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IFAC
INTERNATIONAL FEDERATION OF AUTOMATIC CONTROL

ALCOS 2022

14th IFAC International Workshop on

Adaptive & Learning Control Systems

June 29 - July 1 2022

Casablanca, Morocco

www.alcos2022.org

UH2C — UNICAEN UNIVERSITÉ CAEN NORMANDIE — SAGIP MAAC

ALCOS 2022 is organized under the auspices of the IFAC by:

- The Université Hassan II of Casablanca - UH2C, Casablanca, Morocco.
- The Université of Caen Normandie, UNICAEN – Caen, France.
- The Société d'Automatique, de Génie Industriel et de Productique - SAGIP, France.
- The Moroccan Association of Automatic Control - MAAC, Morocco.

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Scope

One fundamental problem in control theory is: how to achieve and maintain a high level of control performance despite large model uncertainty?
Adaptive and Learning Control offer solutions to this problem. They propose a set of techniques for designing Controllers, Observers, Identifiers, Predictors, Filters and Supervisors featuring the capability of real time self-adjustment.
This workshop has the goal of bringing together researchers and practitioners interested in adaptation and learning, providing them with a forum for presentation of recent developments and assessment of the most promising trends for future research. ALCOS 2022 in Casablanca is going to be ALCOS's first time in Africa. It is sponsored by 14 IFAC Technical Committees:

- **TC 1.2:** Adaptive and Learning Systems (main sponsor).
- **TC 1.1:** Modeling, Identification and Signal Processing.
- **TC 2.2:** Linear Control Systems.
- **TC 2.3:** Non-Linear Control Systems.
- **TC 2.6:** Distributed Parameter Systems.
- **TC 3.2:** Computational Intelligence in Control.
- **TC 4.2:** Mechatronic Systems.
- **TC 4.3:** Robotics.
- **TC 6.1:** Chemical Process Control.
- **TC 6.3:** Power & Energy Systems.
- **TC 7.3:** Aerospace.
- **TC 7.5:** Intelligent Autonomous Vehicles.
- **TC 8.2:** Biological and Medical Systems.
- **TC 8.3:** Modelling and Control of Environmental Systems.

Topics

Adaptive and/or nonlinear control:

- Adaptive and/or Nonlinear Estimators, Optimizers, Predictors and Filters.
- Adaptive and/or Nonlinear Observers and Controllers for Linear, Nonlinear, Finite- and Infinite-Dimensional Systems.
- Sampled-data and Networked Adaptive and/or nonlinear Observers and Controllers for Linear, Nonlinear, Finite- and Infinite-Dimensional Systems.
- Stochastic Adaptive Controllers.
- Self-Tuning, Gain-scheduling, Intelligent Controllers.
- Multiple-Model and Switched Adaptive Systems.
- Transient and asymptotic performances.
- Nonlinear dynamics (chaos, bifurcation…).

Learning control:

- Iterative learning and repetitive control Systems.
- Reinforcement Learning Systems.
- Physics-based machine learning for control.
- Iterative learning control for time delay systems.
- Model-free iterative learning control.
- Learning control for multi-agent systems.
- Iterative learning control for nonlinear or hybrid systems.
- New applications in learning control.
- Intelligent and Knowledge-based Adaptive Systems.
- Agent-based Control Systems.
- Neuro-fuzzy modelling and control.
- Fault Detection and Fault-Tolerant Control Systems.

Adaptive & Learning System Identification:

- Linear and nonlinear system identification.
- Discrete and sampled data system identification.
- Open and closed-loop system identification.
- Adaptive and optimal parameter estimators.
- Identification methods design and analysis.
- Experiments design.

Application fields:

- Aeronautics & aerospace.
- Power & energy systems.
- Industrial processes & manufacturing.
- Networked systems.
- Transportation systems.
- Control for smart cities.
- Communication systems.
- Robotics.
- Medical and Biomedical engineering.

Call for Paper

The organizers want to promote ALCOS 2022 as a forum where scientists and engineers from several research communities can meet to discuss issues related to the scope of the workshop. The scientific program will contain plenary lectures, regular sessions, invited sessions. Prospective authors and organizers of invited sessions are invited to submit contributions on http://ifac.papercept.net/conferences/scripts/start.pl using the templates which can be found on https://www.ifac-control.org/events/author-guide. All contributions will be subject to review and assessment by the International Program Committee, before inclusion in the conference program.

Regular papers

Regular papers must present original, unpublished work which falls into the scope of the workshop and must not be currently under consideration for publication elsewhere. Manuscripts are limited to six double-column pages.

Extended Abstracts

Authors can also submit extended abstracts of at least 2000 words, describing preliminary work and/or with survey/tutorial content that will be subject to review and will be included in the preprints (USB-key) but will not appear in the on-line conference proceedings.

Invited Papers

The International Program Committee encourages the submission of invited sessions with sets of six invited papers on a well-defined subject of current interest. These papers must present original, unpublished work and must not be currently under consideration for publication elsewhere. An invited session should present a cohesive and comprehensive focus on a topic relevant to the scope of the workshop. It may start with a tutorial presentation which can be allotted a double time slot. In this case, five papers are sufficient to compose a session. Authors of invited papers must also submit their papers.

How to submit an invited session proposal

Organizers of invited sessions should perform the following steps:

1. Contact potential authors to obtain a list of authors, paper titles and abstracts.

2. Write a four page session proposal. This should describe the theme and content, demonstrate its coherence, and argue its significance and relevance. The proposed session should profile 6 specified papers (or 5 when the first paper is a tutorial). At a minimum, the proposal should contain the following information:

- The name and full contact details of the session organizer.
- A description of the session theme and an argument supporting its significance.
- A list of the proposed session contributions, including titles, authors, and corresponding author of each paper.
- The abstract of each paper.

3. Generate a PDF.

4. Submit your proposal through the PaperPlaza Conference Manuscript Management System. As part of this process, you will be provided with an invited session code.

5. Pass the invited session code to the corresponding author of each paper in the session. Authors will need to specify this number when submitting their papers.

Submission of Invited papers

Invited papers are solicited by an organizer of an invited session. The invited session code will be needed to complete the submission Invited papers must present original, unpublished work which falls into the scope of the symposium and must not be currently under consideration for publication elsewhere. All invited papers will be subject to review and assessment by the International Program Committee,

Preprints

All papers accepted for publication will be distributed to the participants on a USB-key together with a printed book of abstracts including the final program.

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Dates and Deadlines

Paper submission, registration and other important dates can be found below:

Invited session proposals	**November 21, 2021**
Regular paper submission	**December 20, 2021**
Invited paper submission	**December 20, 2021**
Paper acceptance notification	**February 28, 2022**
Early Registration and final paper submission	**March 31, 2022**