Tamjeed Azad

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Education

- **Princeton University** — Princeton, NJ
  PhD in Computer Science (Anticipated). GPA: 4.00 — *August 2022 - Present*
  - Advised by Prof. Yuri Pritykin.
- **Columbia University** — New York, NY
  BS in Computer Science, Minor in Economics. GPA: 3.99 — *August 2018 - May 2022*
  - Degree conferred Magna Cum Laude.
  - Worked closely with Prof. Elham Azizi.

Research Interests

- single-cell transcriptomics, cell-cell interactions, spatial transcriptomics, immunology

Honors

- Cummins Merit Fellowship Recipient, Princeton University, 2022-2023.
  Allen School CSE PhD Research Fellowship, University of Washington, 2022-2023 (declined).
  Tau Beta Pi Honor Society Member since November 2020.
  NSF REU Participant, University of Tennessee at Chattanooga, iCompBio 2020.
  Columbia Summer Undergraduate Research Fellowship (SURF) 2019.
  CP Davis Scholar, Columbia University Scholars Program (CUSP), 2018-2022.
  Columbia University Dean's List all eligible semesters, 2018-2022.
  National Merit Scholar (Tennessee), 2018.

Publications

- Camara, A., Taneja, N., **Azad, T.**, Allaway, E., Zemel, R. (2022). Mapping the Multilingual Margins: Intersectional Biases of Sentiment Analysis Systems in English, Spanish, and Arabic. *Proceedings of the Second Workshop on Language Technology for Equality, Diversity and Inclusion*, 90–106, Association for Computational Linguistics. Oral Presentation. http://dx.doi.org/10.18653/v1/2022.ltedi-1.11
- **Azad, T.**, Alonzo, S. H., Bonsall, M. B., Klug, H. (2021). Life history, mating dynamics and the origin of parental care. *Journal of Evolutionary Biology*, 35, 379–390. https://doi.org/10.1111/jeb.13959
- Chien, T., Harimoto, T., Kepecs, B., Gray, K., Coker, C., Hou, N., Pu, K., **Azad, T.**, Nolasco, A., Pavlicova, M., Danino, T. (2021). Enhancing the tropism of bacteria via genetically programmed biosensors. *Nature Biomedical Engineering.* 6, 94–104. https://doi.org/10.1038/s41551-021-00772-3

Presentations

- (Poster Presentation) Chudnovskiy, A., **Azad, T.**, Pritykin, Y., Victora, G.D. (2023) Profiling interactions between lung tumor metastasis and immune cells using uLIPSTIC. *Rutgers Cancer Institute - Ludwig Princeton Branch of Princeton University 3rd Annual Cancer Research Symposium.*
- (Oral Presentation) **Azad, T.**, Qin, H. (2020) Recurrent neural networks for COVID-19 prediction: A cross-study with historical flu data and temperature data. *12th Annual National Institute for Mathematical and Biological Synthesis Undergraduate Research Conference.*

Professional Experience

- **Software Development Engineer Intern** — Amazon
  Items and Offers Platform, Amazon Selection and Catalog Systems. *Summer 2022, Summer 2021*
  - Added internal authentication + user analytics to Offer Service Buyability Analyzer Tool.
  - Used the AWS CDK to create an end to end prototype log monitoring application for OfferService.
- **Research Assistant, Azizi Lab** — Columbia University
  Research in single-cell transcriptomics. *February 2020 - May 2022*
  - Investigated generative modeling for scRNA-seq data using ensembles of variational autoencoders.
  - Analyzed immune cell dynamics in acute lymphoblastic leukemias using scRNA-seq data.
  - Analyzed patterns of gene expression across T cell lineages in Growth v Host Disorder patients using paired scRNA-seq/scTCR-seq data.
- **Summer Research Intern, Qin Lab** — University of Tennessee at Chattanooga
  Interned through iCompBio REU 2020. *May 2020 - July 2020*
  - Constructed RNN-based models for regional COVID-19 case prediction using historical flu and temperature data.
- **Research Assistant, Synthetic Biological Systems Lab** — Columbia University
  Investigated engineering bacterial biosensors. *October 2018 - August 2019*
  - Engineered bacteria that could selectively grew and fluoresced in a low pH environment.
- **Research Assistant, Klug Lab** — University of Tennessee at Chattanooga
  Computational research in evolutionary ecology. *November 2016 - August 2018*
  - Investigated link between life history traits, mating dynamics, and parental care's evolution through exploratory computational analyses.

Teaching Experience

- **Graduate Teaching Assistant** — Princeton University
  TA in the computer science department. *Since September 2023*
  - (*Fall 2023*) Teaching Assistant for Introduction to Computational Molecular Biology.
- **Undergraduate Teaching Assistant** — Columbia University
  TA in the computer science and electrical engineering departments. *September 2020 - May 2022*
  - (*Spring 2022, Fall 2021, Spring 2021*) Course Assistant for Fundamentals of Computer Systems.
  - (*Spring 2021, Fall 2020*) Lab Assistant for Intro to Electrical Engineering.

Other Projects

- **PolyWiz** (*Spring 2021*) Programming language designed for a 5-person team project in Programming Languages and Translators class. Language uses C-like syntax and has extensive native support for polynomial computing and plotting. Translator architecture written using OCaml and C. Source code and project report accessible on GitHub profile.

Technical Skills

- **Languages:** Python, R, Java, MATLAB, C/C++, OCaml, TypeScript, JavaScript

Extracurricular Activities

- **Writer, Princeton Insights** Princeton University
  Group highlighting Princeton research in published, accessible, and short reviews. *Since Spring 2023*
  - Article: *Belayer: Modeling Layered Tissues in Spatial Transcriptomics.* https://insights.princeton.edu/2023/08/modeling-spatial-transcriptomics/
- **Senior Advisor, Club Zamana** Columbia University
  Umbrella organization for Columbia's South Asian community. *2021-2022* School Year
  - Media Chair, 2019-2020 School Year; Organizational Committee Member, 2018-2019 School Year.
- **E-Board Member, Columbia Science Review** Columbia University
  Club that hosts science-focused events and publishes a science-focused magazine. *2019* Spring Semester

Community Service

- Erlanger Health System Summer VolunTEEN 2017, Signal Mtn. Library Volunteer (2016-2017), Signal Mtn. Middle School MATHCOUNTS Team Founder & Coach (2017-2018).