

## 2019 Spring IFAC Officers' Meeting 4-6 April 2019 Vienna and Laxenburg, AT

The 2019 IFAC Officers' Meeting was held from 4-6 April in Vienna and Laxenburg, Austria. The tradition of this annual gathering of IFAC officers dates back to the presidency of Yoshikazu Sawaragi (JP, 1978-1981) in the early days of the Secretariat being located in Austria. This was a time when international communication was slow and expensive, but continues today, as often it is more effective to hold discussions with each participant being in the same location and on the same time zone.

Thursday kicked off the start of meetings, held in central Vienna. The day continued with the annual technical lecture, which is open to all members of the control community in Austria. This year's lecture, held at Haus der Ingenieure in Vienna, was entitled *Data-Driven Modeling In Linear Dynamic Networks* and was presented by IFAC Executive Board Chair/Vice-President Paul M.J. Van den Hof (NL) of Eindhoven University of Technology.

### Lecture Abstract:

**In many areas of science and technology, the complexity of dynamic systems that are being considered, grows beyond the level of single systems into interconnected networks of dynamic systems. In control and optimization this has led to the development of decentralized and distributed algorithms for control/optimization, as e.g. in multi-agent systems.**

From the modelling perspective, data-driven modelling tools are typically developed for relatively simple open-loop and closed-loop structures, while the opportunities for big data handling in the current data science era, are becoming abundant. As a result there is a strong need for the development of data-driven modelling tools for large-scale interconnected dynamic networks.

In this seminar we will highlight the main developments and challenges in this area. Besides setting up a modelling framework, we will address problems of local identification of a particular part of the network, including the selection of the appropriate signals to be measured. The concept of network identifiability is highlighted and the role of structural properties of the network, in terms of its topology/graph, is given strong attention. It is also shown how classical closed-loop identification methods need to be generalized to be able to cope with the new situations.

The annual President's Dinner took place on Thursday evening at the restaurant Buxbaum in Vienna's central 1<sup>st</sup> district. This event is always an excellent opportunity for members of the Austrian control community to interact with Austrian officials as well as the IFAC officers in a friendly, relaxed social setting, and reinforces the long-standing ties between IFAC and Austria. In addition two IFAC Advisors, Tibor Vamos (HU, IFAC President 1981-1984) and Vladimir Kucera (CZ, IFAC President 2002-2005) travelled to Vienna to be in attendance.

The IFAC Secretariat has been located in Austria since 1978 by invitation of the Austrian government, and IFAC receives an association support subsidy from the Austrian Federal Ministry for Transport, Innovation and Technology (BMVIT). This subsidy is noted in German in the imprint of each issue of this Newsletter. IFAC is grateful for the support provided by Austria over the course of many years.

Friday was a day of working meetings at the IFAC Secretariat office in Laxenburg, a town of around 2859 residents (according to Wikipedia as of 2016). Laxenburg is located south of Vienna (the Austrian capital) in the province of Lower Austria. Laxenburg is a small town with an international flair, as it is home to several international organizations (IIASA, IFIP, and IACA, as well as IFAC). The officers had the opportunity to get acquainted with the new mayor of Laxenburg at the town hall, located mere steps from the Secretariat premises.

On Friday evening the IFAC officers attended the Wiener Symphoniker concert at the Musikverein. (Many Newsletter readers may recognize the Musikverein from the annual New Year's concert that is broadcast on television in many countries.) Vienna is world-famous for its musical cultural amenities, and this event provided the officers who travelled to Vienna from several countries the opportunity to experience this important component of Austrian culture.

Meetings continued into Saturday, again held at the IFAC Secretariat office. Topics discussed included preparations for the IFAC Council and Related Meetings (to take place in Vienna, AT from 7-9 September 2019), World Congress bids for IFAC 2026 (Korea and the Netherlands will make their second bid presentations at the

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June 2019

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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>

Council meeting, where a final decision will be made), officer and task force reports, strategic discussion items, and information regarding the upcoming IFAC World Congress in Berlin, DE (July 2020).



Left to right: IFAC President Frank Allgöwer (DE) and IFAC Technical Board Vice-Chair Carlos Eduardo Pereira (BR) at work during working meetings at the IFAC Secretariat (Laxenburg, AT)

The meetings concluded with a lunch in Gumpoldskirchen, a town only a few kilometers/miles from Laxenburg. This has become a tradition in the past years, giving the officers the opportunity to experience the culture and landscape of the Wienerwald Thermenregion/Vienna Woods Thermal Region area of Lower Austria and its environs before departing for their various home countries.

Preparations for upcoming IFAC Officers' meetings: September 2019 (in conjunction with the IFAC Council- and Related Meetings in Vienna, Austria), in Sapporo Japan in November 2019, and April 2020 (Linz, Laxenburg and Vienna, Austria) are already underway.

## 17<sup>th</sup> IFAC Workshop on Control Applications of Optimization (CAO 2018) 15-19 October 2018 Yekaterinburg, RU

CAO 2018 was the serial 17<sup>th</sup> workshop of the IFAC Technical Committee on Optimal Control (TC 2.4). It was aimed at overviewing the latest advantages in the theory of optimal control, especially in the field of applications of new methods and numerical algorithms to solving problems in industry, robotics, mechatronics, power and energy systems, economics, finance and ecology. It gave an opportunity to specialists in optimal control, differential games and optimization to share their experience with practitioners, discuss new arising problems, outline scientific and commercial applications, and describe new research directions.

CAO 2018 was organized by Krasovskii Institute of Mathematics and Mechanics of the Ural Branch of the Russian Academy of Sciences (RU) and was held in Yekaterinburg, Russia

from 15-19 October 2018. The goal of the workshop was to bring together researchers and engineers, applied economists and environmental scientists, and to give an up-to-date view of the major applications of optimization for control purposes and for decision making in economy and industry.

