Justin Ng

Research Interests

I am interested in the application of neural networks to the analysis of biomedical data, as well as the interpretability of such models. I also wish to learn more about graphical models and their applications to systems biology.

Work Experience

Jan 2016 - Apr 2016 **BioSoftware Engineer**
Autodesk Research, BioNano Group. San Francisco, California.
Proposed an automated iterative design system for synthetic biology using bayesian optimization/SMBO which was presented at the AI for synthetic biology workshop at IJCAI-16.
Extracted and homogenized data on viruses to create a searchable and visualizable database.

Apr 2015 - Aug 2015 **Software Developer**
Autodesk Research, Complex Systems Group. Toronto, Ontario.
Developed interactive visualizations on the web to smoothly navigate multiscale time series data using D3.js.
Worked towards state classification of a 3D printer with HMMs on electrical current readings.

Publications

May 2016 **J Ng,** A. Berliner, F. Mazzoldi, J. Lachoff, E. Groban.
A Combinatorial Design Workflow for Search and Prioritization in Large-Scale Synthetic Biology Construct Assembly
Presented at the AI for Synthetic Biology Workshop at International Joint Conference for AI 2016.

Education

Sept 2014 - Exp 2019 **Candidate for Bachelor of Computer Science, Bioinformatics Option**
University of Waterloo, Waterloo, Ontario

Projects and Extracurriculars

Jan 2016 - Present **UWaterloo IGEM**, Synthetic Biology Competition, Mathematical modelling subteam
Modified a genetic sequence by inserting stop codons to regulate prion aggregation in yeast.
Modelling the rate of synthetic plasmid loss in yeast.
Performing exploratory data analysis on historical IGEM team collaboration data.

April 2013 **Android Game**
Developed Cripes, a top-down arcade-action game. Available on Google Play.
Built from scratch on top of Android, implementing a variable time-step game loop, object oriented game logic and UX design.

May 2014 **RNGIdeas**, web scraping and natural language processing project
Program to kick start brainstorming of project ideas.
Acquired project descriptions from GitHub's HTML pages, and used a parts-of-speech tagger on the descriptions to isolate nouns and verbs. Reassembled new sentences based on isolated words.

Interests

Oct 2015 Completed the "Neural Networks for Machine Learning" course on Coursera, and self-studied Stanford's CS229 Machine Learning course.
May 2015 Bioinformatics Club, VP External
Jan 2014 uwDNA Software team member
August 2014 Love in Motion Bike Tour
Biked from Toronto to Montreal to raise money for vulnerable communities across Canada.