IFAC
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

NEWSLETTER

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Introducing the 2017 IFAC World Congress Prize Winners: APP, IPP, and YAA

Three Congress prizes, APP, IPP and YAA were awarded at the IFAC World Congress in Toulouse, FR in July 2017. They consist of a monetary prize and a certificate. Prizes are nominated by a selection committee appointed by the IFAC Council.

The Application Paper Prize (APP), created in 1986, is awarded for the best Applications Paper. This includes, but is not limited to, case studies, design and implementation of control systems and optimization of operations in a process. Nominations may arise either from authors (all papers submitted in the Application category were considered, or from reviewers (nominations via a checkbox in the review form in the IFAC PaperCept conference manuscript management system). A preliminary selection process is performed by the relevant Technical Committees. By the time of the approval of the final Program of the Congress, each Technical Committee Chair submitted to Alexander Kurzhanski, who served as chair of the IFAC Application Paper Prize Selection Committee, the set of papers which were considered suitable for this prize. The Selection Committee determined a short list of finalists. The winner was selected at the time of the Congress, based on the written paper and the oral presentation. It was won in 2017 by Dominik Moser, Matthias Reiter and Luigi del Re (AT) for *Stochastic Modeling of Lane Changes for Predictive Adaptive Cruise Control* (one prize in total).

The Interactive Paper Prize (IPP) is awarded for the best interactive paper/poster (earlier known as the Best Poster Prize). The Chair of the IFAC Interactive Paper Prize, Michael Sebek, together with the conference chairs, was responsible for nominating papers for the prize based on the reviews collected for the papers to be presented in interactive sessions. The Selection Committee determined a short list of finalists. The winner was determined at the time of the Congress, based on the written paper and the interactive presentation. Presenters were encouraged to emphasize their contributions by means of videos, simulations, demonstrations of software tools, or in classical slideshow format. It was won in 2017 by Alexander Schaum, Henning Weisbarth, and Thomas Meurer (DE) for the paper *Robust Adaptive Feedforward Output-feedback Tracking Control For Microalgae Culture* (one prize in total).

The Young Author Award (YAA, earlier the YAP), created in 1986, is awarded for the best paper of which the first and presenting author is younger than 30 years of age. The IFAC Young Author Prize Selection Committee, which was chaired by Michel Kinnaert, determined based on the gathered reviews and on their own reading of the papers a short list of finalists, and notified authors. The winners were determined at the time of the Congress, based on both the written paper and the oral presentation given by the nominee. It was won in 2017 by Luca Deori (IT) for *On the Connection between Nash Equilibria and Social Optima in Electric Vehicle Charging Control Games* and Raik Suttner (DE) for *Exponential Stability for Extremum Seeking Control Systems* (two YAAs awarded in 2017).

Young Author Award (YAA) (2 separate papers, 2 winners)

Luca Deori (IT) received the Bachelor of Science cum laude in 2010 and the Master of Science cum laude in 2012, both in Automation and Control Engineering from Politecnico di Milano (IT). In December 2015 he received the Ph.D. in Information Technology: Systems and Control Area at the Dipartimento di Elettronica, Informazione e Bioingegneria at Politecnico di Milano. During the fall semester 2014 he was a visiting scholar at Purdue University, West Lafayette, IN (US). In 2016 he held a post doctoral position at Politecnico di Milano, and he spent two terms as an academic visitor at the University of Oxford (UK).

Since 2017 Deori has been employed by Schnell Spa (Colli al Metauro, PU, IT) as a control and automation engineer in the R&D group. His research interests include stochastic model predictive control, decentralized control, randomized methods for uncertain optimization and learning theory, with application to aircraft control, electric vehicles charging strategy optimization, optimal energy management in buildings and the design of sensing devices.

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The IFAC Journals

Automatica
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Control Engineering Practice
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Engineering Applications of Artificial Intelligence
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Nonlinear Analysis: Hybrid Systems
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Raik Suttner (DE) received the B.S. and M.S. degrees in mathematics from the University of Würzburg (DE) in 2013 and 2015, respectively, and where is currently a Ph.D. student (since 2016). His current research is focused on output feedback stabilization of control-affine systems with applications to the design of extremum seeking control. He is also interested in distance-based formation control of multi-agent systems.

Interactive Paper Prize (IPP)
(1 paper, 3 winning authors)

Henning Weisbarth (DE) received his bachelor of science in electrical engineering and economics in 2014; and in 2015 his master's degree in the same disciplines from the Christian-Albrechts- Universität Kiel, (DE). From 2016 to 2017 he was a research assistant at the Chair of Automatic Control at Christian-Albrechts-Universität Kiel. Weisbarth's work was mainly focused on process control and observer design for in vitro algae growth processes as a subproject of the Future Ocean cluster of excellence. In 2017 he switched to working in private industry to push the renewable wind energy with new ideas.

Alexander Schaum (DE) received the diploma in Technical Cybernetics from the University of Stuttgart, Stuttgart, Germany, in 2006, and the Ph.D. degree from the National University of Mexico (Universidad Nacional Autónoma de México, UNAM) in Mexico City in 2009.

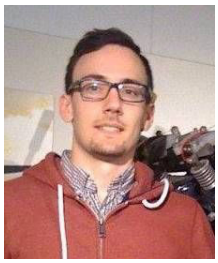
Since 2014 Schaum has been working at the Chair of Automatic Control at Kiel University in Kiel, Germany. His research focusses on control and observer design for finite- and infinite-dimensional systems with applications in process control and networks. His research has been summarized in 44 research papers with 15 of them in peer-reviewed journals.