With about 190 papers submitted from authors coming from more than 20 countries, the Workshop CAO 2018 confirmed as an important and quickly developing IFAC scientific event. About 200 reviewers have been involved in the technical assessment of the submitted papers. As a result, about 400 reviews were received, which led to the acceptance of 167 papers constituting the final program of CAO 2018. The success of the Workshop CAO 2018 provided the ground to raise the future status of CAO to the IFAC Conference.

The plenary program included four lectures of outstanding specialists in optimal control. The first invited speaker was Prof. Felix L. Chernousko (RU), Academician of RAS, Ishlinsky Institute for Problems in Mechanics of the Russian Academy of Sciences, Moscow, Russia. The title of his plenary lecture was "*Optimal Motions of Bodies Controlled by Internal Moving Masses*". The lecture was devoted to locomotion of robots in a resistive medium, which can be based on special motions of auxiliary internal masses inside the main body of the robot. This locomotion principle is used in micro-robots and vibro-robots moving in tubes. In the lecture, optimal motions of systems controlled by internal moving masses were considered. One-dimensional optimal motions were examined for systems moving in media in the presence of external resistance, including dry friction and resistant forces depending on the velocity of the moving body. Two-dimensional motions were considered for bodies subject to dry friction and containing internal moving masses. Optimal motions of a two-body system were obtained for the case where external forces are negligible. This situation is a model for the re-orientation of a spacecraft containing a moving internal mass.

The second plenary lecture was given by Prof. Marc Quincampoix (FR), Laboratoire de Mathématiques de Bretagne Atlantique (CNRS UMR 6205), Université de Brest (FR). The lecture was titled "*Probabilistic Uncertainty in Differential Games and Control*" and connected with the following questions of the optimal control theory. In classical optimal control and in differential games, the controllers are supposed to have a perfect knowledge of the dynamics, of the payoffs and of the initial conditions of the system. However, in several practical situations only partial information on these data are available. The simplest example is a control system with a given terminal payoff where the initial condition is not perfectly known but rather only a probabilistic information is known (for instance, the initial condition lies in a given ball with a uniform probability measure). The initial condition is then replaced by a probability measure, which «propagates» according to the control system. One can be interested to characterize the optimal mean value of the

## From the IFAC President

Dear IFAC Friends and Colleagues,

I urgently need your help for the International Federation of Automatic Control. There is a really urgent payment that we need to pay for the next IFAC conference and the IFAC Treasurer is currently traveling...

I hope you are already suspicious! With a mail in your inbox like that, your warning bells should start ringing in your head. You might have already received such an email, or comparable emails, purportedly sent from my or from another IFAC official's account. The frequency in which such mails are sent to a growing circle of addressees, as well as their feigned accuracy, are alarmingly increasing the last years and months. This makes them a clear threat to an organization like IFAC, which is based on volunteers willing to spend their time and money for the greater good of the systems and control community.

While these scam mails become more and more realistic, everyone becomes more informed. This is also why I am devoting this presidential column to this annoying and invidious subject. Raising awareness and keeping everyone informed is the only way that I, or rather we as IFAC, can act defensively against such criminals. Please note that they did not, and (hopefully) will not, hack my account. Therefore, one piece of crystal clear evidence for such a scam mail is the header of these mails. At first sight, these mails might seem to come from my account (mostly: [frank.allgower@ist.uni-stuttgart.de](mailto:frank.allgower@ist.uni-stuttgart.de)) as the 'sent' address can be arbitrarily falsified without any hacking. However, when you look at the 'reply-to' mail address in the header, you quickly find something like 'eu.rep009@gmail.com', 'president.ifac@zoho.com', 'ac160@aol.com' and in case of one really good scam mail even 'frank.allgower@ist-uni-stuttgart.de' (please note the dash between ist and uni that is a dot in my true email). Please also be immediately suspicious, when someone asks you for a money transfer, possibly urgently. It is probably a matter of time that you will receive such a scam mail, if you have not received one yet. So please be aware! Be suspicious!

If you are one of those who have already received numerous such mails purportedly sent by me, maybe you can also see this as a compliment! You are one of those valuable volunteers really involved within IFAC, promoting the systems and control community, and only as a consequence you are the perfect target for such scams. And in case there is an email so adequately formulated that you are unsure about whether this is a scam mail, you can always ask me whether the inquiry is truly from myself via [frank.allgower@ist.uni-stuttgart.de](mailto:frank.allgower@ist.uni-stuttgart.de). Just, please, don't send them any money. Or, if you really want to get rid of some money, ask me for my real bank account ;)

With best regards from Stuttgart

Frank Allgöwer

The IFAC Story E-book is available!

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

cost. It is shown that this value function – which depends on the initial probability measure – could be characterized as the unique solution – in a suitable sense – of a Hamilton - Jacobi - Bellman equation stated on the space of probability measures. This brings some technical difficulties where the optimal transport theory is an important tool. Another problem concerns two-player antagonistic differential games with incomplete information. One can consider a game where one player perfectly knows the initial condition while the opponent has partial information of probabilistic nature on the initial position. During the game, both players perfectly observe the actions of their opponents. Since the uninformed player does not know the current state, he/she can only try to guess it by observing the actions of his opponent. The informed player's interest is also not to reveal too much information to the other player during the game, so he/she can try to «hide» the missing information by using random strategies. The existence of a value – in mixed strategies – is a crucial question, which can be solved by showing that the value exists because it is the unique solution of some Hamilton – Jacobi – Isaacs equation. Control on the space of probability measure can also be used for “modelizing” systems with a large number of agents, viewed as controllers, where all the individual agents have the same microscopic dynamics which may also depend on the macroscopic dynamic of the entire crowd (viewed as statistic hence a probability measure). Relevant control problems may concern the optimal behavior to the crowd of all agents with respect to a prescribed payoff. Once again, the dynamics stated on the space of probability measures can be used in this framework.



