Jonathan Lu

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EDUCATION

Princeton University, Princeton, NJ
M.S.E. Computer Science — June 2019
B.S.E. Computer Science — June 2018
Minor in Statistics & Machine Learning — *GPA: 3.98*
Coursework includes:
Probability & Stochastic Processes, Machine Learning, Real Analysis, Big Data, Optimal Learning, Biophysical Chemistry, Optimization

RESEARCH

Engelhardt Lab, Princeton University — April 2016 – Present
Machine Learning Researcher

- Developed one of the top-performing methods for inferring gene regulatory networks
- Method handles short, high-dimensional gene expression time series, accounts for multiple testing, and is faster than similar methods
- Awards: Goldwater Scholarship, Presentation at 2016 ProbGen Conference

White Lab, University of Chicago — June 2015 – April 2016
NSF REU Summer Intern

- Derived an improved statistical model to identify mutually exclusive and co-occurring patterns among somatic mutations in tumor sequencing data
- Built flexible preprocessing module to allow multiple analyses of various cancer mutation types
- Project hosted at https://github.com/lujonathanh/Coffdrop

Burlingame Lab, UCSF — June 2013 – Aug. 2014
Summer Research Intern

- Developed deconvolution algorithm for native mass spectra on peak detection and resolution in spectra with low signal-to-noise ratio
- Built package to simulate, plot, and deconvolute spectra interactively
- Published in Journal of the American Society of Mass Spectrometry

PUBLICATIONS

J. Lu*, B. Dumitrascu*, I. C. McDowell, S. Villar, T. Reddy, B. Engelhardt. *Causal profile subgraph embeddings of metabolic and immune response mediated gene regulation from time series gene expression.* 2nd Probabilistic Modeling in Genomics Conference. (2016) (* indicates equal contribution)

J. Lu*, M. J. Trnka*, S.H. Roh, P.J. Robinson, C. Shiau, D.G. Fujimori, W. Chiu, A.L. Burlingame, S. Guan. *Improved Peak Detection and Deconvolution of Native Electrospray Mass Spectra from Large Protein Complexes.* Journal of the American Society of Mass Spectrometry. (2015) 26:2141. (* indicates equal contribution)

- 19 citations as of February 2019

AWARDS

Goldwater Scholarship (most prestigious STEM award in U.S.), 2017
Sigma Xi Award for Outstanding Undergraduate Research, 2018

Princeton Computer Science Service Award, 2018
Phi Beta Kappa (early election, top 32 in class), 2017
Princeton Computer Science Junior Research Poster Winner, 2017
NSF Research Experiences for Undergraduates, 2015
Shapiro Prize for Academic Excellence, 2015
Pyka Memorial Prize in Physics, 2015
Intel Science Talent Search Semifinalist, 2014
U.S. Math Olympiad Qualifier (top 250 math students in nation), 2013

EMPLOYMENT

Princeton Department of Computer Science Sep. 2018 – Present

COS424 Assistant in Instruction

- Teach classes on applied machine learning

COS340 Assistant in Instruction

- Teach weekly classes on mathematics and proofs for computer science

Writing Center, Princeton University Sep. 2016 – May 2017

Fellow

- Hold individual 1-hour conferences with students (graduate and undergrad) to improve students' writing skills for academic papers and other writing
- Emphasize the students' development as writers, with discussion of sound writing principles

ACTIVITIES

Princeton Student Climate Initiative Dec. 2016 – Present

Founder & President

- Lead a team of 20 students in developing a carbon fee and dividend policy for New Jersey
- Research culminated in a 94-page research paper on the policy's economic, legal, political, and environmental aspects
- Director for the NJ Climate Policy Stakeholder Forum, convening over 40 stakeholders to discuss concrete policy options
- Together, spoke with over 120 students, leading to 484 letters to be mailed to Members of Congress in 24 states
- Taught 5 classes reaching over 60 people about climate science and policy

Sociology and Ethics of Computer Science at Princeton Aug. 2017 – Apr. 2018

Founder & Organizer

- Established a reading group of 15 people that has discussed issues such as algorithmic bias and social media's effect on politics
- Gave 4 public lectures on technology-driven job displacement and explainable AI to a total of about 40 people.
- Established open Facebook group of 204 people in which students discuss the ethical and social implications of computer science

AI4All, Princeton Chapter Jan. 2018 – Aug. 2018

Organizing Instructor and Research Mentor

- Organizing a 3-week fulltime summer camp to introduce high school students from underrepresented minorities to artificial intelligence
- Design research projects and instructional curriculum
- Emphasis on social good aspects of AI