

## PROFIL DE POSTE – CHAIRE DE PROFESSEUR JUNIOR

### Assistant professor position at IRDL/ENIB

#### Job profile for the SMAIA Junior Professorship

" *Adaptive, Intelligent and Autonomous Mechatronic Systems (SMAIA)*

(*IRD L/ENIB/Bretagne INP*)

**Context.** The *Brest National Engineering School (ENIB)*, created more than 60 years ago, is affiliated to the French ministry in charge of higher education and research. It is located on the Brest-Iroise technology park. The teaching team is made up of around sixty professors and around forty people active in research. The total number of students is approximately 800. ENIB has promoted the creation of the *National Polytechnic Institute "Bretagne INP"* and evolves now in this new institution. This institutional transformation is accompanied by a strong commitment from ENIB to the integration of the issues of ecological transitions and sustainable development in all of its activities, functions and professions.

ENIB trains general purpose field engineers in electronics, IT and mechatronics over five years. The classes are geared towards the industrial world through several internships. The school prepares its engineering students to practice their future job in an international setting. The pedagogy promotes reflexivity, activities in small groups, the use of projects and collective work, as well as the societal commitment of students. In addition, the institution offers four Master's courses and grants Ph.D. Nearly 40% of students complete a double degree.

The school is the main supervisor of two research lab, the *Research Institute « Dupuy de Lôme » (IRD L)* and the *Laboratory of Information, Communication and Knowledge Sciences and Techniques (Lab-STICC)*. ENIB is a member of the Carnot ARTS Institute, the CominLabs labEx, the "Images and networks" competitiveness cluster, and the European University School « Isblue ».

**Research environment.** The recruited person will carry out their research within the *Research Institute Dupuy de Lôme (IRD L)* which is organized into five thematic research teams (PTR). The Junior Professor will be connected to ENIB, in the team "Energy systems and processes" where activities in automatic control, electrical engineering and underwater robotics are developed. Applications are in the areas of controlling actuators based on innovative materials, controlling underwater robots, the sobriety of electric propulsion, the development of AUV thrusters, and smart grids...

**Research.** ENIB is seeking to hire a person who shows exceptional research potential in the field of automatic control. The team hosting the SMAIA project has internationally recognized expertise in nonlinear control, mechatronics, underwater robotics and drives.

This base makes it possible to think to an enrichment of mechatronic objects and methods in several areas, with the help of AI which is now enters into automatic control. The position aims to particularly support this development of automatic control along three axes:

- The decarbonization of transport, by developing sober control laws for electric drives, for example the propulsion of ships.
- The autonomy of underwater robots by improving their reconfigurable vector actuation and control, to inspect and maintain underwater installations.
- The development of innovative actuators based on intelligent materials for complex active mechanisms, sensors or soft robotics.

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**Teaching.** To cope with the increasing complexity of technological systems, ENIB offers training in mechatronics; it brings together four engineering sciences, automatic control, electronics, mechanics and computer science. Mechatronics is now spreading across all industries to develop products that are more respectful of environmental constraints and ensure an ecological transition.

The recruited person will join the teaching team of the Mechatronics Department and will be mainly involved in teaching automatic control during the three years of the engineering cycle (undergraduate and Master). The teaching areas concerned range from servos to modern nonlinear control. Other related teaching may be proposed.

The candidate must contribute to the school's orientations, particularly within the framework of the skills approach to which ENIB is committed. She or he must appropriate the vision of the ENIB graduate and demonstrate motivation for innovative pedagogies adapted to higher education, and for the integration of ecological transition issues into their teaching. Finally, the recruited person will help to create synergy between work-study training, industrial relations, international relations and research. Involvements in the international development of the school is expected.

### Contacts.

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**Details.** Tenure after 6 years.

The annual teaching duty is 64 hours.

Research support budget €200k + a supplement from the establishment.

Salary: 2nd class professor at the start of career

**Restrictive area access.** The IRDL is a laboratory with a restrictive area access the position is subject to access accreditation.

### References.

[www.enib.fr](http://www.enib.fr)

[www.irdl.fr](http://www.irdl.fr)

[https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand\\_CPJ.htm](https://www.galaxie.enseignementsup-recherche.gouv.fr/ensup/cand_CPJ.htm)