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Title: Evolutionary Computation in Model Discovery and Optimization of Biological Problems

Abstract: Evolutionary Computation encompasses computational heuristic methods that are loosely inspired on biological evolution. Populations of candidate solutions are selected based on goodness of fit to an objective fitness function and subjected to stochastic variation operators such as mutation and crossing over. These methods are particularly well suited for exploring complex solution spaces such as those presented by most biological problems. In this talk different Evolutionary Computation methods are presented to address the problem of multiple sequence alignment, optimization of model parameters and discovery and parameterization of biological processes. Apart from contributions to current biological problems, it can be expected that in the near future Evolutionary Computation will prove to be an invaluable aid in the emergent field of Systems Biology.