

Adiba Ejaz

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EDUCATION

Columbia University, New York, NY

May 2023

B.A. in Computer Science and Mathematics (GPA: 3.926. Dean's List.)

Relevant coursework: Advanced Programming* (*Unix*, *C*, *C++*). Modern Algebra I*. Discrete Mathematics*. Data Structures (*Java*). Honors Mathematics A and B (multivariable calculus and linear algebra). Principles of Economics. Summer seminar in *probability theory*: gave three talks on discrete random variables; Gambler's ruin problem; and transience and recurrence in simple random walks respectively.

GEMS Modern Academy, Dubai, UAE

May 2019

IBDP (GPA: 45/45, SAT 1570 800 Math 770 Verbal, 800 Math II). *Valedictorian*. *KS Varkey Scholarship*.

* this semester

SKILLS

- **Programming languages**: Java*, Python*, JavaScript, HTML.
- **Technologies & frameworks**: Git*, LaTeX*, MongoDB, Express.js, React.js, Node.js, Mathematica
- **Natural languages**: Trilingual in English, Urdu, Hindi. Semi-fluent in French.

* proficient

PROFESSIONAL EXPERIENCE

Undergraduate Researcher. The Billinge Group, Columbia University. New York, NY

May 2020-Present

- Authoring and maintaining *Python* scripts using test-driven development in *pytest* for Regolith, *NoSQL* research group database management software
- In team of 3, spearheading migration of Regolith projects interface from CLI to web app using *MERN* stack
- Building *matplotlib* tool for analysing grant burn and projecting future appointments on grants to balance budget
- Reviewing and assisting with 2 additional members' code projects on database querying

Technical Intern. Dubai Future Accelerators. Dubai, UAE

March 2018

- Researched optimal materials to locally engineer power over laser and optic fiber for wireless energy transfer
- Proposed regional applications of start-up's product in delivery drones and defibrillators for disaster relief
- Evaluated performance of proposed machine-learning based biometrics compared to dominant infrastructure

RESEARCH

Spectral graph theory applied to topological data analysis. *Columbia University*.

May 2020-Present

Co-authoring a paper with Professor Simon Billinge and Adjunct Scientist Michael Waddell in the Applied Physics and Mathematics department on an algorithm to extract homologies and filter noise of high-dimensional datasets using the Laplacian matrices of their persistence graphs.

On the partitioning of n -spheres. *International Baccalaureate*.

May 2018-19

Computational geometry research paper arriving at a result enumerating the optimal partitioning of n -dimensional spheres by hyperplanes. Grade A (awarded to top ~10% of candidates).

LEADERSHIP AND ACTIVITIES

- **Technical.** Columbia Superposition (Technology Director: designing tech curriculum, lesson plans, workshops, and projects for students with varying experience levels). Columbia Association for Women in Math. Columbia Womxn in Computer Science.
- **Debate.** Columbia Debate Society (Team Liaison: equity, team culture, & retention strategy). T5 Novice (American University, CUNY). Cornell Novice Finalist. UAE National Team – World Schools Debating Championships.