

# CALEB N ELLINGTON

Computational Biology Ph.D. Student | Carnegie Mellon University

📍 Pittsburgh, PA, USA   🌐 calebellington.com   🔄 cnellington   in caleb-n-ellington

## EXPERIENCE

### Deep Learning Researcher

Institute for Protein Design, University of Washington

📅 January 2019 – June 2020   📍 Seattle, WA

- Developed a deep residual network to predict residue-residue contacts on unreliable protein regions which improved long-range contact fidelity for protein structure refinement. Lightning-talk available on my YouTube.

### Software Engineering Intern

Indeed.com

📅 June 2019 – August 2019   📍 Austin, TX

- Lead developer on a new search-and-save resume service (dubbed *Briefcase*) designed to help match job-seeking conference attendees with hiring sponsors. Provided 9 weeks of iterative MVPs.

### Bioinformatics Researcher

Klavins Lab, University of Washington

📅 January 2017 – January 2019   📍 Seattle, WA

- Created online research protocols to track supplies and organism husbandry during development of the high-throughput genetic engineering platform Aquarium.
- Conducted a chalk-talk at the Mary Gates Research Symposium on the efficacy of data-driven organism engineering.

## PROJECTS

### Bayesian model selector for regulatory networks

📅 March 2020

Implemented a command line interface to infer bayesian regulatory networks from unprocessed gene expression data. Predicted the *S. cerevisiae* Galactose metabolism regulatory network.

### EM-based Haplotyping CLI

📅 February 2020

Implemented an expectation-maximization algorithm to allow users to correctly identify lineages of rare genetic diseases from haplotype data through a command line interface.

### Asynchronous BLAST Web App

📅 November 2019

A simple interface for sequence alignment with multiple bacterial genomes. Processes queries and results asynchronously to allow multiple users and submissions at any one time. API available.

## MOST PROUD OF



### NSF Graduate Research Fellowship Honorable Mention, 2020

Deep generative models for ligand-based protein design



### Fulbright Semi-Finalist, 2020

Freelance Ambulances: Integrating Nepal's private transportation with emergency services



### Husky 100 Awardee, 2019

Selected as one of UW's 100 most driven and influential students

## STRENGTHS

Python (7 yrs)

Java (7 yrs)

C++ (2 yrs)

Tensorflow (2 yrs)

MySQL (2 yrs)

React.js (2 yrs)

C

Django

Git

Superset

AWS

Jira

Linux/Unix

## EDUCATION

### Ph.D. in Computational Biology

Carnegie Mellon University

📅 Sept 2020 – Current

Machine Learning

Structural Biology

### B.S. in Computer Science

B.S. in Bioengineering (Honors)

University of Washington

📅 Sept 2016 – June 2020

Computational Biology

Algorithms

Data Structures

Engineering Design

Distributed Systems

Systems Biology

Advanced Synthetic Biology