

Researcher Modelling, Simulation and Optimization for Smart Machines and Vehicles

You develop and simulate multi-physical models for the design of smart machines and vehicles, and choose optimal parameters in a concept design.

- ❖ *Will you help us to define the optimal set of situations in which a harvesting machine could be tested?*
- ❖ *Will you help us to determine the optimal drive train for a weaving machine?*
- ❖ *Will you help us to determine the optimal configuration of a compressor?*

Function

Mechatronic systems are becoming increasingly complex, we demand more features and better performances and impose more and more requirements onto systems. Consequently it is becoming more and more important to use intelligent model-based development methods. That is why we need to develop and apply tools to support optimal decision making already in the design phase of a mechatronic system.

On real-life industry motion and assembly applications, you will:

- work together in a small research team which combines expertise in control, machine dynamics modelling, and signal processing.
- play a key role in optimizing the design configuration and parameters for the system.
- work with different machines and/or vehicles
- work in close collaboration with experts from our industrial partners and have regular contacts with experts from knowledge centres in Belgium and abroad.
- trace and present industrial challenges and new research opportunities.

More concretely, you will contribute in your team by:

- defining the adequate virtual models to be used to capture the essence of the machine of vehicle behavior.
- performing functional analyses using these models
- figuring out how to get more information of the system behavior using only a limited selection of tests
- developing and implementing multi-physical predictive models as well as optimization algorithms and optimize the configuration and parameters of the system in several scenario's (robust optimization)
- validating the optimized designs in real-life test conditions

Profile

You have

- A Phd in Engineering (Mechanical, Electronical, Electrical)
- A track record in the field of optimization
- A keen interest to apply theoretical concepts on practical case problems. Any experience with applications on machines and/or vehicles is a plus.

- Experience with modelling software (Simscape, Amesim, Matlab, Simulink) and optimization toolboxes (Matlab, Cplex)

You are

- Passionate about research and new technologies
- A good conceptual thinker
- Result oriented, responsible, self directing and team player
- A good communicator
- Eager to learn

Offer

- Flanders Make gives you the opportunity to develop yourself in the network of top industry and universities and research institutes;
- An open-minded, flexible and challenging working environment;
- A warm atmosphere and top colleagues;
- An attractive salary with fringe benefits.

Flanders Make colleagues work together on projects in Belgium at site Lommel and at site Leuven (flexible workplace policy). For this position, test set-ups will be situated in Flanders Make, [site Leuven](#).

Flanders Make

Flanders Make is the strategic research centre for the manufacturing industry. Our mission is to strengthen the long-term international competitiveness of the Flemish manufacturing industry. That's why we work together with SMEs and large companies on pre-competitive, industry-driven technological research, resulting in concrete product and production innovation in the vehicle industry, the manufacturing industry, and production environments.

Because of our unique position between industry and research, our teams combine application and system proficiency with technological and scientific knowledge. We focus on 4 key competences, all based on modelling and virtualization:

1. Sensing, monitoring, control and decision-making for products and production
2. (Co)design and optimization of products and production
3. Motion product specification, architecture, and validation
4. Flexible assembly specification, architecture, and validation

We operate from our offices in Leuven and Lommel and from research facilities at the Flemish universities. Learn more about working at Flanders Make on www.flandersmake.be/jobs

How to apply?

Do you feel you can contribute to our research with your expertise? Do you share our values and our mission? We are looking forward to reading about your story, your interest in Flanders Make and for this job in particular.

To apply, please send your motivation letter and cv to humanresources@flandersmake.be