Alexander Tarasyev (RU)  
CAO 2018 IPC Co-Chair

The third plenary lecture “*Infinite-Horizon Optimal Control: Some Recent Advances and Applications in Economic Growth Theory*” was presented by Prof. Sergey M. Aseev (RU/AT), Corresponding Member of RAS, Steklov Mathematical Institute of the Russian Academy of Sciences, Moscow, Russia, and International Institute for Applied Systems Analysis, Laxenburg, Austria. The lecture discussed infinite-horizon optimal control problems, which naturally arise in studying different models of optimal dynamic allocation of economic resources, in particular, in growth theory. Typically, the initial state is fixed and the terminal state (at infinity) is free in such problems, while the utility functional to be maximized is given by an improper integral on the infinite time interval. Although the state at infinity is not constrained the maximum principle for such problems may not hold

in the normal form, and the standard transversality conditions at infinity may fail. Additional difficulties arise when the model involves a natural resource (renewable or not renewable) as an essential factor of production. In this case, typically, admissible controls are only bounded in an integral sense, which precludes the direct application of the standard existence results. The talk is devoted to some recent results in this field of optimal control and their applications in growth theory.

The plenary program was closed by Prof. Alexander B. Kurzhanski (RU), Academician of RAS, Lomonosov Moscow State University, Moscow, Russia with the lecture “*The Theory of Group Control: A Road Map*”. The presentation dealt with description of feedback control strategies for a group of systems involved in jointly solving the problem of reaching a given target set under stationary or moving obstacles while ensuring collision avoidance among the members of the group. The feedback nature of the overall solutions also requires solving an array of subproblems of on-line group observations. Finally described is the total procedure of optimizing such controlled processes.

The overall quality of the papers made CAO 2018 an important scientific event of IFAC. We gratefully acknowledge the Russian Foundation for Basic Research (Project 18-01-20012), our industrial partners: Scientific and Production Association of Automatics (named after Academician N.A. Semikhatov), Yekaterinburg, Russia, and Russian Federal Nuclear Center – Zababakhin All-Russian Scientific Research Institute of Technical Physics (RFNC-VNIITF), Sn-ezhinsk, Chelyabinsk Oblast, Russia, and our educational partners: Ural Federal University (named after B.N. Yeltsin, the first President of Russia), Yekaterinburg, Russia and Liberal Arts University, Yekaterinburg, Russia.

Submitted by: Alexander Tarasyev (RU), CAO 2018 IPC Co-Chair

## Nominations are now being accepted for the Harold Chestnut Textbook Prize!

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

**Deadline for nominations: 1 February 2020**

**Please submit nominations to:**  
**Henk Nijmeijer, Chair**  
**IFAC Harold Chestnut Control Engineering Textbook Prize Selection Committee**  
**Department of Mechanical Engineering,**  
**Eindhoven University of Technology**  
**PO Box 5135600, MB Eindhoven**  
**The Netherlands**

[h.nijmeijer@tue.nl](mailto:h.nijmeijer@tue.nl)

**The full Call For Nominations is available at:**

<https://www.ifac-control.org/awards/call-for-nominations-harold-chestnut-control-engineering-textbook-prize>

## 12<sup>th</sup> IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems (DYCOPS 2018)

**23-26 April 2019**  
**Florianópolis, BR**

The 12<sup>th</sup> IFAC Symposium on Dynamics and Control of Process Systems, including Biosystems was held in Florianópolis - SC, Brazil, from April 23-26, 2019, in the convention center at the Jurerê Beach Village Hotel, located about 30 km away from downtown Florianópolis, in the heart of Jurerê Beach. More information can be found on the website <https://dycopscab2019.sites.ufsc.br/>

DYCOPS 2019 is a triennial symposium sponsored by the IFAC Technical Committee on Chemical Process Control (6.1), and co-sponsored by the IFAC Technical Committee on Biosystems and Bioprocesses (8.4) and by the Technical Committee on Control Design (2.1). DYCOPS symposium has a long history, as it was initiated in 1986 in Bournemouth, UK. CAB originated from a series of events that started nearly 40 years ago in Dijon, FR. The merging of the two events into one symposium was implemented in DYCOPS 2016, which was held in Trondheim, NO, and the merger was maintained in Florianópolis. This was the first time the DYCOPS symposium was held in South America.

DYCOPS 2019 aimed to provide a forum for professionals, theorists, researchers, engineers and students involved in the broad field of process control engineering to integrate and exchange their knowledge, experience, results, and ideas in diverse areas of dynamics and control of process systems, and to explore the latest theoretical developments as well as control applications in various industries. The symposium also encouraged the participation of young researches, which had the opportunity to present their works for the scientific community. To promote the participation of students and young authors, the IFAC Foundation in its framework “Young Author Support” offered support to four young authors from developing countries. In addition, the Brazilian Research Council (CNPq) supported the participation of eleven Brazilian students and the DYCOPS 2019 organization allowed free registration of local students and young researchers. With these actions the student participation in the conference was almost 50% of the attendees. The Young Author Award of DYCOPS 2019 was given to Lucie Chambon (FR) for the paper “*A New Qualitative Control Strategy for the Genetic Toggle Switch*”.