Thomas Meurer (DE) received the diploma in Process Systems Engineering from the University of Stuttgart, (Stuttgart, DE) in 2001, the M.Sc. degree in Engineering Science and Mechanics from the Georgia Institute of Technology, Atlanta, GA (USA) in 2000, and the Ph.D. degree from the University of Stuttgart in 2005. Since November 2012, Thomas Meurer has been a Full Professor and Head of the Chair of Automatic Control at the Kiel University, Germany, where is currently also Managing Director of the Institute of Electrial Engineering and Information Technology at the Technical Faculty. His research interests include the control and the observer design for systems governed by finite- and in particular infinite-dimensional systems. This includes the application and the experimental evaluation of the developed techniques in different branches of engineering and science including production engineering, smart structures and process engineering.

Meurer has authored many publications and has been Associate Editor for the IFAC journals Control Engineering Practice (since 2010) and Automatica (since 2014) and the IEEE Control Systems Letters (since 2017) and has served as Associate Editor for the IFAC World Congresses 2014 and 2017. From 2011 to 2017 he was Chair of the IFAC Technical Committee 2.6 *Distributed Parameter Systems* and since 2017 he is Chair of the Technical Committee 1.40 *Theoretical Methods of Closed-loop Control Engineering* of the VDI/VDE Society Measurement and Automatic Control (GMA). Meurer is recipient of the 2009 Eugen-Hartmann-Award of the VDI/VDE-GMA and the 2012 Kardinal-Innitzer-Förderungspreis for Outstanding Research in Mathematics, Natural Sciences and Engineering from the Kardinal Innitzer Research Fund, Austria. In 2017 he was promoted to an IEEE Senior Member.

Application Paper Prize (APP)
(1 paper, 3 winning authors)

Dominik Moser (AT) recieved the Master's degree in Mechatronics in 2015 and then the Ph.D. degree in July 2017 at Johannes Kepler University in Linz (AT). From 2015 to 2017 he was a research assistant at the Institute for Design and Control of Mechatronical Systems at the Johannes Kepler University and is currently with the BMW Group in Steyr (AT). His research interests include the modeling and prediction of human driving behavior, as well as the application of stochastic model predictive control for automated driving applications.



Matthias Reiter (AT) is a specialist for control systems and probabilistic modelling. In 2015 he graduated from the master's program in mechatronics at the Johannes Kepler University (Linz, AT). Subsequently he worked as a research fellow in the field of diabetes control and autonomous driving, in both fields focused on the modelling of uncertain systems. Dipl.-Ing. Reiter currently works at KEBA AG (Linz, AT) in the industrial automation sector and is responsible for the functional safety development.

Luigi del Re (AT), Department Head at the Institute for Design and Control of Mechatronical Systems, Johannes Kepler University (Linz, AT), holds 15 patents. An Italian citizen, del Re completed his Ph.D study in Automatic Control at the ETH Zürich (CH).

del Re's publications include 300 Journal Papers/Conference Papers/Book Chapters/ Books. His research interests include automotive control, nonlinear control and identification, adaptive optimal control, nonlinear systems identification, and biomedical systems.

IFAC Fellows 2014-2017

last in a series

Munther Dahleh

Munther A. Dahleh received his Ph.D. degree from Rice University (Houston, TX, US) in 1987 in Electrical and Computer Engineering. Since then, he has been with the Department of Electrical Engineering and Computer Science (EECS), at MIT (Cambridge, MA, US) where he is now the William A. Coolidge Professor of EECS. He is also a faculty affiliate of the Sloan School of Management. He is currently the Director of the newly formed MIT Institute for Data, Systems, and Society (IDSS). Previously, he held the positions of Associate Department Head of EECS, Acting Director of the Engineering Systems Division, and Acting Director of the Laboratory for Information and Decision Systems. He was a visiting professor at the Department of Electrical Engineering, California Institute of Technology (Pasadena, CA, US) for the spring of 1993. He has consulted for various national research laboratories and companies.

Dahleh is interested in networked systems with applications to social and economic networks, transportation networks, neural networks, and the power grid. Specifically, he focuses on the development of foundational theory necessary to understand, monitor, and control systemic risk in interconnected systems. His work draws from various fields including game theory, optimal control, distributed optimization, information theory, and distributed learning. His collaborations include faculty from all five schools at MIT.

Dahleh is the coauthor (with Ignacio Diaz-Bobillo) of the book *Control of Uncertain Systems: A Linear Programming Approach*, published by Prentice-Hall, and the coauthor (with Nicola Elia) of the book *Computational Methods for Controller Design*, published by Springer. He is a four-time recipient of the George Axelby Outstanding Paper Award for best paper in IEEE Transactions on Automatic Control. He was also the recipient of the Donald P. Eckman Award from the American Control Council in 1993 for the best control engineer under 35. He has given many keynote lectures at major conferences.

