

CURRICULUM VITAE FOR ALAN N. AMIN

Email: alanamin@nyu.edu

EDUCATION

- Sept 2023-Aug 2025 **Faculty Fellow at Courant Institute, NYU**
Hosted by Andrew Gordon Wilson
- June 2023-Aug 2023 **Postdoc at Jura Bioscience**
- Aug 2019-May 2023 **PhD at Harvard University**
Thesis: **Nonparametric Methods for Building and Evaluating Models of Biological Sequences**
Advised by Professor Debbie Marks
Systems Biology Program
Supported by NSERC Postgraduate Scholarships – Doctoral program:
\$21,000 CAD per year for three years, starting July 2022
- Sept 2015- Apr 2019 **Bachelor of Science at the University of Toronto**
Specialist in **Biochemistry** and Major in **Mathematics**
Course work: molecular genetics, biochemical methods, measure theory, bounded operator theory, abstract algebra and algebraic geometry
GPA 3.98

PUBLICATIONS

- Amin A N**, Wilson A G. Scalable and Flexible Causal Discovery with an Efficient Test for Adjacency. *ICML*, 2024
- Glaser P, Paul S, Hummer A M, Deane C M, Marks D S, **Amin A N**. Kernel-Based Evaluation of Conditional Biological Sequence Models. *ICML*, 2024
- Amin A N**, Weinstein E N*, Marks D S* (*Equal contribution). A Kernelized Stein Discrepancy for Biological Sequences. *ICML*, 2023
- Amin A N**, Weinstein E N*, Marks D S* (*Equal contribution). Kernels with Guaranteed Flexibility for Reliable Machine Learning on Biological Sequences. *Preprint*, 2023, <https://arxiv.org/abs/2304.03775>
- Weinstein E N*, **Amin A N***, Frazer J, Marks D S (*Equal contribution). Non-identifiability and the blessings of misspecification in models of molecular fitness and phylogeny. *NeurIPS*, 2022 (Oral)
- Weinstein E N, **Amin A N**, Grathwohl W, Kassler D, Disset J, Marks D S. Optimal design of stochastic DNA synthesis protocols based on generative sequence models, *AISTATS*, 2022
- Amin A N***, Weinstein E N*, Marks D S (*Equal contribution). A generative nonparametric Bayesian model for whole genomes, *NeurIPS*, 2021.
- Amin A N**, Lin Y-H, Das S, Chan H S. “Theory for a Sequence-Specific “Fuzzy” Binding Mechanism Between a Pair of Intrinsically Disordered Proteins”, *J Phys Chem B*, 2020

Das S, **Amin A N**, Lin Y-H, Chan H S. “Coarse-grained residue-based models of disordered protein condensates: utility and limitations of simple charge pattern parameters.” *Phys. Chem. Chem. Phys.* 2018

Delplace V, Ortin-Martinex A, Tsai E L S, **Amin A N**, Wallace V and Shoichet M S. “Controlled Release Strategy Designed for Intravitreal Protein Delivery to the Retina.” *J. Control. Release* 2018.

WORKSHOP PAPERS:

Amin A N, Weinstein E N, Marks D S. A Kernelized Stein Discrepancy for Biological Sequences. *Learning Meaningful Representations of life workshop at Neurips*, 2022.

Shaw A, Shin J-E, Thadani N N, **Amin A N**, Marks D S. Designing Proteins using Sparse Data. *Learning Meaningful Representations of life workshop at Neurips*, 2022.

Amin A N*, Weinstein E N*, Marks D S (*Equal contribution). A generative nonparametric Bayesian model for whole genomes *Learning Meaningful Representations of life workshop at Neurips*, 2020.