DYCOPS 2019 received 225 submissions and 168 high-quality papers were presented, divided into three plenary papers, eight keynotes papers, 125 oral presentations and 32 posters. The InfoVaya online system was used to distribute the program and papers presented



in the conference, thus avoiding the use of USB-keys and paper pre-prints. The system provides a web-interface that can be accessed through any browser, and there is also a smartphone app. All the accepted papers will be published in IFAC-PapersOnLine and the videos of the three plenary lectures are already available on the official IFAC YouTube Channel. Participants from many countries attended the Symposium, with 103 from Central and South America, 67 from Europe, 16 from North America and 32 from Africa, Asia and Oceania. We had a very successful symposium, with a high number of attendees in most of the sessions, all of the papers were presented, and interesting discussions took place in the sessions and during the coffee breaks. There was good industrial participation as 10% of the DYCOPS 2019 attendees work in industry.



At DYCOPS 2019: The Young Author Award presentation ceremony took place during the gala dinner. From left to right: Benoit Chachuat (UK, IPC Chair), Ehecattl Antonio del Rio-Chanona (UK, finalist), Ruomu Tan (UK, finalist), Michela Mulas (BR, NOC Co-Chair), Lucie Chambon (FR, winner), Julio E. Normey-Rico (BR, NOC Chair), Olivier Bernard (FR, IPC Co-Chair)

The three plenary lectures were: “Control of Self-Assembly with Dynamic Programming” by Martha Grover from the Georgia Institute of Technology (US.); “The Autonomous Industrial Plant - Future of Process Engineering, Operations and Maintenance” by Alf Isaksson from ABB Corporate Research (SE); and “Robust Control and Observation of Nonlinear Processes Using Discontinuities”, by Jaime Moreno from Universidad Nacional Autónoma de México (MX).

Four workshops were organized on the first day (April 23) with the following subjects: “Advanced Tools for Data Analytics”, “Multi-Parametric Optimization & Control”, “Overview and Classification of Online Process Optimization Approaches” and “Set-Based Methods in Estimation and Control”, with more than 70 participants.

To celebrate women professionals in the field of process system engineering, a networking event was arranged in the form of “speed-date”, named “Celebrating Women in Process System Engineering”. The nineteen female participants got 1-2 minutes to discuss with others. The meeting was an excellent opportunity for the women attending DYCOPS 2019 to gather and share their experiences about work/studies/research.

As a mark of appreciation for the achievements and successful career of Michel Perrier, who recently retired from the Ecole Polytechnique of Montréal (CA), a special event was organized. The event included an invited session of scientific contributions on biosystems and bioprocesses, followed by a more informal session celebrating Michel Perrier through the testimonies of many colleagues, collaborators and former students. Video messages sent by those not able to attend DYCOPS 2019 were also shown during the informal session. Michel’s wife and daughters participated in the celebration.

Regarding the social aspects of the conference, the venue was chosen to provide a pleasant environment for the attendees and their families/accompanying persons. The welcome reception included a Brazilian music group playing “Samba” and a music and dance presentation of a folkloric manifestation typical of the coast of the state of Santa Catarina was organized for the attendees and their families. In the gala dinner, a ceremony was organized and some gifts were given for all the plenary and keynote speakers. Also, the Young Author Award was announced, gift bags were given to the three finalists, and the winner received a special prize.

Submitted by: Julio Elias Normey-Rico (BR), DYCOPS 2018 NOC Chair and Benoit Chachuat (UK), DYCOPS 2018 IPC Chair

## 21<sup>st</sup> IFAC World Congress: Plan Your Participation 12-17 July 2020 Berlin, DE

It is time to prepare your submissions and participation for the 21<sup>st</sup> IFAC World Congress from 12- 17 July 2020 in Berlin, Germany! With several thousand attendees from all over the world, the IFAC World Congress is the biggest and most important meeting of this kind. For six days in 2020, Berlin will be the place where new collaborations and stimulating ideas from theory development, over academic and industrial applications, to technology development and further fields can originate, in and after the sessions.

### Berlin – where innovation meets science and culture.

Berlin, Germany’s capital, is a vibrant cosmopolitan city, offering a wide range of cultural and touristic attractions. Berlin is a green city, with rivers and canals, which is particularly enjoyable in the summer.

Participating at IFAC 2020 in Berlin means not only a great scientific experience but the opportunity to visit a unique city with a long tradition of science and innovation. This is the place where Alexander and Wilhelm von Humboldt, Max Planck, Gustav Hertz, Albert Einstein and many others lived and worked. Today, the Berlin area is amongst the most important and diverse regions with respect to science and culture in Europe. It has the larg-

est concentration of universities and research institutes within Germany and a student population of about 200,000.



### Congress Venue

All sessions of IFAC 2020 will be held at the Estrel Hotel and Congress Center ([www.estrel.com/en/](http://www.estrel.com/en/)). It is situated in the “Neukölln” district of Berlin, and is easily accessible by public transport from everywhere in the city. Neukölln, which has traditionally been a working class area with a cultural melting pot, is rapidly transforming itself into a lively neighborhood attractive for students and artists, with lots of cultural and culinary attractions.

### Congress Scientific Program

A special focus of the IFAC 2020 World Congress will be on **current societal challenges, spanning from mobility and transportation, quality of life and health care, the delivery of sustainable green energy and resource supply, digitalization, Industry 4.0, and the changing working world.** The increasingly important convergence of artificial intelligence and control will be spotlighted. The societal challenges are reflected in **five topics days** to highlight and promote contributions of automatic control to these challenges and to stimulate industrial and non-academic participation. Complementing the program, some of the tutorials, plenaries, semi-plenaries, panels, and expositions will be dedicated to the topic of the day.

Besides regular contributions, invited sessions, tutorials and workshops, the World Congress will feature a series of **special submission types: Late breaking results** submissions are thought to promote the presentation of recent research results. The submission deadline for late breaking results is significantly later than for normal contributions. They will be reviewed in a rapid reviewing process, will be clustered in special late breaking results sessions and will only appear in the congress preprints. **Extended abstract submissions** aim at application-oriented contributions to industrial, economic or social fields, as well as research from other scientific communities. They can be part of invited sessions and open-invited tracks. **Demonstrator** contributions are thought to promote research or educational oriented devices, innovative prototypes and attractive transfer of technologies towards high-tech enterprises. Demonstrators expose some prototype or pedagogical device to be presented at dedicated demonstrator sessions with additional space. If an experimental demonstration is infeasible, then also videos of the experimental setup are accepted.



