovakia Section) Conference on Programmable Devices and Embedded Systems PDES 2019	October 29 – 31	High Tatras Slovakia	http://pdes-conference.eu/19/index.php?page=home&lang=en alena.kozakova@stuba.sk
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

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 Bundesministerium
Verkehr, Innovation
und Technologie

Calendar of IFAC Events

Title	2019	Place	Further information
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/2019alcoss/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
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
Title	2021	Place	Further Information
17 th IFAC Symposium on Information Control Problems in Manufacturing INCOM 2021	June 07 – 09	Budapest Hungary	http://not yet available e-mail: not yet available
11 th IFAC Symposium on Advanced Control of Chemical Processes ADCHEM 2021	June 13 – 16	Venice Italy	http://not yet available e-mail: not yet available
13 th IFAC Symposium on Robot Control SYROCO 2021	August/Sept. 30 – 02	Matsumoto Japan	http://not yet available e-mail: not yet available
6 th IFAC Conference on Analysis and Control of Chaotic Systems CHAOS 2021	September 27 – 29	Catania Italy	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/>

Check out IFAC's YouTube channel for new and historical IFAC video materials!

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