Jonathan Lu

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EDUCATION

Stanford School of Medicine, Stanford, CA
MD Candidate   June 2023
Princeton University, Princeton, NJ
M.S.E. Computer Science   June 2019
*B.S.E. Computer Scienc*e, highest honors   June 2018
        Minor in Statistics & Machine Learning
Coursework includes:
        Machine Learning for Healthcare, Probability, Machine Learning, Real
        Analysis, Big Data, Optimal Learning, Optimization

RESEARCH

Engelhardt Lab, Princeton University   April 2016 – Present
        Machine Learning Researcher
- Developed causal network inference method for gene expression time
  series, that handles short, high-dimensional data, accounts for multiple
  testing, and is faster than similar methods
- Validated on simulated and external data
- Developed Gaussian Process-based method to model causality between
  unevenly spaced time series

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

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

PUBLICATIONS

J. Lu*, B. Dumitrascu*, I. C. McDowell, B. Jo, A. Barrera, L. K. Hong, S. M.
Leichter, T. E. Reddy, B. E. Engelhardt. *Causal Network Inference from Gene
Transcription Response to Glucocorticoids.* In submission.

J. Lu*, B. Dumitrascu*, I. C. McDowell, S. Villar, T. E. Reddy, B. E. 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) (poster presentation, * 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)

AWARDS	**Goldwater Scholarship, 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

SKILLS

Languages: Spanish (basic), Mandarin (basic)
Computer Languages: Python, R, C, MATLAB, Java
Computer Skills: Linux, Git, MySQL, Django, matplotlib, LaTeX

EMPLOYMENT

Princeton Department of Computer Science   Sep. 2018 – May 2019
Teaching Assistant
- Teach classes and design assignments on machine learning
- 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

SERVICE

AI4All, Princeton Chapter   Jan. 2018 – Aug. 2018
Organizing Team Member
- 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

Prison Teaching Initiative, Princeton   Feb – May 2017, 2018
Volunteer Tutor
- Tutor inmates at local New Jersey prisons in their coursework toward their associate's/bachelor's degrees