IFAC 2020 features **competitions**, challenging the participating teams to solve a given problem via teamwork before the IFAC WC. At the IFAC World Congress the solutions of the different teams will be presented and evaluated at a public competition. Currently three competitions are planned for, spanning from the **F1/10 autonomous racing competition**, over a fault detection benchmark, to a **control video clip contest** organized together with the IEEE Control Systems Society.

The 21<sup>st</sup> IFAC World Congress features **Open Invited Tracks**, which have been very well received at the 20th IFAC World Congress in Toulouse. Open Invited Tracks promote specific research topics with no limitation on the number of contributions. Contributions to Open Invited Tracks can be regular papers and extended abstracts. Organizers of an Open Invited Track may also contribute a survey paper to the Open Invited Track. Open Invited Track organizers need to submit an **Open Invited Track proposal** as early as possible and **no later than 15 September 2019**. Once the proposal is positively evaluated, the track proposal is advertised on the IFAC 2020 website leaving open the possibility for anyone to contribute. The more classical format of **Invited Sessions** focuses on a particular well-defined topic. Invited sessions are limited to six contributions, consisting of regular papers or extended abstracts and contributions are by invitation only. Invited session organizers need to submit an **Invited Session proposal no later than 15 October 2019**.

Besides **Oral Sessions** the IFAC World Congress features **Interactive Sessions**, which consists of contributions which are presented in parallel using interactive presentation screens allowing for a richer and more interactive presentation of research results including videos, simulations, and demonstrations of software tools. Furthermore, **Demonstrator Sessions** for the presentation of demonstrator contributions, to promote the presentation of research or educational oriented devices, innovative prototypes.

IFAC 2020 will offer full-day and half-day **pre-conference workshops** addressing current and future topics that fall in the fields of the IFAC Technical Areas. They will be offered by experts from academia, research

institutes, and industry and will take place on Sunday 12 July. Potential workshop organizers need to **submit a workshop proposal by 30 November 2019**.

Detailed information for the different submission and presentation types including the submission deadlines can be found at the conference webpage under [www.ifac2020.org](http://www.ifac2020.org). In case of questions with respect to the program, submissions or the reviewing process you may contact the international program committee co-chairs **Rolf Findeisen** and **Sandra Hirche** via [ipc@ifac2020.org](mailto:ipc@ifac2020.org).

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
	Plenary Sessions				
	Sessions I				
	Special Sessions & Lunch				
	Sessions III		Sessions II		
Welcome Reception	Semi Pl	Semi Pl	Industrial Afternoon & Come Together	Semi Pl	Closing
		Com petitions		Banquet	Farewell Reception

### IFAC Awards

The IFAC World Congress gives the podium for appreciation and presentation of outstanding contributions to science, research and service within the automation and control society. At special occasions during the congress a series of awards will be presented: IFAC Fellow Awards, Major Awards, Textbook Prize, Journal Awards, Outstanding Service Awards, the recently introduced IFAC Foundation Kwon Award and last but not least the dedicated Congress Awards (Young Author, Application Paper, Interactive Paper) and for the first time the IEEE CSS/IFAC Video Clip Competition Award. More information can be found on the IFAC 2020 website.

### IFAC Orchestra

For the first time the Berlin World Congress will present a special interdisciplinary and multi-cultural event: the 1<sup>st</sup> IFAC Control Orchestra: an orchestra consisting solely of artists from the control community, to practice and entertain on site during the world congress and to present a live performance during the congress. Enrollment is very welcome at any time, so let's stay curious about the outcome of this extraordinary experiment.

### Social Events

Berlin is offering a wide variety of cultural events and outstanding locations, historic ones as well as contemporary and top hot spot event locations. We are happy that the IFAC 2020 congress dinner will be held at the unique event location Arena Berlin (<http://www.arena.berlin/en/>).

The Arena is situated on the Spree River with a beautiful city panorama, and it combines industrial civil engineering history with vibrant event atmosphere. The Arena complex com-

prises several listed heritage buildings, a large hall for the dinner, the "Glashaus" hosting bars and live music, an open space with a city beach and the famous "Badeschiff" on the river Spree. The latter is a harbored barge functioning as a floating swimming pool. Interestingly, the Berlin Wall once divided this spot, as it went right through these buildings.

Most important for congress participants is the close location of the Arena to Estrel, the congress hotel. The Arena can be easily reached from the congress hotel by public transport and a short walk within 15 minutes and the Arena ensures easy individual transfer from/to congress and accommodation locations.

Submitted by:

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

Sandra Hirche (DE) and Rolf Findeisen (DE),  
IPC Co-Chairs, IFAC 2020

IFAC 2020 contact: [info@ifac2020.org](mailto:info@ifac2020.org)

### Save the following IFAC 2020 key dates:

10 Jun 2019 PaperCept opens for submission

15 Sep 2019 Open invited track proposals deadline

15 Oct 2019 Invited sessions proposals deadline

31 Oct 2019 Draft manuscript submission deadline

30 Nov 2019 Workshop & tutorials proposals, extended abstracts submission deadline

28 Feb 2020 Late breaking results submission

## IFAC Foundation Kwon Award: Call for Nominations

One of the aims of the IFAC Foundation is to promote the awareness and dissemination of the social relevance of automatic control. The IFAC Foundation recognizes at each IFAC World Congress the contributions of individuals or a group of individuals who through their work have shown how automatic control science and technology can contribute to significant advances in the broad area of "sustainable development". This includes work on the topics of renewable and clean energy, management of energy, water and resources in general, control in agriculture, pollution control, climate control or similar. The first award was made at the 2017 IFAC World Congress in Toulouse, and is fully funded by the IFAC Foundation. The IFAC Foundation Kwon Award is made in honour of Professor Wook Hyun Kwon whose initial donation fostered the



creation of the IFAC Foundation. Full-length high-quality papers submitted and accepted for presentation at the triennial IFAC World Congress may be nominated for this award. The winner (or winning team) receives a medal, and a certificate and monetary prize at the time of the IFAC World Congress. The next award will be made at the 2020 IFAC World Congress in Berlin.