Please complete a short survey about the 20th World Congress:
https://sysadmin.laas.fr/intranet/limesurvey/index.php/survey/index/sid/597116/newtest/Y/lang/en

Keith Glover

Keith Glover was born in the outer London suburbs and studied electrical engineering at Imperial College in London (UK), graduating in June 1967. He worked as an engineer in the communications division of the Marconi Company from 1967 until 1969. In 1969 he was awarded a Kennedy Scholarship which enabled him to go to the Massachusetts Institute of Technology, where he received his Ph.D. degree in 1973 with a dissertation entitled Structural Aspects of System Identification under the supervision of Prof. Jan C. Willems.

On completion of his Ph.D., Glover was appointed as an assistant professor with the Department of Electrical Engineering of the University of Southern California. In 1976 he returned to the UK to take up a lectureship at the Department of Engineering of the University of Cambridge where he has been since, with a one year leave of absence in 1983-84 as a Visiting Fellow at the Australian National University in Canberra.

At Cambridge, in 1989, Glover was elected to the Professorship of Engineering (1974), which was previously held by Prof. AGJ MacFarlane. He has been Head of the Information Engineering Division from 1993 until 2002, and from 2002-09 he was Head of the Department of Engineering which is the largest Department in the University. He has also been a Fellow of Sidney Sussex College since 1976.

Glover's scientific work spans a wide variety of topics, with as main themes: system identification, model reduction and approximation, robust controller synthesis, and control of aircraft and combustion engines. He is the author and coauthor of two very highly cited articles, which in the foreword to the proceedings of *Control of Uncertain Systems: Modelling, Approximation, and Design: A workshop on the occasion of Keith Glover's 60th birthday (April 2006, Cambridge)* Jan Willems generously wrote that these papers were ``both among the most influential papers in the field of systems and control in the 20th century".

Glover's 1984 article in the International Journal on Control on Hankel norm and balanced model reduction marked the beginning of a systematic study on model simplification of dynamical systems. The four-author paper (by J.C. Doyle, K. Glover, P.P. Khargonekar and B.A. Francis) in the 1989 IEEE Transactions on Automatic Control revealed the role of the Riccati equation in H-infinity control. These and related results were incorporated in a successful software package, the mu-Analysis and Synthesis Toolbox (for use with Matlab), distributed by The Mathworks Inc. and written by GJ Balas, JC Doyle, K Glover, A Packard and R Smith.

In his more applied work Glover has exploited the H-infinity loop shaping design procedure, that he developed with Duncan McFarlane, to the flight control that, with his PhD students Rick Hyde and George Papageorgiou, led to successful flight tests on the VAAC Harrier aircraft. His more recent research has concerned automotive engine management, in a collaboration with his colleague Prof. Nick Collings, with a view to reducing toxic emissions and fuel consumption whilst maintaining performance.

Glover's work has been honoured by several awards and best paper prizes, among these the IEEE W.R.G. Baker Award for the most outstanding paper reporting original work in the Transactions, Journals and Magazines of the Societies or in the Proceedings of the IEEE in 1991, for the four-author paper mentioned earlier. He was elected a Fellow of the Royal Society (1993), of the IEEE (1993), of the Institute of Measurement and Control (1999), and of the Royal Academy of Engineering (2000). In 1998 he was awarded the Sir Harold Hartley Medal by the Institute of Measurement and Control. He was the recipient of the 2001 IEEE Control Systems Award. He is now an Emeritus Professor at Cambridge University and at Sidney Sussex College.

Tryphon T. Georgiou

Tryphon T. Georgiou was born in Athens, Greece. He received the Diploma in Mechanical and Electrical Engineering from the National Technical University of Athens in 1979, and the Ph.D. degree in Electrical Engineering from the University of Florida, Gainesville (USA), in 1983. He served on the faculty of Florida Atlantic University (Boca Raton, FL) from 1983-1986, Iowa State University (Ames, IA, US) from 1986-1989 and the University of Minnesota from 1989-2016 where he held the Vincentine Hermes-Luh Chair in Electrical Engineering (2002-2016). He is currently UCI Chancellor's Professor in Mechanical and Aerospace Engineering at the University of California- Irvine (US).

Georgiou's research interests include dynamical systems, stochastic control, information theory, mathematical physics and applied mathematics. He received the George S. Axelby Outstanding Paper award by the IEEE Control Systems Society three times: in the years 1992 and 1999 for joint work with Malcolm C. Smith and in 2003 for joint work with Chris Byrnes and Anders Lindquist. Georgiou is a Fel-

low of IEEE, a Fellow of IFAC, and a Foreign Member of the Royal Swedish Academy of Engineering Sciences (IVA).

João Hespanha

João P. Hespanha was born in Coimbra, Portugal in 1968. He received the Licenciatura in electrical and computer engineering from the Instituto Superior Técnico (Lisbon, Portugal) in 1991 and the Ph.D. degree in electrical engineering and applied science from Yale University (New Haven, CT, USA) in 1998. From 1999 to 2001 he was an assistant professor at the University of Southern California, Los Angeles. He moved to the University of California, Santa Barbara in 2002, where he holds a professor position with the Department of Electrical and Computer Engineering, where Prof. Hespanha is currently the Chair of the Department of Electrical and Computer Engineering.

Hespanha is the recipient of Yale University's Henry Prentiss Becton Graduate Prize for exceptional achievement in research in Engineering and Applied Science, a National Science Foundation CAREER Award, the 2005 best paper award at the 2nd Int. Conf. on Intelligent Sensing and Information Processing, the 2005 Automatica Theory/Methodology Best Paper Prize, the 2006 George S. Axelby Outstanding Paper Award, and the 2009 Ruberti Young Researcher Prize. In addition to being an IFAC Fellow Hespanha is a Fellow of the IEEE and was an IEEE distinguished lecturer from 2007 to 2013.

