

## Semantic links between multi-scales objects

Position type: PhD Student

Starting date: October, 1<sup>st</sup> 2015

Research theme: Ontology, Semantic Web, Knowledge Representation

Scientific advisor: Juliette Dibie

Partners' involved:

- Link team, AgroParisTech & INRA MIA JRU –Data and knowledge integration guided by an ontology
- LaHDAK team, LRI / Paris Sud University –Data and knowledge integration
- BioMiP team, AgroParisTech & INRA GMPA JRU – Micro-organisms' stabilization

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**Application deadline: May, 25th 2015**

### **Job offer description**

A 3-years PhD Student position is available in the LIONES project, a Center for Data Science project involving LRI / Paris Sud University, AgroParisTech & INRA MIA JRU and AgroParisTech & INRA GMPA JRU.

The goal of this PhD Thesis is to model semantic Links between ONtological multi-scaLES objects (LIONES) involved in transformation process and to apply this model to the micro-organisms stabilization: yeasts and bacteria.

The aim of the LIONES PhD project is to propose an ontological representation of the transformation process of micro-organisms: representation of the operation units, called steps of the process, the steps' successions, the involved objects, their observations at different scales and their change during the process. The steps' succession during the process and the objects' changes/transformations during these steps will be represented by semantic links. This ontological representation will allow, on one hand, a modeling of the transformation process in order to study its environmental and socio-economic impacts and, on the other hand, the detection and the discovery of new semantic links between inter-scale objects, intra-scale objects and during their change through the different process steps.

The PhD fellow will have to explore three main research directions:

- Construction of a multi-scales and multi-steps ontology, focusing on the representation of semantic links between the different concepts of the ontology;
- Definition of methods for the automatic detection of the semantic links in the dataset;
- Discovery of inference rules that will be used to infer new relevant objects' characteristics and new relevant semantic links between objects.

### **Skills and profile**

The successful candidate should hold a recent master degree in Computer Science or equivalent degree, with strong background knowledge in Ontology and Semantic Web; Programming skills are absolutely necessary, and software engineering experience is welcome. At the time of recruitment the newly recruited researcher shall not have resided or carried out his/her main activity in France for more than 12 months in the 3 years immediately prior to his/her recruitment under the project.

### **Benefits**

Monthly Gross Salary: 1 800 €

Duration: 36 months

Please send a complete CV, a motivation letter with a statement of research interest, a copy of your Master degree and a list of at least 2 references (names and contact information).