### Purpose, Funding, and Presentation of the Award

One of the aims of the IFAC Foundation is to promote the awareness and dissemination of the social relevance of automatic control. The IFAC Foundation recognizes at each IFAC World Congress the contributions of individuals or a group of individuals who through their work have shown how automatic control science and technology can contribute to significant advances in the broad area of "sustainable development". This includes work on the topics of renewable and clean energy, management of energy, water and resources in general, control in agriculture, pollution control, climate control or similar.

The first award was made at the 2017 IFAC World Congress in Toulouse, and is fully funded by the IFAC Foundation. The IFAC Foundation Kwon Award is made in honour of Professor Wook Hyun Kwon whose initial donation fostered the creation of the IFAC Foundation.

Full-length high-quality papers submitted and accepted for presentation at the triennial IFAC World Congress may be nominated for this award. The winner (or winning team) receives a medal, and a certificate and monetary prize at the time of the IFAC World Congress. The next award will be made at the 2020 IFAC World Congress in Berlin.

### Nomination Procedure

Nominations of high-quality papers are solicited for this award. Nominations should be prepared according to the format described in the nomination form. Nominators should produce convincing documentation that explicitly describes the benefits and impacts of the proposed contribution. Nominations may also include reference letters. Self-nominations are allowed and are limited to one such self-nomination per author.

Nominations should be addressed to the Chair of the IFAC Foundation Board and sent to the email address indicated in the nomination form. Full-length high-quality papers submitted and accepted for presentation at the triennial IFAC World Congress may be nominated for this award.

### Selection Criteria

Nominated papers should be of the highest technical quality and demonstrate evidence of significant potential future impact on one or more of the sustainable development topics outlined above. The award selection criteria include:

- The quality of the paper as reviewed by the World Congress International Program Committee (IPC).
- The interest and impact of the topic on sustainability.
- The relevance of the control solution to the problem.
- Previous results and the forecasted evolution of the proposed methodology.

In particular, the nomination form should include a summary of how these criteria are addressed by the work described in the nominated paper. Supporting documentation may be provided.

### Selection Procedure

The IFAC Foundation Board will appoint an Award Selection Committee that will examine all qualifying nominated papers and select a winner. This selection committee will propose a winner and an alternate to the IFAC Foundation Board. Based on the report of the Award Selection Committee, the IFAC Foundation Board may choose a winner or may choose not to give the award. The winner will be notified jointly by the Chair of the IFAC Foundation Board and the IFAC President.

### Format of the Nomination

Nomination forms can be downloaded from the IFAC Foundation website ([https://foundation.ifac-control.org/projects/ifac\\_foundation\\_award](https://foundation.ifac-control.org/projects/ifac_foundation_award)). A nomination, consisting of the completed nomination form with its supporting documents, should be sent by e-mail to the IFAC Foundation ([foundationaward@ifac-control.org](mailto:foundationaward@ifac-control.org)) as one single file (in .pdf format). The deadline for the submission of nominations is April 2020 (exact date to be determined).

**Editor's Note:** The IFAC Foundation was created to foster the scientific and social goals of the International Federation of Automatic Control, IFAC.

The IFAC Foundation solicits and funds innovative control engineering activities which promise to improve the state of knowledge of individuals and groups.

An important role of the IFAC Foundation is to offer support to the control communities in developing countries.

You can get more information about the IFAC Foundation by emailing:

[foundation@ifac-control.org](mailto:foundation@ifac-control.org)

The full list of Foundation Board Members and Invited Experts can be found at <https://foundation.ifac-control.org/board>

## Reminder: IFAC Council & Related Meetings 2019

The 2019 IFAC Council & Related Meetings are scheduled to take place in Vienna, Austria from 7-9 September 2019. If you will be attending please submit your reply form, which is available at:

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

The meetings are being held in conjunction with NOLCOS and Mechatronics 2019.

Our Council- and Related Meetings are scheduled to take place at the Fleming's Selection Hotel Wien City.

Fleming's Selection Wien-City (event rate link, for booking):

<https://www.myhotelreservation.net/b/haviefwc/HAVIEFWC/?rr=rooms&f=2019-09-03&t=2019-09-06&i=NOLCOS1&notrack=1#abe-hotel-nav-tab-anchor#>

Josefstädter Straße 10-12  
1080 Vienna  
Austria  
Phone: (+43) 1 20599-0

Please check to see what the requirements are to enter Austria, and allow sufficient time for your visa application  
<https://www.bmeia.gv.at/en/travel-stay/entry-and-residence-in-austria/entry-and-visa/>

**This Newsletter may be reproduced in whole or in part. We encourage electronic distribution of this Newsletter, as well as reprinting in national and local automatic control periodicals.**

**Acknowledgement to IFAC would be appreciated.**

**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/>

**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/>

**Readers of this Newsletter are kindly requested to keep their contact details updated with the IFAC Secretariat.**  
<https://www.ifac-control.org/about/ifac-affiliate-registration>

