

**Posting Date June 13, 2018**

## **Post Doc in Nonlinear Optimization for Genome-scale Modeling of Stress Response and Biological Data Analysis**

The Systems Biology Research Group at the University of California San Diego is seeking a Post-Doctoral Fellow to join the computational modeling team on several projects requiring solution of large, nonlinear optimization problems.

The projects will involve developing constraint-based models to expand their predictive scope by inclusion of new constraints and the formulation of optimization problems and algorithms. The models are used to analyze multi-omics data sets, especially in the context of stress response, including proteomics, transcriptomics, fluxomics, and high-throughput phenotyping. The developed computational methods and algorithms will enable extracting novel insights from omics data, and to compute cell phenotype under different genetic and environmental conditions.

The position will require proficiency in (convex or nonconvex) optimization and algorithm development.

### **Qualifications**

Candidates should have expert knowledge in mathematical optimization (convex and/or nonconvex), and have experience with analyzing large data sets and applying statistical methods. Candidates should also have worked with genome-scale models of metabolism.

The preferred candidate has experience with:

- Large-scale, nonlinear convex and/or nonconvex optimization
- Developing algorithms to extend constraint-based models
- Genome-scale metabolic network models
- Analysis of omics data, including RNA-Seq, proteomics, fluxomics, and metabolomics

Additionally, the candidate must have:

- Proficiency in programming languages, such as Python, MATLAB, R, GAMS/AMPL, C/C++, Fortran
- Expert knowledge in mathematical optimization
- Ability to efficiently communicate with other members of an international research team in English

If you are interested please contact Bernhard Palsson ([palsson@ucsd.edu](mailto:palsson@ucsd.edu)) or Laurence Yang ([lyang@eng.ucsd.edu](mailto:lyang@eng.ucsd.edu)), directly with your CV.