Hespanha's current research interests include hybrid and switched systems, multi-agent control systems, distributed control over communication networks (also known as networked control systems), game theory, stochastic modeling in biology, and network security.

Guy Dumont

Guy Dumont graduated in 1973 from Ecole Nationale Supérieure des Arts et Métiers in Paris, France. In 1977 he received a PhD degree in Electrical Engineering from McGill University in Montreal, Canada. From 1997 to 1979, he worked for Tioxide in Calais, France. From 1979 to 1989 he worked for the Pulp and Paper research Institute of Canada first in Montreal and then in Vancouver, Canada. Since 1989 he has been a professor in Electrical and Computer Engineering at the University of British Columbia (UBC) in Vancouver, Canada. There he has been a Distinguished University Scholar since 2003, as well as a Associate Member of the department of Anesthesiology, Pharmacology and Therapeutics since 2009. In 2011-12 he was a Distinguished Scholar in Residence at the UBC Peter Wall Institute for Advanced Studies and in 2015-16 has been a Fellow of the Stellenbosch Institute for Advanced Study in Stellenbosch, South Africa.

During his Ph.D Dumont designed an adaptive control system for TiO2 rotary kilns that became one the first successful industrial applications of adaptive control for which in 1979 he garnered an IEEE TAC best paper award. That system, which he implemented in France, remained in use unmodified for nearly 14 years.

From 1979 to 1989 Dumont led the Control Engineering Section at Paprican and from 1989 to 1999 he held the senior Paprican/NSERC Industrial Chair in Industrial Process Control at UBC, working closely with Paprican, pulp and paper companies, and suppliers. Over these 20 years he implemented adaptive control schemes on various pulp and paper processes in Canada, including a Kamyr digester chip level controller that was commercialized worldwide by MoDo-Chemetics and a dual dual adaptive controller for wood chip refiners. He also developed a Laguerre-based adaptive controller that he demonstrated on a bleach plant for about a year with great success. The methodology was then commercialized by Vancouver-based Universal Dynamics, under the name BrainWave, the first commercial "general-purpose" adaptive controller to be developed in Canada, and one of the few commercially available in the world. Many successful applications have since been reported worldwide, for control of lime kilns, beer brewing kettles, glass furnaces, batch reactors, etc. In June 1996, it was awarded the BC Technology Industries Association Award for Excellence in Product Innovation. This controller was featured in the Technology issue of IEEE Spectrum in January 1998. In Houston in October 1998, it was awarded the ISA President Award for Innovation. For this work, Dumont was awarded a 1999 NSERC Synergy Award. Universal Dynamics has since been acquired by Andritz Automation which still markets BrainWave worldwide. Partly for this work Dumont was elected an IEEE Fellow in 1999.

Dumont's work on paper machine estimation and control focused on the development of novel cross-directional control schemes based on two-dimensional loop-shaping and more recently model-predictive control, all commercialized by Honeywell Process Solutions. This work was recognized in October 2002 by an NSERC Synergy Award, in December 2002 by an IEEE Control Systems Technology Award and in 2004 by an IEEE TCST best paper award.

In 2001, after over 20 years of research in process control, Dumont switched his interest to biomedical engineering. In 2002, he co-founded a research group devoted to increasing patient safety through enhanced clinical monitoring and the application of advanced signal processing and control technology. The research of the Electrical and Computer Engineering in Medicine (ECEM) group has since resulted in a number of exciting developments, and has garnered several awards including the prestigious 2010 NSERC Brockhouse Canada Prize for Interdisciplinary Research in Science and Engineering. Among other things Dumont led the development of a novel method for estimating anesthetic depth using wavelet analysis of the electroencephalogram. The main advantage of this novel patented index over competing ones is that it is delay-free and has a consistent and predictable dynamic behavior. The resulting NeuroSense monitor is commercialized by NeuroWave Systems Inc. in Europe and Canada. For the last decade, Dumont has been developing methodologies for closed-loop control of anesthesia. The current system called iControl automatically administers both anesthetic and analgesic drugs. It has been validated in a number of clinical trials both in pediatric and adult populations, has been featured several times in the media, and has attracted the attention of some major medical device companies.

Dumont's research group has recently developed the Phone Oximeter, a smartphone-based pulse oximeter for respiratory disease and management in the developing world, the idea being to make pulse oximetry universally available. This patented device is now commercialized by Vancouver-based LionsGate Technologies and has been integrated in a large clinical trial involving 80,000 patients in four countries under the umbrella of the Bill & Melinda Gates Foundation project on pre-eclampsia. In 2013 it was showcased at the United Nations General Assembly as one of ten Global Health Innovations to Save Lives Now.

Sosale Shankara Sastry

Sosale Shankara Sastry is Dean of Engineering at University of California- Berkeley (US). His research focuses on resilient network control systems, cybersecurity, autonomous and unmanned systems (especially aerial vehicles), computer vision, nonlinear and adaptive control, control of hybrid and embedded systems, and software. Most recently he has been concerned with critical infrastructure protection, NSF Science and Technology Center, TRUST (Team for Research in Ubiquitous Secure Technologies).