# Calendar of IFAC Events

Title	2019	Place	Further information
10 <sup>th</sup> IFAC Symposium on Intelligent Autonomous Vehicles IAV 2019	July 03 – 05	Gdansk Poland	<a href="http://www.konsulting.gda.pl/iav2019/">http://www.konsulting.gda.pl/iav2019/</a> <a href="mailto:iav2019@konsulting.gda.pl">iav2019@konsulting.gda.pl</a>
3 <sup>rd</sup> IFAC Workshop on Thermodynamic Foundations for a Mathematical Systems Theory, TFMST 2019	July 03 – 05	Louvain-la-Neuve Belgium	<a href="https://sites.uclouvain.be/tfmst2019/denis.dochain@uclouvain.be">https://sites.uclouvain.be/tfmst2019/denis.dochain@uclouvain.be</a>
12 <sup>th</sup> IFAC Symposium on Advances in Control Education ACE 2019	July 07 – 09	Philadelphia, PA USA	<a href="https://ifac-ace2019.org/">https://ifac-ace2019.org/</a> e-mail: not yet available
12 <sup>th</sup> International Workshop on Robot Motion and Control RoMoCo 2019	July 08 – 10	Poznan Poland	<a href="http://romoco.put.poznan.pl/piotr.mieszala@put.poznan.pl">http://romoco.put.poznan.pl/piotr.mieszala@put.poznan.pl</a>
Conference on American Control Conference (in cooperation with IFAC) ACC 2019	July 10 – 12	Philadelphia, PA USA	<a href="http://acc2019.a2c2.org/">http://acc2019.a2c2.org/</a> e-mail: not yet available
2 <sup>nd</sup> Asian Pacific Conference of the Prognostics and Health Management Society PHM AP 2019	July 23 – 26	Beijing China	<a href="http://www.phmap.cn/info@phmap.cn">http://www.phmap.cn/info@phmap.cn</a>
16 <sup>th</sup> INSTICC et. all Conference on Informatics in Control, Automation and Robotics ICINCO 2019	July 29 – 31	Prague Czech Republic	<a href="http://www.icinco.org/icinco.secretariat@insticc.org">http://www.icinco.org/icinco.secretariat@insticc.org</a>
13 <sup>th</sup> IFAC Workshop on Intelligent Manufacturing Systems IMS 2019	August 12 – 14	Oshawa Canada	<a href="http://www.ifacims2019.com/Contact@IFACIMS2019.com">http://www.ifacims2019.com/Contact@IFACIMS2019.com</a>
5 <sup>th</sup> IFAC Conference on Intelligent Control and Automation Sciences ICONS 2019	August 21 – 23	Belfast United Kingdom	<a href="http://www.qub.ac.uk/icons2019/icons2019@qub.ac.uk">http://www.qub.ac.uk/icons2019/icons2019@qub.ac.uk</a>
21 <sup>st</sup> IFAC Symposium on Automatic Control in Aerospace ACA 2019	August 27 – 30	Cranfield United Kingdom	<a href="https://www.cranfield.ac.uk/events/events-2019/ifac-conferenceIFAC.Symposium@cranfield.ac.uk">https://www.cranfield.ac.uk/events/events-2019/ifac-conferenceIFAC.Symposium@cranfield.ac.uk</a>
9 <sup>th</sup> IFAC IEEE IFIP IFORS et al. Conference on Manufacturing Modelling, Management and Control MIM 2019	August 28 – 30	Berlin Germany	<a href="https://blog.hwr-berlin.de/mim2019/mim2019@hwr-berlin.de">https://blog.hwr-berlin.de/mim2019/mim2019@hwr-berlin.de</a>
18 <sup>th</sup> IFAC Symposium on Control, Optimization and Automation in Mining, Mineral and Metal Processing MMM 2019	August 28 – 30	Stellenbosch South Africa	<a href="https://www.ifacmmm2019.org/info@ifacmmm2019.org">https://www.ifacmmm2019.org/info@ifacmmm2019.org</a>
11 <sup>th</sup> IFAC Symposium on Nonlinear Control Systems NOLCOS 2019	September 04 – 06	Vienna Austria	<a href="http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org">http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org</a>
8 <sup>th</sup> IFAC Symposium on Mechatronic Systems MECHATRONICS 2019	September 04 – 06	Vienna Austria	<a href="http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org">http://www.mechatronicsnolcos2019.org/contact@mechatronicsnolcos2019.org</a>
7 <sup>th</sup> IFAC Symposium on System Structure and Control SSSC 2019	September 09 – 11	Sinaia Romania	<a href="http://www.ace.ucv.ro/sssc2019/sssc-tds@automation.ucv.ro">http://www.ace.ucv.ro/sssc2019/sssc-tds@automation.ucv.ro</a>
15 <sup>th</sup> IFAC Workshop on Time Delay Systems TDS 2019	September 09 – 11	Sinaia Romania	<a href="http://www.ace.ucv.ro/tds2019/sssc-tds@automation.ucv.ro">http://www.ace.ucv.ro/tds2019/sssc-tds@automation.ucv.ro</a>
14 <sup>th</sup> IFAC Symposium on Analysis Design and Evaluation of Human Machine Systems, HMS 2019	September 16 – 19	Tallinn Estonia	<a href="https://cs.ttu.ee/hms2019/secretariat-IFACHMS2019@ttu.ee">https://cs.ttu.ee/hms2019/secretariat-IFACHMS2019@ttu.ee</a>

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Das Sekretariat der IFAC befindet sich seit 1978 aufgrund eines Übereinkommens mit der Österreichischen Bundesregierung und mit der Österreichischen Akademie der Wissenschaften in Laxenburg und wird derzeit aus Mitteln des Bundesministeriums für Verkehr, Innovation und Technologie „BMVIT“ gefördert.