RECENT PRESENTATIONS

June 2024	NYU AI school; 1h talk
February 2024	NYU centre for data science seminar; 1h talk
October 2023	New York Genome Center meeting; 1h talk
October 2023	CSHL SCQB seminar series invited speaker; 1h talk
May 2023	Gatsby Machine Learning seminar; 1h talk
May 2023	Harvard QBio group meeting; 20min talk
May 2023	Harvard Systems Biology department Pizza talk; 1h talk
April 2023	MIT Readstat Statistics reading group; 1.5h talk
March 2023	Harvard Systems biology program mini symposium; 15 min talk
March 2023	Stat 300 Seminar series at the Harvard Statistics Department; 30 min talk
Dec 2022	NeurIPs, Learning Meaningful Representations of Life Workshop; poster
Dec 2021	NeurIPs, Learning Meaningful Representations of Life Workshop; 15 min talk
May 2021	CSHL, Probabilistic Modeling in Genomics; poster
May 2021	Broad institute, Models, Inference and Algorithms Talks; primer (1h talk)
Dec 2020	NeurIPs, Learning Meaningful Representations of Life Workshop; poster

TEACHING EXPERIENCE

Sole Instructor:

Jan 2024 – May 2024 CSC102 **Data Structures** at NYU

Teaching assistant:

Sept 2023 – Dec 2024 CSC102 **Data Structures** at NYU

Sept 2021 – Jan 2022 BCMP230 **Principles and practice of drug development** at Harvard University

Sept 2018 – Jan 2019 MAT224 **Linear Algebra** at the UofT

Sept 2017 – Apr 2018 MAT135 & MAT136 **Calculus** at the UofT

Sept 2016 – Apr 2017 MAT137 **Calculus!** at the UofT

SERVICE

April 2024 **Reviewer** at eLife
March 2024 **Reviewer** at ICML 2024
Dec 2023 **Reviewer** at Neurips 2023
June 2023 **Reviewer** at ICML 2023
Dec 2022 **Top reviewer** at Neurips 2022 - **moderated** deep-dive session 5A
Dec 2022 **Area-chair** at Learning Meaningful Representations of Life workshop at NeurIPS
June 2023 **Top 10% of reviewers** at ICML 2022 - invited to **chair** a session
Dec 2021 **Reviewer** at Learning Meaningful Representations of Life workshop at NeurIPS
Dec 2020 **Reviewer** at Learning Meaningful Representations of Life workshop at NeurIPS

PREVIOUS RESEARCH EXPERIENCE

Sept 2017 – Aug 2019 Undergrad researcher
 Advisor: **Dr. Hue Sun Chan**. University of Toronto
 Predicting interactions from sequences of disordered proteins using physics models.

June 2018 – Aug 2018 Undergrad researcher
 Advisor: **Dr. Clifford Brangwynne**. Princeton University
 Measuring mechanics of nuclear membrane-less organelles investigated using microfluidics.

May 2017 - Aug 2017 Undergrad researcher
 Advisor: **Dr. Molly Shoichet**. University of Toronto
 Designing new hydrogels with desired mechanical properties for drug delivery.

July 2016 – Apr 2017 Undergrad researcher
 Advisor: **Dr. Ronald Kluger**. University of Toronto
 Designing method of loading tRNAs with alternative amino acids for synthetic biology.

ACADEMIC AWARDS

July 2022	NSERC Postgraduate Scholarships Doctoral program (National)	\$21,000 (1/3 years)
Sept 2019	Ross S. Lang Scholarship (Institutional)	\$602
Nov 2018	Innis College Exceptional Achievement (Institutional)	\$740
Nov 2018	The Daniel Wilson Scholarship in Science (Institutional)	\$82
June 2018	Later Life Learning Scholarship (Institutional)	\$744
May 2018	Princeton International Internship (International)	\$Lodging
May 2017	NSERC Undergraduate Student Research Award (National)	\$4500
Nov 2016	Later Life Learning Scholarship (Institution)	\$722
Oct 2015	President's Entrance Scholarship (Institution)	\$2000

ORGANIZING

Sept 2020 – May 2023 Harvard Graduate Student Union steward (orientation, education, recruitment)
Jul 2020 – Jan 2021 Equitable mentorship equity working group in Systems biology department
Jul 2020 Systems biology program petition for equity group (writing petition, recruitment)