

## IFAC TC sponsors

- TC 3.1. Computer for Control (Main sponsor)
- TC 3.2. Computational Intelligence in Control (Main sponsor)
- TC 3.3. Telematics: Control via Communication Networks (Main sponsor)
- TC 4.5. Human Machine Systems
- TC 7.1. Automotive Control
- TC 9.4. Control Education

## National Organizing Committee (NOC)

- Chair: Jimmy Lauber (FR).
- Vice-chair: Zsófia Lendek (RO)
- Vice-chair from Industry: Serge Boverie (FR)

## International Program Committee (IPC)

- Chair : Thierry-Marie Guerra (FR)
- Co-chairs: Birgit Vogel-Heuser (DE), Kevin Guelton (FR), Lei Ma (CN)
- Editor: Ajith Abraham (USA)
- Special session chair: Anh-Tu Nguyen (FR)

The complete lists of NOC/IPC members is available at:

<http://www.uphf.fr/cescit2021>

## Papers submission - Special sessions

All submitted papers must be written in English. For review purposes only, regular or invited papers can have a length of up to 8 pages. Accepted papers are limited to 6 pages; up to two extra pages are allowed upon payment of overlength page charges. Information for authors and copyright conditions are available at <http://www.uphf.fr/cescit2021>.

Please visit <http://www.uphf.fr/cescit2021> if you plan to organize an invited session at CESCIT 2021.

## Summer school associated with the conference

In association with the Erasmus+ project "Computers, Cognition and Communication in Control: A strategic partnership" Co4AIR (<http://co4air.eu/project>), a summer school is organized jointly with the conference. More information will be available later.

## To be or not to be in Valenciennes

Based on the evolution of the pandemic situation, further information will be given on the website of the conference <http://www.uphf.fr/cescit2021>.

For touristic information, you can visit the Valenciennes Tourism Office website:

<https://www.tourismevalenciennes.fr/en>.

## Copyright conditions

All publication material submitted for presentation at an IFAC sponsored meeting (Congress, Symposium, Conference, Workshop) must be original and hence cannot be already published, nor can it be under review elsewhere.

The authors take responsibility for the material that has been submitted. IFAC-sponsored conferences will abide by the highest standard of ethical behavior in the review process as explained on the Elsevier webpage (<https://www.elsevier.com/authors/journal-authors/policies-and-ethics>), and the authors will abide by the IFAC publication ethics guidelines (<https://www.ifac-control.org/events/organizers-guide/PublicationEthicsGuidelines.pdf/view>).

Accepted papers that have been presented at an IFAC meeting will be published in the proceedings of the event using the open-access IFAC-PapersOnLine series hosted on ScienceDirect (<https://sciencedirect.com/>). To this end, the author(s) must grant exclusive publishing rights to IFAC under a Creative Commons license when they submit the final version of the paper. The copyright belongs to the authors, who have the right to share the paper in the same terms allowed by the end-user license, and retain all patent, trademark and other intellectual property rights (including research data).



July 5-7, 2021

Valenciennes, France



## 4<sup>th</sup> IFAC Conference

on Embedded Systems, Computational Intelligence and Telematics in Control

[www.uphf.fr/cescit2021](http://www.uphf.fr/cescit2021)



## Important Dates

- Submission site opens: December 10, 2020
- Open invited track proposals: **February 22, 2021**
- Paper submission deadline: **March 1, 2021**
- Decision notifications: April 8, 2021
- Final paper submission: Mai 15, 2021
- Conference: July 5-7, 2021

## Aims and Scope

The 4th IFAC Conference on Embedded Systems, Computational Intelligence and Telematics in Control (CESCIT 2021) will be a **HYBRID** event with the presentations held either virtually or in person in Valenciennes, France, July 5-7, 2021.

The conference focuses on theory, applications and developments in control related research fields, covered by the three IFAC TC3 Technical Committees. Computers for control considers a broad range of computer-based control systems, spanning from system architectures, inter-computer communications, man-machine interfaces for real-time distributed computer control systems to programmable logic controllers, Fieldbus and standards-based platforms and environments, etc. Computational intelligence in control focuses on all aspects of knowledge-based, fuzzy, neuro-fuzzy and neural (both artificial and biologically plausible) systems and evolutionary algorithms relevant to control, both theoretical and application driven. Control via communication networks encourages topics of computerized and telecommunications-based automation systems, providing services to remote equipment. It addresses systems integrating methods of remote control, cooperative communication for remote applications, and remote sensor data acquisition.

CESCIT 2021 welcomes contributions related to the previous fields covering all aspects of theory and applications. Contributors are invited to submit papers that, if accepted, will be scheduled for oral presentation. All accepted papers will appear in the proceedings of the meeting, will be hosted on-line on the IFAC-PapersOnLine.net website and will be indexed in SCOPUS.

The topics include but not limited to:

### TC 3.1 Computer for Control (Chair B. Vogel-Heuser)

- Architectures for real-time, distributed, intelligent embedded control systems (e.g., special and dedicated processors, parallel processing, communication platforms, middleware, ASICs, etc.)
- Real-time algorithms, scheduling, schedulability, temporal predictability, time analysis
- Programming and programming platforms
- Logical design, physical design, and implementation of embedded computer systems
- Cyber-physical systems
- Model-driven engineering of computer-controlled systems
- Multicore architectures
- Partitioned embedded systems
- Virtualisation in embedded systems
- Programmable logic controllers
- Standards-based platforms and environments

### TC 3.2 Computational Intelligence in Control (Chair K. Guelton)

- Search methods and decision-making: neural networks, evolutionary computing, fuzzy techniques (single or multiple objective);
- Swarm Intelligence (e.g., ant colony, particle swarm, differential evolution, cultural algorithms)
- Knowledge-based, fuzzy, neuro-fuzzy and neural controls
- Neurodynamic optimisation and adaptive dynamic programming
- Biologically plausible neural networks, computational neuroscience, neurodynamics and regulatory networks

- Brain computer interface and cognitive architectures
- Neuroinformatics and bioinformatics
- Hybrids of computational intelligence systems (e.g., neuro-fuzzy systems, neuro-genetic, etc.)
- Intelligent systems and instrumentation: smart systems, sensors, actuators and distributed systems
- Data fusion and data mining; Fault management, knowledge processing, and representation; Use of internet technology; Intelligent agents
- Training and adaptation algorithms, Constructive algorithms, structures for computational intelligence, design methodologies

### TC 3.3 Telematics: Control via Communication Networks (Chair L. Ma)

- Telecommunication-based automation
- Remote data acquisition, control and servicing
- Internet of things
- Tele-presence, tele-maintenance
- Tele-robotics
- Tele-medicine
- Tele-education
- Traffic control systems
- Smart energy grids

One of the goals of the conference is to cope with real case problems – especially industrial ones – where conventional methods were reputedly unsuccessful. Applications include: transportation systems, medical, biomedical and biological systems, aerospace, automation, biotechnology, mechatronics, manufacturing, process control, power systems, energy and smart grid, agriculture, environmental systems, robotics and autonomous systems, economics and business systems, etc.