 Bundesministerium  
Verkehr, Innovation  
und Technologie

# Calendar of IFAC Events

Title	2019	Place	Further information
8 <sup>th</sup> IFAC Workshop on Distributed Estimation and Control in Networked Systems, NECSYS 2019	September 16 – 17	Chicago, IL (Wintrust Hall) USA	<a href="http://necsys2019.csl.illinois.edu/">http://necsys2019.csl.illinois.edu/</a> e-mail: not yet available
11 <sup>th</sup> INSTICC, IFAC et al. Internat. Joint Conference on Computational Intelligence IJCCI 2019	September 17– 19	Vienna Austria	<a href="http://www.ijcci.org/ijcci.secretariat@insticc.org">http://www.ijcci.org/ijcci.secretariat@insticc.org</a>
12 <sup>th</sup> IFAC Conference on Control Applications in Marine Systems, Robotics, and Vehicles, CAMS 2019	September 18 – 20	Daejeon Republic of Korea	<a href="http://cams-wroco.org/">http://cams-wroco.org/</a> e-mail: not yet available
1 <sup>st</sup> IFAC Workshop on Robot Control WROCO 2019	September 18 – 20	Daejeon Republic of Korea	<a href="http://cams-wroco.org/">http://cams-wroco.org/</a> e-mail: not yet available
1 <sup>st</sup> IFAC Workshop on Control Methods for Water Resource Systems CMWRS 2019	September 19 – 20	Delft Netherlands	<a href="http://www.cmwrs2019.org/">http://www.cmwrs2019.org/</a> e-mail: not yet available
5 <sup>th</sup> IFAC Symposium on Telematics Application TA 2019	September 25 – 27	Chengdu China	<a href="https://ifactelematics2019.swjtu.edu.cn/index.htm">https://ifactelematics2019.swjtu.edu.cn/index.htm</a> <a href="mailto:ifacta2019@swjtu.edu.cn">ifacta2019@swjtu.edu.cn</a>
19 <sup>th</sup> IFAC Conference on Technology, Culture and International Stability TECIS 2019	September 26 – 28	Sozopol Bulgaria	<a href="http://www.tecis19.tu-plovdiv.bg/tecis@tu-plovdiv.bg">http://www.tecis19.tu-plovdiv.bg/tecis@tu-plovdiv.bg</a>
8 <sup>th</sup> IFAC/CACHE Conference on Foundations of Systems Biology in Engineering FOSBE 2019	October 14 – 19	Valencia Spain	<a href="http://fosbe2019.ai2.upv.es/">http://fosbe2019.ai2.upv.es/</a> e-mail: not yet available
14 <sup>th</sup> OTM/IFAC/IFIP International Workshop on Enterprise Integration, Interoperability and Networking EI2N 2019	October 23 – 24	Rhodes Greece	<a href="http://otmconferences.org/index.php/workshops/ei2n-2019">otmconferences.org/index.php/workshops/ei2n-2019</a> <a href="mailto:Georg.Weichhart@profactor.at">Georg.Weichhart@profactor.at</a>
16 <sup>th</sup> IFAC/IEEE (Czechoslovakia Section) Conference on Programmable Devices and Embedded Systems PDES 2019	October 29 – 31	High Tatras Slovakia	<a href="http://pdes-conference.eu/19/index.php?page=home&amp;lang=en">http://pdes-conference.eu/19/index.php?page=home&amp;lang=en</a> <a href="mailto:alena.kozakova@stuba.sk">alena.kozakova@stuba.sk</a>
3 <sup>rd</sup> IFAC Workshop on Linear Parameter Varying Systems LPVS 2019	November 04 – 06	Eindhoven Netherlands	<a href="https://lpvs2019.tue.nl">https://lpvs2019.tue.nl</a> <a href="mailto:lpvs2019@tue.nl">lpvs2019@tue.nl</a>
15 <sup>th</sup> European Workshop on Advanced Control and Diagnosis ACD 2019	November 21 – 22	Bologna Italy	<a href="https://eventi.unibo.it/acd2019">https://eventi.unibo.it/acd2019</a> <a href="mailto:acd2019@unibo.it">acd2019@unibo.it</a>
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	<a href="https://anzcc.org.au/ANZCC2019/">https://anzcc.org.au/ANZCC2019/</a> e-mail: not yet available
6 <sup>th</sup> IFAC Conference on Sensing, Control and Automation Technologies for Agriculture AGRICONTROL 2019	December 04 – 06	Sydney Australia	<a href="http://www.robotics.unsw.edu.au/agricontrol2019">http://www.robotics.unsw.edu.au/agricontrol2019</a> <a href="mailto:agricontrol2019@unsw.edu.au">agricontrol2019@unsw.edu.au</a>
13 <sup>th</sup> IFAC Workshop on Adaptive and Learning Control Systems ALCOS 2019	December 04 – 06	Winchester United Kingdom	<a href="https://sites.google.com/site/2019alcos/">https://sites.google.com/site/2019alcos/</a> <a href="mailto:etar@ecs.soton.ac.uk">etar@ecs.soton.ac.uk</a>
Title	2020	Place	Further Information
Conference on European Control Conference (in cooperation with IFAC) ECC 2020	May 12 – 15	Saint Petersburg Russia	<a href="http://ecc20.eu/">http://ecc20.eu/</a> <a href="mailto:info@ecc20.eu">info@ecc20.eu</a>
Conference on American Control Conference (in cooperation with IFAC) ACC 2020	July 01 – 03	Denver, CO USA	<a href="http://acc2020.a2c2.org/">http://acc2020.a2c2.org/</a> e-mail: not yet available
21 <sup>st</sup> IFAC World Congress WC 2020	July 12 – 17	Berlin Germany	<a href="http://www.ifac2020.org/">http://www.ifac2020.org/</a> <a href="mailto:info@ifac2020.org">info@ifac2020.org</a>