Dr. Sastry has served as Director of CITRIS (Center for Information Technology in the Interests of Society), an interdisciplinary center spanning four UC campuses (2004-2007), and Director of the Information Technology Office at DARPA (Defense Advanced Research Projects Agency) (1999-2001). At UC Berkeley he is faculty director of the Blum Center for Developing Economies and previous Chair, Department of Electrical Engineering and Computer Sciences, (2001-2004) and Director, the Electronics Research Laboratory (1996-1999). Dr. Sastry received his Ph.D. degree in 1981 from the University of California, Berkeley. He was on the faculty of MIT (1980-82) and Harvard University (Gordon Mc Kay Professor, 1994). He is the Roy W. Carlson Professor of Engineering, and Professor of Electrical Engineering & Computer Sciences, Bioengineering and Mechanical Engineering.

Pravin Varaiya

Pravin Varaiya is a professor of the Graduate School in the Department of Electrical Engineering and Computer Sciences at the University of California, Berkeley (USA). From 1994 to 1997 he was Director of the California PATH program, a multi-university research program dedicated to the solution of California's transportation problems. He has taught at MIT (Cambridge, MA, US) and the Federal University of Rio de Janeiro (BR). He has been a visiting professor at the Institute for Advanced Study at the Hong Kong University of Science and Technology since 2010. His current research is devoted to electric energy systems and transportation networks.

Varaiya has held a Guggenheim Fellowship and a Miller Research Professorship. He has received Honorary Doctorates from L'Institut National Polytechnique de Toulouse and L'Institut National Polytechnique de Grenoble (both in FR) and the Technical University of Crete (GR). He received the Richard E. Bellman Control Heritage Award, the Field Medal and Bode Lecture Prize of the IEEE Control Systems Society, and the Outstanding Researcher Award from the IEEE Intelligent Transportation Systems Society. He is a Fellow of IEEE, a Fellow of IFAC, a member of the National Academy of Engineering, and a Fellow of the American Academy of Arts and Sciences.

Francesco Bullo

Francesco Bullo is a professor with the Mechanical Engineering Department and the Center for Control, Dynamical Systems and Computation at the University of California, Santa Barbara (US). He was previously associated with the University of Padova (IT), the California Institute of Technology (US), and the University of Illinois at Urbana-Champaign (US). His research interests focus on network systems and distributed control with application to robotic coordination, power grids and social networks. He is the coauthor of "Geometric Control of Mechanical Systems" (Springer, 2004) and "Distributed Control of Robotic Networks" (Princeton, 2009).

Bullo's articles received the 2008 CSM Outstanding Paper Award from IEEE CSS, the 2011 Hugo Schuck Best Paper Award from AACC, the 2013 SIAG/CST Best Paper Prize from SIAM, the 2014 Automatica Best Paper Prize from IFAC, and the 2016 Guillemin-Cauer Best Paper Award from IEEE CAS. He is a Fellow of IEEE. He has served on the editorial boards of IEEE, SIAM, and ESAIM journals, and on the Executive Committee of the IEEE Control Systems Society and as Program Chair for IEEE CDC 2016. He is currently serving as Department Chair at UCSB.

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

1st IFAC Conference on Cyber-Physical & Human Systems (CPHS)

7-9 December 2016

Florianópolis, Brazil

The 1st IFAC Conference on Cyber-Physical & Human-Systems (CPHS 2016) was held from 7-9 December 2016 at the Majestic Hotel in Florianopolis, Brazil. The conference was sponsored by the IFAC Technical Committee 9.2 (Social Impact of Automation) and co-sponsored by eleven Technical Committees of IFAC TC 1.3 (Discrete Event and Hybrid Systems), TC 1.4 Stochastic Systems, TC 1.5 Networked Systems, TC 3.1. (Computers for Control), TC 3.3 (Telematics: Control via Communication Networks), TC 4.3 (Robotics), TC 4.5 (Human-Machine Systems), TC 7.3 (Aerospace), TC 7.4 (Transportation Systems), TC 8.2 (Biological and Medical Systems), and TC 9.5 (Technology, Culture and International Stability). CPHS 2016 was co-sponsored by the IEEE Control Systems Society Outreach Fund (IEEE CSS), the US National Science Foundation (NSF), the French Institute for Science and Technology of Transport, Development and Networks (IFSTTAR), the National Center for Scientific Research in France (CNRS), the French Research Group Modeling, Analysis and Control of Dynamic Systems (GDR MACS), the European Embedded Control Institute (EECI), the Post-Graduation in Automation and Systems Engineering Program of the Federal University of Santa Catarina (UFSC) and the Institute for Control and Decision of Paris Saclay (iCODE). The CPHS 2016 General Chair was Dr. Marianne Netto (IFSTTAR, France).

The Program Chair was Prof. Sarah Spurgeon (UCL, UK). The NOC Chair was Prof. U. F. Moreno (UFSC, Brazil), the NOC Co-Chair, Prof. Nestor Roqueiro (UFSC, Brazil) and the Editor, Prof. Leandro Becker (UFSC, Brazil). The conference steering committee has been composed of: Prof. Anuradha Annaswamy (MIT, US), Prof. Sandra Hirche (TU München, DE), Dr. Francoise Lamnabhi-Lagarrigue (CNRS-L2S, EECI, FR), Prof. Wilfrid Perruquetti (Ecole Centrale de Lille, FR) and Dr. Tariq Samad, (University of Minnesota, US). The IPC consisted of 35 members from 17 countries.

