

# Project OSEC

<http://homepages.laas.fr/brun/OSEC/osec.html>

LAAS-CNRS

Toulouse, France.

OSEC is a 2-year project funded by the LAAS laboratory. It is a joint project of 3 research groups: MRS, OLC and MOGISA. We are seeking a one-year postdoc to work on the project OSEC. The position is to be filled up to October 3rd, 2011 and is funded by a grant from the LAAS-CNRS.

**Title** : Scheduling for Critical On-board Systems

**Context** : The conditions for the correct performance of a real-time system include not only the logical correctness of each of the tasks that are executed but also their timing correctness, that is the system should meet the timing requirements of each task. The design of such systems usually relies on a pessimistic analysis based on worst-case execution times of the tasks in order to find a task scheduling meeting the strict real-time requirements of the tasks. Even if it is appropriate in some specific application areas (e.g. aeronautics), this approach does not allow to address many of the most important real-time system applications because, when the execution time variance is high, it leads to a significant over-provisionning of resources and puts unnecessary constraints on the development. For real-time systems for which the task set exhibit substantial variability, one would like to develop approaches taking into account the stochastic nature of processing times. Such approaches can lead to a drastic reduction in the amount of on-board processing resources. Similarly, taking into account the needs for system reconfiguration in case of failure can lead to significant gains.

**Candidate Profile.** The candidate must have:

- a PhD degree in computer science or control,
- Excellent skills in stochastic modelling (queueing theory, stochastic Petri nets, (max,+)-systems,...),
- Knowledge in the domain of real-time systems,
- Good organizational and communication skills.

**Application.** Each application must contain the following documents:

- a detailed CV
- a cover letter with a short description of previous works
- one or two reference letters with contact addresses

**Starting date:** October 3rd, 2011.

Applications should be sent electronically to Olivier Brun (brun{ at } laas.fr)