This subject requires common and basic knowledge of concentrations is constant), transition-invariants (set of reactions forming a circuit), etc. The chemical reaction network formalism (CRN) is used to model biological processes at the cellular level. They explain the complex phenotypes as resulting from elementary molecular interactions. A CRN has a hypergraph structure (that is, a bipartite species / reaction graph labeled by a rate function) and can be interpreted at different levels of abstraction with different dynamics: algebraic or place-invariant invariants of the network. Petri net (set of molecular species whose sum of concentrations is constant), transition-invariants (set of reactions forming a circuit), etc.

Main activities

Our previous work on some BIOCHAM static analyzers is described in


The work will involve using this information to design and experiment with different species placement strategies and reactions in the Graphviz visualization tool. The evaluation can be done on the BioModels model warehouse by comparing the results with the drawings of the corresponding publications.

Results may be published in the Systems Biology Graphical Notation (SBGN) community

Skills

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Skills

This subject requires common and basic knowledge
in algorithmics, programming, graphs and graphics. Specific knowledge of 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
- Flexible working hours
- Sports facilities

Remuneration
500 euros/month