The main goal of CPHS 2016 was to construct a place of scientific exchanges on Cyber-Physical & Human-Systems (CPHS) in order to discuss technical challenges and the prospective on CPHS. The foundation for this was to construct a meeting able to break the barriers between disciplines and application domains gathering complementary communities. This goal has been fully achieved, and has been very much appreciated by the participants. Indeed, the participants have been able to share their experiences in an incredibly pleasant, motivating and agreeable atmosphere. CPHS 2016 was based on the structure created in the precedent event, the IFAC IEEE CSS workshop H-CPS-I 2014 in Paris (FR), taking into account the four main big families of interactions between humans and CPS: human-machine symbiosis, humans as operators of complex engineering systems, humans as agents in multi-agent systems, and humans as elements in controlled systems. The scientific content of the conference was pertinent and presented in excellent motivated presentations, as described in the following.

CPHS 2016 counted six plenary talks covering these four topics, 43 accepted papers organized in eight (four regular and four invited) sessions, with an acceptance rate of 84%, one tutorial session, two prospective panel discussions and one poster session with the presentation of posters and prototypes. The conference counted submissions from 16 countries, authors and co-authors of accepted papers from 14 countries, and participants from nine countries, totaling nearly 100 registered participants. The top six countries were Brazil (45),

France (17), USA (12), Germany (8) and Russia (8). With approximately 38% of registrations being from students, CPHS 2016 has brought these new discussions to the younger scientific community. The National Science Foundation (NSF) from the US sponsored the travel of 10 US students to Brazil to attend CPHS 2016. C. Wiesener, PhD student at TU Berlin received an award for his work "Robust Discrimination of Flexion and Extension Phases for Mobile Functional Electrical Stimulation (FES) Induced Cycling in Paraplegics".

CHPS Organizers Present and Future: Left to right: Anuradha Annaswamy (US), Marianna Netto (FR), Francoise Lamnabhi-Lagarrigue (FR), Dawn Tilbury (IFAC Council Member, US)

CPHS was opened by the NOC Chair Prof. Ubirajara Franco Moreno and by the General Chair Dr. Marianna Netto. Prof. Moreno welcomed the participants with beautiful words on the human-to-machine but also on the human-to-human interactions. Dr. Mariana Netto confronted human skills from the past with a prospective future, highlighting some of the very beautiful new potential benefits from technology to humans, and also the main challenges, open questions and ethical issues related to CPHS that in her opinion shall be carefully considered. The CPHS 2016 program included 6 plenary talks by the internationally-recognized scientists: Dr. Petr Stluka (Honeywell, CZ), on "New Challenges For Advanced Control In Connected Building"; Dr. Gerard Roucairol (TERATEC, France), on "High Performance Computing: Breakthroughs and Challenges"; Prof. Berenice Mettler (University of Minnesota and Icuemotion, US) on "Where Humans and Machines Meet: Systematic Modelling of Human-Machine Systems"; Prof. Sebastian Engell (TU Dortmund, DE) on "Operator Support For Improving Resource Efficiency in Chemical Plants"; Dr. Franck Mars (CNRS & ECN, FR) on "A Cybernetic Driver Model To Support Steering Control Assistance and distraction monitoring"; Prof. Frederic Vanderhaegen (Univ. Valenciennes, FR) on "Human Reliability & CPHS".

The two panel discussions have raised deeply engaged and very agreeable and motivated discussions. The first, entitled "CPHS in Transportation: Discussion on Needs, Challenges, Advances & Prospective - Three Countries' Cases: Brazil, France and China", had as panelists Prof. W. Kraus (UFSC, Brazil), Dr. J.-P. Lebacque, Dr. H.-H. Salem and Dr. J.-M. Burkhardt (IFSTTAR, France) and Prof. H. Sun (Univ. TongJi, China) and has been chaired by Dr. G. Roucairol (TERATEC, France). The second one entitled "CPHS: Evolution, Potential Impacts and Prospective - From An interdisciplinary view", had as panellists Dr. G. Roucairol, Prof. F. Vanderhaegen, Prof. B. Mettler, Dr. T. Schauer (TU Berlin) and Dr. P. Carvalho (IEN, Brazil) and has been chaired by Prof. S. Engell.

The four invited sessions have raised up discussions on the following topics : smart cyber-physical systems for restoring human movement after paralysis, smart control mechanisms in complex systems, CPHS in transportation: from humans to autonomous traffic management, pilot vehicle system analysis and design, and the four regular sessions on human & CPS, human operators, industrial processes and Robotics. The conference closed with a full room by the beautiful and very pertinent tutorial, given by Dr. Bruno Berberian (The French Aerospace Lab) entitled "My Brain Is Out Of The Loop: A Neuroergonomic Approach Of The Out Of The Loop Phenomenon (OOTL) Phenomenon".

The social program was also very intense. The conference started with the welcome reception on the evening of the first day of the event in the Majestic Hotel. The Gala Dinner was on the second day of the event and the participants were driven from the conference venue through the Florianopolis Island to a very pleasant restaurant by the side of the Lagoa da Conceição in Florianopolis. The dinner with local specialties was served with live music and tasteful wine. The conference was closed by a very agreeable and tasteful farewell reception on Friday night (December 9) in the Majestic Hotel. CPHS 2016 has been a very fruitful, charming, lively and successful event, with participants from throughout the globe.

