CentraleSupélec

FACULTY RECRUITMENT PROFILE
Assistant Professor
(Signals and Systems Laboratory / L2S and Control Department)

Title: Assistant Professor in Control

Position: Assistant Professor at the “Control” Department of CentraleSupélec, Paris-Saclay Campus / Signals and Systems Laboratory (L2S, UMR CNRS 8506, ZRR), « CDI de droit public », level Assistant Professor.

CNU Section: 61

Domain / Job profile: The successful candidate will join the Systems and Control group of L2S. The research activity must be integrated into one of the research themes of the group. The teaching activities will be carried out within the “Control” Department of CentraleSupélec.

Keywords: Control, Systems

CentraleSupélec is a public scientific, cultural and professional institution (EPSCP in French) under the authority of the Ministry of Higher Education and Scientific Research and the Ministry of the Economy, Industry and Digital Technology. Its main missions are: the training of high-level scientific general engineers, research in engineering and systems sciences, and executive education.

The “Control” Department is an academic department at CentraleSupélec whose educational scope covers the theoretical foundations of systems and control and their implementation for the 3-year CentraleSupélec Engineering Program. The department is also involved in the Master in Control, Signal and Image Processing (ATSI) and in the Master Engineering and Human Movement Sciences for Université Paris Saclay.

The Signals and Systems Laboratory (L2S) is a joint Université Paris-Saclay-CNRS-CentraleSupélec unit. Research of the Systems and Control group covers both methodological developments and concrete applications. It addresses analysis, modeling, and control problems in fields ranging from biology to power networks and autonomous systems. Methodological developments concern, among others, hybrid systems, delay systems, and model predictive control, with a particular emphasis on nonlinear systems. These activities are often carried out in the framework of international collaborations or industrial partnerships.

Academic profile:
Participation in teaching in the “Control” Department of the Paris-Saclay Campus of CentraleSupélec, both in initial and continuing education. In initial training, the teaching will be part of the CentraleSupélec engineering curriculum and if required in the Bachelors's and Masters of Sciences CentraleSupélec programs. Teaching may also be realized inother training programs, in particular the Master's degree in Control, Signal and Image Processing (ATSI) at the Université Paris-Saclay.

Initial training: teaching in the framework of courses and tutorials according to the level of experience and expertise, active participation in the supervision and design of practical work in automatic control, student or industrial projects with experimental scope and industrial study agreements (CEI). These activities will be carried out over a broad spectrum covering in the specific case of the engineering curriculum the courses taught to CentraleSupélec students in the first, second and third years:

- First year: skills in modeling of dynamical systems and signal processing;
- Second year: skills in system control and piloting strategies, as well as in optimization;
- Third year: most of the teaching will take place in the "Control Engineering" section of the CentraleSupélec curriculum and in the M2 ATSI. The expected skills cover a wide field of Control, notably in modeling, identification and estimation, control of complex systems (e.g., interconnected dynamic systems, multi-agent dynamic systems, hybrid systems), diagnosis and reconfiguration...

Continuing education: tutorials or specialized conferences on specific topics in the field of Control and Signal Processing.

The CentraleSupélec curriculum includes numerous activities with strong links to industrial partners. In particular, the candidate will be involved in the supervision and design of

- first and second year projects in the "Control and Optimization" and "Interactive Robotics" project poles, which may involve industrial partners
- Projects and CEIs in the "Control Engineering" section of the third year;
- Integration courses of thematic sequences in first and second year.

For all of this, the candidate will have to demonstrate a strong interest for interactions with the industry and a strong aptitude for designing experimental platforms. As the teaching at CentraleSupélec is given in French and English, the ability of the candidate to give part of his/her teaching in English will be necessary.

Research profile:
The candidate will carry out his or her research activities in the Signals and Systems Laboratory (L2S, UMR 8506), within the Systems and Control group (website), by integrating one of the three research teams: SYCOMORE (Robust and constrained control of complex systems), COMEDY (Methodologies for the control of dynamic systems) or MODESTY (Modelling, estimation and analysis of systems).

This recruitment is aimed at a person who has demonstrated a real capacity to conduct quality research in the field of Control. His/her work will have to be integrated in one of the research themes of the group. At the methodological level, skills in modeling, estimation, observation, fault detection, resilient control, or large dynamic systems (multi-agent systems, systems of systems, etc.) are particularly sought after, in the context of our application work in the fields of robotics, autonomous and cyber-physical systems (human-robot interaction, autonomous vehicles, formation flight of drones, etc.).

The research missions associated with this position are as follows:

- Conducting academic and contractual research;
- Co-supervision of theses and internships (engineer and master level);
- Contribution to the development of research contracts and projects in partnership with academics and companies, at regional, national and international levels;
- Publication of research work in leading international journals;
- Participation in seminars, symposiums, scientific conferences, etc.

Candidate profile:
The candidate will have demonstrated in his or her career that he or she is capable of conducting highly innovative research activities. For this, a solid scientific culture, confirmed by publications in international journals of the highest level in the field of Control is essential. A certain balance between methodological developments and applications (up to implementation) will be particularly appreciated. The candidate will have a taste for teamwork and the ambition to develop research of high international level. He/she will also have to demonstrate an ability to transmit, a curiosity about pedagogical modalities, an ease in human relations, and an ability to listen and reformulate.

Recruitment interview:
For the candidates selected for the audition, the audition will take place in three stages:
- A presentation of the candidate's background and integration project;
- An illustration of a 5-minute lesson, given in English, on a problem, whose subject is identical for all candidates, will be specified on the invitation;
- An exchange with the members of the committee.

The duration of the three parts of the audition will be specified in the invitation letter.

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Candidatures:
File in pdf format, including:

- A cover letter
- A detailed CV (teaching experience, research, mobility, publications, etc.)
- An integration project of 5 to 10 pages
- A copy of the identity card or passport
- A copy of the doctoral degree
- And any documents that attest previous experience

must be sent by email only to the contact below before April 25,2023 at 23:59 (Paris time) at the latest by specifying the reference **L2SAUTO2303**:

Human resources: drh.pole-enseignant@centralesupelec.fr

Scientific contacts:

Antoine Girard, head of the Systems and Control group at L2S:
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Guillaume Sandou, head of the Control department at CentraleSupélec:
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