**Ph.D. POSITION OFFER**

**TITLE:** Behavioural analysis for distributed simulations

**Laboratory at ONERA:**
Scientific Branch: Information Processing and Systems
Research Department: Long-term design and System integration (DPRS)
Research Unit: Techniques for System Conception and Simulation (TCS)
Location: ONERA research centres in the metropolitan area of Paris

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**DESCRIPTION**

The study of aerospace system requires extensive use of simulation, in order to be able to assess the various characteristics of such complex systems before their full conception or realisation is possible. Those simulations produce large amounts of data, and in order to deal with that and analyse those results, it is necessary to develop assistance tools. ONERA has an established expertise in the field of distributed simulation, and previous research has lead to the development of a specific language, called *chronicles*, used for the recognition of specific behaviours within a distributed simulation. The underlying framework for this recognition mechanism is modelled using coloured Petri nets.

In this context, several developments need to be done; in particular, it is necessary to study more precisely the chronicle langue, especially the semantics of recognition, which will be needed in order to develop tools which automatically generate from the simulation’s formal specification an analysis component which is to be integrated to this simulation. The proposed PhD will focus on this semantics of recognition, encompassing several aspects of the chronicle language, from simple logical relations to the representation of time within the system or the introduction of a notion of uncertain recognition.

**REQUIREMENTS FOR APPLICANTS**

Successful applicants will hold a Master’s Degree or equivalent in Computer Science or Mathematics or a related discipline. Skills in computer programming, foundations of computer science, and mathematics are essential; knowledge of semantics of programming languages would be an asset.