The practical work of this internship is to implement (in Prolog) in \texttt{BIOCHAM-4} the dynamic strategy of chemical reaction networks using methods from fundamental computer science and mathematics. The software developments are expected to be integrated in \texttt{BIOCHAM}.

The internship will be supervised by François Fages and Sylvain Soliman.

Main activities

Our previous work on this subject is described in


The keys to success

We are seeking a highly talented and motivated candidate not afraid by crossing disciplinary frontiers.

Instruction to apply

Send an e-mail with CV + cover letter to Mr François Fages : françois.fages@inria.fr

Defence Security:
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy:
As part of its diversity policy, all Inria positions are accessible to people with disabilities.

Warning: you must enter your e-mail address in order to save your application to Inria Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.
described in this paper, using both the differential integrator and the event mechanism as a mean to implement the SSA.

The research will consist in experimenting further the dynamic partitioning strategies described in the paper and evaluate them on the repository of models BioModels.

Theoretical work on this subject is possible concerning the correctnes criteria, as well as for instance the search of correctness criteria weaker than approximation in all time points.

The expected results aim to lead to both an international publication and an integration in the next release of BIOCHAM-4 to be routinely used for stochastic simulation of CRNs in BIOCHAM commands for sensitivity and robustness analysis, parameter search in high-dimension, artificial evolution of CRNs, and machine learning CRNs from data.

Skills
This subject requires common and basic knowledge in algorithmics, programming, and in numerical integration methods for ordinary differential equations.

Specific knowledge of the the Prolog programming language or of Computational Systems Biology will be a plus.

Benefits package
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
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- Sports facilities

Remuneration
500 euros/month