Mini-projects

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Mini-projects

- Evaluation based on **individual mini-projects**
- Mini-projects develop specific aspects of course
- Mini-projects to be selected from predetermined list or from student proposals
- Mini-projects may be literature study, implementation of algorithm, construction of model, …
- Results of mini-projects described in report (~10 p)
  - Introduction (context, problem/question, approach)
  - Methods
  - Results
  - Discussion and conclusions
- Reports discussed with teacher (feedback)

Mini-projects

- Possible topics for **mini-projects**:
    - Whole-cell modeling
    - Biotechnological applications of flux balance analysis (FBA)
    - Coarse-grained resource allocation models
    - Resource balance analysis (RBA) and other resource allocation variants of FBA
    - Feedback control of synthetic networks
    - Model checking of biological networks
    - Evolution of regulatory networks
    - Machine learning approaches for the modeling and inference of biological networks
    - Acceleration of stochastic simulation using parallel computing
    - Scaling up the stochastic analysis of regulatory networks using Finite State Projection (FSP)

Mini-projects

- Possible topics for **mini-projects** (cont'd):
  - Automated design of synthetic networks
  - Simulation of cellular processes on the single-molecule level
  - Modelling communities of microorganisms
  - Large-scale modeling of signaling networks using Boolean logic
  - Experimental design for predicting the most informative experiments
  - Tracking individual cells using image analysis and machine learning
  - …

Introduction section

- Context

- State-of-the-art

- Precise problem or specific question

- Approach to address problem or answer question

- Preview of results

- Statement of significance

- One or two-page report after fall holidays (Monday, Nov 2), on first four points of Introduction section

Merci !

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