INSTITUT NATIONAL DES SCIENCES APPLIQUÉES LYON

Laboratoire de Mécanique des Contacts et des Structures

LaMCoS – INSA de Lyon
INSA / CNRS UMR5259

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Senior Technician / Design Engineer
Design, instrumentation, actuation and control in the electrification of rotating machines

The Laboratory of Contact and Structure Mechanics (LaMCoS), a joint research unit of the CNRS, through INSAVALOR, a subsidiary of INSA Lyon, is looking for a full-time engineer.

Contract: CNRS fixed-term contract of at least 12 months with a view to employment

Mission

The candidate will work alongside experts in the field of the dynamic behaviour of rotating machines, and will join the Dynamics and Control of Structures (DCS) team at the LaMCoS Laboratory. The DCS team is made up of around twenty teacher-researchers and doctoral students who are working on understanding and mastering the technologies of active control and monitoring of rotating machines and structures. The candidate will be administratively attached to the Functional Support Team (FST) and will interact with other engineers with mechanical background. The DCS team has original test facilities and know-how in modelling and understanding the physical phenomena that occur in increasingly extreme situations of use, revealing behaviour that is difficult to predict.
In the context of **the electrification of traction drivelines**, the recent scientific orientations taken on electric machines demonstrate a real interest on the part of new industrial partners and imply the study of new couplings with the mechanical domain. Numerous projects have been initiated within the laboratory, firstly within the framework of the **Volvo Chair** with the development of a **hybrid torsion and acyclism damper**, but also with the NIDEC group on the modelling of electric motors. All of these **original demonstrators** are equipped with numerous measurement and real-time control systems that the successful candidate will be responsible for operating, maintaining and developing in his/her field of specialisation based on a **solid background in Electrical Engineering** (mainly in electrical engineering and electronics). In the first instance, he/she will be responsible **for developing acquisition, actuation and control resources in the field of electrical actuation of traction drivelines**, a priority and strategic theme of the unit.

Position description

- Development of new test benches or adaptation of existing benches mainly on the electronic control side, implementation of actuation and measurement systems but also active control. The main mission will be to finalise the project on the electrification of automotive powertrains.
- Supporting the researchers in setting up test campaigns, conducting tests and collaborating on research projects in connection with the team's experimental platforms
- Consolidation of the documentary base of the DCS team's experimental platforms
- Training and support to PhD students in their experimental developments, in particular with the proposal and validation of original experimental means,
- Elaboration and writing of experimental protocols.

Profile

Excellent interpersonal skills - Organised, curious, autonomous, open-minded and able to make proposals with good writing skills.

Knowledge in the field of electrical engineering and electric motors of all kinds, modelling of the electrical behaviour of machines, control of electrical machines, power electronics, signal conditioning, signal acquisition and processing. Knowledge of mechanics, machine design and structural dynamics would be a plus.

Perfect mastery of scientific English
Ability to analyse the needs of doctoral students and researchers and to be open-minded and **scientifically curious**.
Ability to work in a team and open-mindedness
Education: 3 years of higher education, such as DUT/professional degree or university masters or engineering school in electrical engineering, electrical engineering, power electronics, signal conditioning and processing, control command.
Experience: 3 years, beginner accepted

Work place : Villeurbanne (69).

Internet website: lamcos.insa-lyon.fr

Gross annual salary: 28 000 € minimum, depending on diploma and experience

Send CV and cover letter to Didier REMOND: didier.remond@insa-lyon.fr