Samuel Goldman

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Education

Massachusetts Institute of Technology Sept. 2019 – Present
Ph.D. in Computational and Systems Biology | GPA: 5.00 / 5.00

Harvard College Sept. 2015 – May 2019
A.B. in Computer Science, s*umma cum laude* | secondary focus in Microbial Sciences | NCAA Division I Wrestling | GPA: 3.98 / 4.00

Awards and Honors

Takeda Fellowship for AI and Healthcare	Sept. 2022
Herchel Smith Fellowship in Sciences (declined)	May 2019
Phi Beta Kappa	May 2019
Harvard Microbial Sciences Summer Research Fellowship	June 2018
Harvard Dept. of Systems Biology Summer Research Fellowship	June 2017
Harvard Wrestling Bek Family Unsung Hero Award	April 2017
Harvard Detur Book Prize	Nov. 2016
I-SWEEEP Research Competition Silver Medal	May 2015
Siemens Science Competition Semi-Finalist	Oct. 2014

Research & Work Experience

Graduate Research Assistant | Coley Lab, MIT May 2020 – Present
- Thesis work building machine learning methods for the elucidation of new metabolites from mass spectrometry data
- Investigated the use of learned protein and ligand representation for the prediction of enzymatic promiscuity
- Collaborated with MIT CSAIL researchers to apply new uncertainty methods to molecular property prediction and discovery

Undergraduate Researcher | Cluzel Lab, Harvard Oct. 2016 – May 2019
- Thesis work in systems biology, simulating the effects of oscillating gene expression on large gene regulatory network evolution

Summer Investment Team Fellow | Activant Capital June 2019
- Conducted deal sourcing at a growth equity fund with over $400MM assets under management across ag-tech and supply chain

Research Assistant | Coruzzi Lab, NYU June 2013 – Sept. 2014.
- Discovered gene regulatory modules responsible for crop disease resistance using computational network analysis

Teaching and Mentorship

MIT Department of Biology | Graduate Teaching Assistant Spring 2021
- 7.094: Modern computational biology
- 7.571: Computational analysis of biological data

MIT Department of Chemical Engineering | Office hours staff Spring 2021
- 10.602: Machine learning for molecular engineering

Harvard Department of Computer Science | Peer Advisor Sept. 2018 – May 2019

Publications

1. **Goldman, S.,** Das, R., Yang, K. K., & Coley, C. W. (2022). Machine learning modeling of family wide enzyme-substrate specificity screens. *PLOS Computational Biology*, *18*(2), e1009853.
2. Dallago, C., Mou, J., Johnston, K.E., Wittmann, B.J., Bhattacharya, N., **Goldman, S**., Madani, A. and Yang, K.K. (2021) FLIP: Benchmark tasks in fitness landscape inference for proteins. *NeurIPS Datasets and Benchmarks*.
3. **Goldman, S.,** Aldana, M., & Cluzel, P. (2021). Resonant Learning in Scale-free Networks. *bioRxiv*.
4. Heid, E., **Goldman, S**., Sankaranarayanan, K., Coley, C. W., Flamm, C., & Green, W. H. (2021). EHreact: Extended Hasse diagrams for the extraction and scoring of enzymatic reaction templates. *Journal of Chemical Information and Modeling*, *61*(10), 4949-4961.
5. *Soleimany, A. P.*, Amini, A.*,* ***Goldman, S****.*, Rus, D., Bhatia, S., Coley, C. W.* (2020) *Evidential deep learning for guided molecular property prediction and discovery. NeurIPS ML4Molecules. [spotlight talk]*. *co-first authors
6. Yang, K., **Goldman, S.,** Jin, W., Lu, A., Barzilay, R., Jaakkola, T., & Uhler, C. (2021). *Mol2Image: improved conditional flow models for molecule to image synthesis. CVPR*.
7. Yang, D.K., **Goldman, S.L.,** Weinstein, E., Marks, D., (2019) *Generative Models for codon prediction and optimization. MLCB*.
8. Amuge, T., Berger, D. K., Katari, M. S., Myburg, A. A., **Goldman, S. L.**, & Ferguson, M. E. (2017). *A time series transcriptome analysis of cassava (Manihot esculenta Crantz) varieties challenged with Ugandan cassava brown streak virus*. *Scientific reports*, *7*(1), 1-21.

Leadership

MIT Biotechnology Group Sept. 2019 – June 2022

Co-president (2021 – 2022), co-director of entrepreneurship initiative (2020-2021)

- Managed a team of 70+ MIT trainees to explore opportunities, create resources, and plan events for MIT students to learn, connect, and engage with the biotech industry

Nucleate Eco April 2021 – June 2022

Co-Managing Director (2021 – 2022), founding team member (2020 – 2021)

- Established the first ever Nucleate Eco program (prev. Activate Eco), a student led company incubator helping graduate students to found biotech companies addressing sustainability and climate challenges.
- Led 20+ Harvard and MIT MBA candidates, PhD students, and post-docs to build a mentorship network of over 80+ professionals from industry, venture, and academia
- Sourced and supported 15 sustainability focused technology teams over two years from MIT, Harvard, UC Berkeley, and the Salk Institute

Skills

Coding: Python (Pytorch), R, Bash, Linux, biological data analysis
Software: Microsoft Office, Adobe Illustrator
Interpersonal: Leadership, communication, teaching