The organizers thank all the sponsoring organizations for their support that allowed the conference to take place. We thank in the same way all the eleven IFAC co-sponsoring technical committees, the NOC and all colleagues for their dedication to make the first CPHS 2016 happen.

Submitted by: Mariana Netto, General Chair and Ubirajara F. Moreno, NOC 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 https://blog.ifac-control.org/

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

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

From the IFAC President

Dear Friends and Colleagues,

As you are all aware, humankind is facing tremendous technological challenges and opportunities at present, for almost all of which control and automation are important components. Requirements and expectations on the control and automation solutions are constantly growing and it requires ever increasing methodological and technical knowledge to address these increasingly complex and complicated tasks.

Fortunately, our community has always been able to attract some of the brightest people to the field that are working in industry and research institutions. It is essential to make sure that our field remains attractive for young people, so that many of the best choose this direction. Excellent educational programs, constant renewal and inclusion of novel ideas and the proper communication of our role, values and success are very important for this. But so is recognition. IFAC therefore recognizes great achievements and talent through its awards program granting IFAC prizes for different achievements in various categories.

Five IFAC Major Awards honor extraordinary lifetime contributions, outstanding contributions to methods, tools and instrumentation, high impact papers, significant contributions to industrial applications of control and the outstanding contributions of a young researcher. Distinguished individuals may be honored by the IFAC Council as IFAC Fellows for their extraordinary contributions in our field. The relevance of education is emphasized through the Harold Chestnut Control Engineering Textbook Prize.

Furthermore, the Journal Awards, which are awarded every three years, acknowledge the best research articles published in the IFAC Journals and the Congress Prizes honor the best papers presented at the IFAC World Congress including the best paper in the area of applications, the best paper by a young author and the best interactive paper. While the space in this column is quite limited, check out our webpage www.ifac-control.org for more details on all IFAC awards and see some of the other articles in this newsletter.

For identifying award-worthy candidates for each award, IFAC heavily depends on you. Therefore, I would like to encourage everybody to nominate suitable candidates for the IFAC awards through the respective channels or by contacting the IFAC secretariat in Laxenburg.

Best wishes from Stuttgart,

Frank Allgöwer
(IFAC President 2017-2020)

Editor's Note: Nomination calls will be publicized as the 2017-2020 triennium progresses in forthcoming issues of this Newsletter, as well as on the IFAC website. In addition members of the IFAC community are encouraged to check the webpages of the IFAC journals (journal prizes) and the IFAC 2020 World Congress (Congress prizes).

Calendar of IFAC Events

Title	2017	Place	Further information
SACAC IFAC Conference on Control Conference Africa CCA 2017	December 07 – 08	Johannesburg, South Africa	http://sacac.org.za/pages/cca/ e-mail: cca2017@sacac.org.za
IEEE - CSS, IFAC, SICE, ICROS Conference on Asian Control Conference (in cooperation with IFAC) ASCC 2017	December 17 – 20	Gold Coast Australia	https://www.ascc2017.com/ e-mail: l.vlacic@griffith.edu.au
Title	**2018**	**Place**	**Further information**
5th Conference on Advances in Control and Optimization of Dynamical Systems ACODS 2018	February 18 – 22	Hyderabad India	http://www.drdo.gov.in/acods2018/ e-mail: acods2018@gmail.com
9th TU Wien/IFAC Vienna International Conference on Mathematical Modelling MATHMOD 2018	February 21 – 23	Vienna Austria	http://www.mathmod.at/ e-mail: info@mathmod.at
6th IFAC/IEEE (TC on DPS) Workshop on Lagrangian and Hamiltonian Methods for Nonlinear Control LHMNC 2018	May 01 – 04	Valparaiso / Viña del Mar, Chile	http://www.lhmnlc18.org/ e-mail: juan.yuz@usm.cl
3rd IFAC Conference on Advances in Proportional-Integral-Derivative Control PID 2018	May 09 – 11	Ghent Belgium	http://www.pid18.ugent.be/ e-mail: pid18@ugent.be
1st IFAC Workshop on Integrated Assessment Modelling for Environmental Systems IAMES 2018	May 10 – 11	Brescia Italy	https://iames2018.unibs.it/ e-mail: iames2018@unibs.it
15th IFAC Conference on Programmable Devices and Embedded Systems PDES 2018	May 23 – 25	Ostrava Czech Republic	http://pdes-conference.eu/ e-mail: zdenek.slanina@vsb.cz
14th IFAC/IEEE Workshop on Discrete Event Systems WODES 2018	May - June 30 – 01	Sorrento Coast - Castellammare di Stabia (NA) Italy	http://wodes2018.unisa.it/ e-mail: wodes2018@unisa.it
3rd IFAC Workshop on Automatic Control in Offshore Oil and Gas Production OOGP 2018	May - June 30 – 01	Esbjerg Denmark	http://ifac-oogp2018.org/ e-mail: secretariat@ifac-oogp2018.org
15th IFAC Symposium on Control in Transportation Systems CTS 2018	June 06 – 08	Savona Italy	http://www.cts2018.unige.it/ e-mail: cts2018@unige.it
3rd IFAC Conference on Embedded Systems, Computational Intelligence and Telematics in Control CESCIT 2018	June 06 – 08	Faro Portugal	http://www.cescit2018.org/ e-mail: geral@untappedevents.pt
16th IFAC et al. Symposium on Information Control Problems in Manufacturing INCOM 2018	June 11 – 13	Bergamo Italy	http://www.incom2018.org/ e-mail: secr@incom2018.org
Conference on European Control Conference (in cooperation with IFAC) ECC 2018	June 12 – 15	Limassol Cyprus	http://ecc18.eu/ e-mail: ecc18@ucy.ac.cy
IFAC Workshop on Networked & Autonomous Air & Space Systems NAASS 2018	June 13 – 15	Santa Fe, NM USA	https://sites.google.com/site/naass2018/ e-mail: richardscotterwin@gmail.com
2nd IFAC Conference on Modelling Identification and Control of Nonlinear Systems MICNON 2018	June 20 – 22	Guadalajara, Jalisco Mexico	https://www.micnon2018.org/ e-mail: contact@micnon2018.org

