Postdoctoral positions in high-throughput protein biophysics, machine learning, and design

The Rocklin Lab (www.rocklinlab.org) is seeking multiple postdoctoral fellows for experimental and computational projects. We are located in a brand new building on Northwestern's medical campus in downtown Chicago, in a space dedicated to Northwestern's Center for Synthetic Biology. Start dates are flexible.

About us
Our group focuses on applying high-throughput technologies to protein biophysics and protein design. We construct libraries of thousands of proteins (*de novo* designed or naturally occurring), assay their properties using multiplexed methods, and analyze these datasets to understand how protein phenotypes arise from protein sequence and structure. These insights enable us to design new proteins with unique properties. For examples of this approach, see Rocklin et al. 2017 and Chevalier et al. 2017.

One of our exciting new experimental tools is an approach to measure conformational fluctuations for thousands of proteins in parallel using hydrogen exchange mass spectrometry (see poster). We are using this unprecedented large data to examine:

- How do protein sequence and structure determine stability and fluctuations?
- How do point mutants alter conformational dynamics, and can we predict this?
- Can our hydrogen exchange data be integrated with other, even larger-scale data ("transfer learning") to build accurate deep learning models of stability and dynamics?
- Can we use our large-scale data to improve physical models of protein stability and fluctuations (MD force fields, Rosetta), and model structures of excited states?

Position description
We are looking for interested researchers from any scientific specialization, including biology, chemistry, physics, and computer science. We are especially interested in expertise in hydrogen exchange mass spectrometry, protein biophysics, and machine learning, but please apply if you are interested and bring a different specialization. Computational research will be entirely remote during the Covid-19 pandemic.

Why join the Rocklin Lab?
We are building a multidisciplinary and collaborative group in a fantastic environment. Our researchers are integrated into several larger communities that expand their scientific reach, including Northwestern's synthetic biology community (https://syntheticbiology.northwestern.edu), Northwestern's proteomics community (http://proteomics.northwestern.edu), and the international Rosetta protein modeling and design community (https://www.rosettacommons.org).

Please visit rocklinlab.org or email grocklin@gmail.com to learn more.
To apply, please email me your CV and a cover letter describing your interests.