Tamjeed Azad

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EDUCATION

Columbia University, B.S. (Anticipated) — New York, NY
Major in Computer Science. — *August 2018 - May 2022*

- Cumulative GPA: 4.006/4.000. Tau Beta Pi Honor Society Member since November 2020. Dean's List All Eligible Semesters. CP Davis Scholar, Columbia University Scholars Program (CUSP).
- Selected Coursework:
  Current: Neural Networks & Deep Learning, Computer Vision I, Biostatistics for Engineers.
  Completed: Machine Learning, Artificial Intelligence, Computational Aspects of Robotics, Natural Language Processing, Intro to Networks and Crowds, Analysis of Algorithms I, Programming Languages & Translators, Economic Growth and Development I, Organic Chemistry I/II.

WORK EXPERIENCE

Research Assistant, Azizi Lab — Columbia University
Working in intersection of machine learning and single-cell genomics. — *February 2020 - Present*

- Currently working on a project analyzing neural net-based inference methods with respect to Bayesian uncertainty.
- Previously worked on a project analyzing immune cell dynamics in acute lymphoblastic leukemias. Also previously worked on a project analyzing immune cell lineage vs differential gene expression in Growth v Host Disorder patients' tissues.

Teaching Assistant — Columbia University
TA in the CS and EE departments of Columbia. — *September 2020 - Present*

- (*Fall 2021, Spring 2021*) Course Assistant for CSEE 3827: Fundamentals of Computer Systems. Responsibilities include guiding students through course concepts & assignments in office hours and course forums (EdStem, Piazza), and assignment grading & proctoring.
- (*Spring 2021, Fall 2020*) Lab Assistant for ELEN 1201: Intro to Electrical Engineering. Working with a team of undergraduate lab assistants, grade lab reports and hold virtual lab office hours each week to guide students through lab assignments.

Software Development Engineer Intern — Amazon
Summer intern in Amazon Selection and Catalog Systems. — *June 2021 - August 2021*

- Worked on the Items and Offers Platform team.
- Used the AWS CDK to create an end to end prototype log monitoring application, and a framework for extending prototype to production log data.
- Primarily used Python and TypeScript to code the application.

Summer Research Intern, Qin Lab — University of Tennessee at Chattanooga
Paid Internship through iCompBio REU 2020, an NSF-funded program. — *May 2020 - July 2020*

- Created several LSTM-based neural net models using TensorFlow for predicting weekly new COVID-19 positive cases in New York, Texas, California, and Florida. Source code accessible on personal GitHub profile.
- Analyzed effectiveness of using historical flu data and temperature data for prediction.
- Presented work at 12th Annual NIMBioS Undergraduate Research Conference in Fall 2020.

Research Assistant, Synthetic Biological Systems Lab — Columbia University
Assistant in research on engineering bacterial biosensors for cancer tumor detection. — *October 2018 - August 2019*

- Engineered bacteria that selectively grew and fluoresced in a low pH environment. Developed synthetic bio wet lab skills such as PCR, gel electrophoresis, and cell culturing.
- Completed paid summer internship in the lab through Columbia's Summer Undergraduate Research Fellowship (SURF) in 2019. Also received 2019 CUSP Summer Enhancement Fellowship for financial support.
- Presented summer work at the 2020 SURF Symposium. Work incorporated into coauthored paper.

- **Research Assistant, Klug Lab** — University of Tennessee at Chattanooga
  Evolutionary ecology research using computational approaches. *November 2016 - August 2018*
    - Computationally analyzed and helped develop mathematical models that model the evolution of parental care in nature. Specific project focused on the link between life history traits, mating dynamics, and care's evolution.
    - Work incorporated into first-authored in review manuscript.

PUBLICATIONS

- (2021) "Enhancing the tropism of bacteria via genetically programmed biosensors." Chien et al., *Nature Biomedical Engineering.*

- (2021) "Life history, mating dynamics, and the origin of parental care." Azad et al., in review manuscript, first-authored.

PROJECTS

- **PolyWiz** (*2021 Spring*) Programming language designed for a 5-person team project as a core component of 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, Java, MATLAB, C/C++, OCaml, TypeScript, JavaScript

- **Tools:** AWS, GCP, Bash, GIT

EXTRACURRICULARS

- **Senior Advisor, Club Zamana** — Columbia University
  South Asian cultural club and umbrella organization for all campus South Asian clubs. *2020-2021* School Year
    - Media Chair on Executive Board during 2019-2020 School Year.
    - Organizational Committee Member on Executive Board during 2018-2019 School Year.

- **Organizational Committee Member, Columbia Science Review E-Board** — Columbia University
  Club that spreads science literacy and publishes a science-focused magazine. *2019* Spring Semester

- **Other Interests:** Intramural Sports Participant (Indoor Soccer, Outdoor Soccer, Basketball), Former NY Road Runners Member.