

JOB OFFER

RESEARCH ENGINEER POSITION IN DESIGN AND TESTING OF INNOVATIVE ELECTRIC LINEAR ACTUATOR FOR RAILWAY APPLICATIONS

Research project: ELECTRON project is funded by the Plan Marchal of Wallonia, Belgium in the pole of competitiveness MECATECH.

Keywords: Railway, Electric actuator, Linear actuator, Topology Optimization, Prototyping, Static Testing, Dynamic testing, Boggie dynamics.

Project description: The research engineer will be in charge of the project ELECTRON aiming at developing innovative concepts of linear electric actuator for railway applications.

The innovative linear electric actuators will be designed using topology optimization and computer aided design. The new linear actuators will be prototyped and tested experimentally. The final applications aim at substituting hydraulic active and passive actuators which are involved in railway bogies to ensure the vehicle dynamic stability.

The research conducted in the Aerospace and Mechanical Engineering Department focuses on the electrical and mechanical design of prototypes of the novel electric linear actuator. The researcher will supervise the manufacturing and the assembly of the prototypes. In collaboration with the V2I partner, the researcher will develop the test bed to assess the new components and their ability to match the final specifications of the railway application. Tests include static and dynamics tests up to 20Hz.

The researcher will investigate one or several points among the following items:

- Mechanical and electrical specifications of the linear actuators
- Design of a prototype 1
- Design of test bed for static and dynamic testing
- Validation of preliminary actuator models
- Design of a second prototype
- Validation of the advanced actuator design
- .

The researcher will develop his work within the automotive and topology optimization research group of Prof. Pierre DUYSINX and will collaborate frequently with the industrial partners of the ELECTRON project, in particular Alstom, V2i, Quadyga.

The researcher will develop his work within the Automotive Engineering and Topology Optimization research group of Prof. Pierre DUYSINX and will collaborate frequently with the partners of the ELECTRON project, that are ALSTOM, QUADYGA, V2i.

The researcher will develop and test the novel concepts using software tools available at University of Liege as Siemens NX suite.

The researcher is encouraged to develop a PhD thesis during the research project to be presented at University of Liege.

Candidate profile: Master's in Mechanical, Electrical, Aerospace or Electromechanical Engineering.

Former expertise: Junior engineers (0 – 2 years) are welcome.

Knowledge of a CAD software tool is necessary but if not, the candidature will have to follow training during the project.

Basic programming skills in MATLAB or in PYTHON are welcome.

Languages: Knowledge of English as a working language is necessary. Knowledge of French is positive but not mandatory.

Project duration: 24 months

Start: Summer, 2025 – Summer 2027.

Contact: For further information and application, contact Prof. Pierre DUYSINX:

Pierre Duysinx
LTAS-Automotive Engineering
University of Liège
Allée de la Découverte, 13A, B52
4000 Liege, BELGIUM
Phone : +32 4 3669194 (direct) / +32 4 3669409 (secretary)
Fax : +32 4 3669159
Email : p.duysinx@uliege.be
url : www.ingveh.ulg.ac.be