18th IFAC Workshop
on Control Applications of Optimization

July 18-22, 2022
Gif-sur-Yvette, France

Aims and Scope

IFAC-CAO Workshop aims to offer a forum for the presentation of the latest contributions and developments in the topics related to the theory of optimal control and the optimization-based design in automation and decision-making processes. It targets, in particular, the use of new methods and technologies to solve relevant problems in industry and to address the latest challenges in society. The event will give specialists in the fields of optimal control/estimation, differential games, and optimization an opportunity to share their experiences with practitioners, discuss new research directions and new problems that are arising, and outline scientific and commercial applications. One aim of the workshop is to bring together researchers and engineers, applied economists and environmental scientists, providing an up-to-date survey of the major applications of optimization for control purposes and decision-making in economics and in the industry. The event will be preceded by tutorials and modules dedicated to young researchers.

Organizers

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TC 2.4 Optimal Control (Main Sponsor)

IFAC TC Co-Sponsors

TC 1.2. Adaptive and Learning Systems	TC 6.3. Power and Energy Systems
TC 1.5. Networked Systems	TC 6.4. SAFEPROCESS
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TC 2.2. Linear Control Systems	TC 7.3. Aerospace
TC 2.3. Non-Linear Control Systems	TC 7.4. Transportation Systems
TC 2.5. Robust Control	TC 9.4. Control Education
TC 6.1. Chemical Process Control	

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Editor: Tatiana Filippova (Russia)

The complete lists of NOC/IPC members is available at: https://cao2022.sciencesconf.org/

Important Dates

Invited session proposal: 10 December 2021
Paper submission deadline: 18 January 2022
Tutorials and minisymposia : 31 January 2022
Notification of acceptance: 14 March 2022
Registration opens: 15 March 2022
Final paper submission deadline: 8 April 2022
Early registration deadline: 30 April 2022

Venue

CentraleSupélec is a French graduate engineering school of Paris-Saclay University, located 30km to the south of Paris.

IFAC CAO will be held in the Eiffel Building of CentraleSupélec, located at 8-10 rue Joliot-Curie, 91190 Gif-sur-Yvette

(GPS Map 48°42'36.1"N 2°10'02.9"E)

Technical Tour and Visits

- Synchrotron SOLEIL
- Versailles Palace and gardens
- Seine River Cruise in Paris

Contact

Email: cao2022@sciencesconf.org

Sponsors

Topics (not limited to)

- optimization methods
- optimal control/estimation
- differential games
- evolutionary algorithms
- numerical methods for optimization
- stochastic optimization
- numerical methods for optimization
- robust control and stabilization
- multi-objective control and optimization
- optimization under uncertainties including the theory of noise measurements
- model-based predictive control
- receding-horizon estimation
- real-time control problems
- generalized solutions of Hamilton–Jacobi equations
- control of partial differential equations

- distributed and decentralized optimization and estimation
- control design for hybrid systems
- large scale optimization problems
- singularities in optimization
- optimization for learning and control
- optimization methods in reliability
- data-based optimal control
- data driven models
- applications in energy and power systems
- applications in transportation
- applications in environmental sciences
- application in health and public policies
- applications in economics, logistics and management
- optimal control education

(Open) Invited sessions

Special session proposals must be submitted electronically through Papercept and should include: title, description of the scope, list of topics covered, potential contributors, and names, affiliations, websites, and bios of special session organizers. The organizers of invited sessions can flag their proposals as "open". In this case, an announcement will be published on the CAO 2022 website, and interested authors will be able to opt for the inclusion of their submission in such sessions. There is no limitation on the number of papers for the "Open" Invited Sessions. Irrespective of the deadline, please submit your proposal as early as possible to increase the visibility of your Open Invited Session.

Tutorial sessions and minisymposia

Half-day tutorial session and minisymposia to be held prior to the conference are solicited on all topics related to "Control Applications of Optimization".

The organizer should provide via Papercept the following information in a free format: full name, title, affiliation, address and e-mail address of the organizer, summary (max 100 words) describing the scientific content, description of the organization of the tutorial or minisymposium, full name, affiliation and address of each speaker and the title of his/her presentation.

Plenary Speakers

Tamer Başar
University of Illinois
Jean-Bernard Lasserre
LAAS-CNRS
Angelia Nedich
Arizona State University
Simona Onori
Stanford University
Boris Polyak
Institute of Control Sciences Moscow

Contributions

Prospective authors are invited to submit original contributions. All submissions will be subject to review and assessment by the International Program Committee, who will select the papers to be included in the conference program. If accepted, the contributions must be presented by one of the registered participants in order to be included in the Workshop proceedings to be published in the IFAC-PapersOnLine series indexed by SCOPUS as one of Elsevier's journals. It should be noted that all papers published in the IFAC-PapersOnLine are provided with individual DOI.

Paper Submission

All submitted papers must be written in English. For review purposes the papers can have a length of up to 8 pages. Accepted papers are limited to 6 pages. All contributions must be submitted in a form appropriate to the IFAC style. Papers must be submitted using the PaperPlaza Conference Manuscript Management System at https://ifac.papercept.net.

A full registration by an author can cover up to two accepted papers the author has (co)authored. Student/Senior registration can cover one accepted paper.

CAO 2022 recognizes excellent student contributions by presenting a Best Student Paper Award for a paper whose primary author and presenter has a student status (PhD, Master or Bachelor student) at the time of paper submission. The nominations are made based on the 15-20 best rated papers at the evaluation stage. An award selection committee (appointed according by the IPC chairs) classifies the finalists on the basis of the nominations and the oral presentation.

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