Post-doc offer: PsD-DRT-18-0098

RESEARCH FIELD

Computer science and software / Engineering science

TITLE

Systemic Optimisation and Functional Digital Twin

ABSTRACT

The current economic constraints in the industrial field are getting tighter, which leads to increased competitiveness and a need to produce better and quicker. The optimisation of production processes and their design therefore lies at the centre of the considerations on the Factory of the Future. Optimisation needs are large and cover various scopes ranging from design and logistics to processes, with the objective of reducing time and costs while maintaining or even increasing the quality and tailoring of products and services. Optimisation and simulation tools need a comprehensive vision of the systems they study, which may be provided by a Functional Digital Twin of the factory/construction site. The approach of Model-Driven Engineering (MDE) allows engineers to design such a Twin and to interconnect it with numerical models (equations, 3D models …), which allows validating and/or optimising the overall system operation through a complete Digital Twin.

The goal of this Post-Doc is to investigate and develop a generic and configurable framework for process optimisation (scheduling, sizing ...) around MDE tool Papyrus and its simulator. An executable language, dedicated to the description of Digital Twins, has been implemented in Papyrus, and first industrial optimization projects have been completed. The main objective of this Post-Doc is to propose a generic simulation-based framework to solve optimisation problems of the factory/construction site. The goal is also to improve the decision support environment existing in Papyrus, using results of optimisations and simulations. The candidate will have to ensure a technology watch on the topics of process optimisation within the framework of the industry of the future and to organise and animate the topic of optimisation in the laboratory.

LOCATION

Département Ingénierie Logiciels et Systèmes (LIST)
Labo. ingénierie des langages exécutables et optimisation

DATE DE DÉBUT SOUHAITÉE

Start date on 10/01/2018

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