

Special session : "Advances in Hybrid Model-Data-based control approaches in the future challenging aerospace problems"

Special Session Organizers:

Prof. Dalil Ichalal, Université d'Evry Paris-Saclay, France, E-mail: dalil.ichalal@univ-evry.fr

Prof. Mohammed Chadli, Université d'Evry Paris-Saclay, France, E-mail: mohammed.chadli@univ-evry.fr

Prof. Saïd Mammam, Université d'Evry Paris-Saclay, France, E-mail: said.mammam@univ-evry.fr

Dr. Jean-Yves Didier, Université d'Evry Paris-Saclay, France, E-mail: jeanyves.didier@univ-evry.fr

Sophie Uhl, Université d'Evry Paris-Saclay, France, E-mail: sophie.uhl@univ-evry.fr

Session description:

The emergence of Cyber-Physical Systems (CPS) and Control Networked systems (NCS) have attracted a lot of attention since they are considered as a key element to support growth in many technological fields (industry 4.0, transportation, robotics, energy,...). Consequently, a lot of research works have been developed these last two decades related to different aspects such as modeling, path planning, control, observation and fault diagnosis and fault tolerant control. Such developments find an interesting applications in the aerospace field that asks many questions on control of a fleet of drones or aerospace systems, path planning, energy consumption reduction, way of production of such CPS and NCS. Very interesting results have been obtained and a lot of problems remains open. This special session aims to highlight two important aspects of CPS and NCS: the first one is theoretical which concerns hybrid model-data based approaches which allows to develop new tools based on both automatic control and Machine Learning techniques, this is in order to take into account of the complex nature of the systems (communication, delays, networks, varying sampling period, event triggered control, resources, packet loss, security and data protection, etc.).

The main topics of this special session include, but are not limited to:

- Cyber-Physical Systems (CPS) modeling of aerospace systems
- Networked Control Systems (NCS) in aerospace systems
- Delayed control systems
- Event-triggered and Time-triggered controllers
- Machine Learning-based control approaches
- Control and observation
- Modular approaches in Fault detection/Isolation/Estimation and fault tolerant control
- Filtering
- Fleet of aerospace vehicles and drones

Submission:

Complete manuscripts must be electronically submitted through easychair at: <https://easychair.org/conferences/?conf=icnsc2021> Submitted manuscripts should be within six (6) pages in IEEE two-column format, including figures, tables, and references. Please use the templates at Manuscript Templates for IEEE Conference proceedings from the conference website to prepare your paper. All submissions MUST be in PDF format.

Deadlines:

August 1, 2021: deadline for paper submission

September 15, 2021: notification of acceptance/reject

October 15, 2021: camera-ready copy due