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bmvit
Bundesministerium für Verkehr, Innovation und Technologie

Calendar of IFAC Events

Conference on American Control Conference (in cooperation with IFAC) ACC 2018	June 27 – 29	Milwaukee, WI USA	http://acc2018.a2c2.org/ e-mail: not yet available
14th IFAC Workshop on Time Delay Systems TDS 2018	June 28– 30	Budapest Hungary	http://www.congressline.hu/tds2018/ e-mail: not yet available
18th IFAC/IEEE CSS Symposium on System Identification SYSID 2018	July 09 – 11	Stockholm Sweden	www.ee.kth.se/sysid2018 e-mail: hanna.holmqvist@ee.kth.se
6th IFAC Conference on Analysis and Design of Hybrid Systems ADHS 2018	July 11 – 13	Oxford United Kingdom	http://www.cs.ox.ac.uk/conferences/ADHS18/ e-mail: aabate@cs.ox.ac.uk
10th IFAC Symposium on Advanced Control of Chemical Processes ADCHEM 2018	July 25 – 27	Shenyang, China	http://www.adchem2018.org/ e-mail: adchem2018@mail.neu.edu.cn
7th CACHE, IFAC Conference on Foundation of Systems Biology in Engineering FOSBE 2018	August 05 – 08	Chicago, IL USA	http://www.fosbe.org/ e-mail: rcraven@fosbe.org
6th IFAC Conference on Nonlinear Model Predictive Control NMPC 2018	August 19 – 22	Madison, WI USA	http://not yet available e-mail: not yet available
5th IFAC Workshop on Mining, Mineral and Metal Processing MMM 2018	August 23 – 25	Shanghai China	http://ifac-mmm.csu.edu.cn/ e-mail: ifacmmm2018@csu.edu.cn
12th IFAC, IEEE RAS Symposium on Robot Control SYROCO 2018	August 27 – 30	Budapest Hungary	http://syroco2018.org/ e-mail: secretariat@syroco2018.org
7th IFAC Workshop on Distributed Estimation and Control in Networked Systems NECSYS 2018	August 27 – 28	Groningen Netherlands	http://not yet available e-mail: not yet available
10th IFAC/Polish Academy of Sciences Symposium on Fault Detection, Supervision and Safety for Technical Processes SAFEPROCESS 2018	August 29 – 31	Warsaw Poland	http://safeprocess18.uz.zgora.pl/ e-mail: safeprocess18@uz.zgora.pl
9th IFAC/IEEE CSS Symposium on Robust Control Design ROCOND 2018	September 03 – 05	Florianópolis Brazil	http://rocond18.ufsc.br/ e-mail: rocond18@gmail.com
2nd IFAC/IEEE CSS Workshop on Linear Parameter Varying Systems LPVS 2018	September 03 – 05	Florianópolis Brazil	http://lpvs18.ufsc.br/ e-mail: ifac.lpvs18@gmail.com
10th IFAC Symposium on Biological and Medical Systems BMS 2018	September 03 – 05	São Paulo Brazil	http://www.ifacbms2018.org/ e-mail: secretariat@ifacbms2018.org
10th IFAC/ CEGRE Symposium on Control of Power and Energy Systems CPES 2018	September 03 – 05	Tokyo Japan	https://www.cpes2018.com/ e-mail: cpes2018@hotmail.com
11th IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles CAMS 2018	September 09 – 13	Opatija Croatia	http://ifac-cams2018.com/ e-mail: cams2018@fer.hr
18th IFAC Conference on Technology, Culture and International Stability TECIS 2018	September 13 – 15	Baku Azerbaijan	https://tecis18.org e-mail: kopacek@ihrt.tuwien.ac.at
5th IFAC Conference on Engine and Powertrain Control, Simulation and Modeling E-COSM 2018	September 20 – 22	Changchun China	http://www.ascl.jlu.edu.cn/ecosm2018/ e-mail: gaobz@jlu.edu.cn
5th IFAC Conference on Analysis and Control of Chaotic Systems CHAOS 2018	Oct./Nov. 30 – 01	Eindhoven Netherlands	http://chaos2018.wtb.tue.nl/ e-mail: chaos2018@tue.nl
2nd IFAC Conference on Cyber-Physical and Human Systems CPHS 2018	December 13 – 15	Miami, FL USA	http://www.cphs2018.org/ e-mail: not yet available
The 2019 events can be found in the Events section of the IFAC website	https://www.ifac-control.org		