Adiba Ejaz

CONTACT

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RESEARCH INTERESTS

Computational semantics, computational complexity (particularly proof complexity), automated theorem proving, algebra in computation

EDUCATION

Columbia University, New York, NY — May 2023
Bachelor of Arts in Computer Science – Mathematics. Concentration in Philosophy.

- Dean's list for all applicable semesters
- GPA 4.06, major GPA 4.02

RESEARCH EXPERIENCE

Department of Computer Science, Columbia University. Spring 2022
A biologically plausible parser for natural language syntax in the brain extended to center-embedded sentences and constituency trees.
Collaborators: Professor Christos Papadimitriou (supervisor), Mirah Shi

Department of Philosophy, Columbia University. Spring 2022
An account of the falsehood and felicity of the Morgenbesser counterfactual: non-deterministic outcomes against the causal independence principle.
For Professor Jessica Collins's graduate research seminar PHIL 9485: Conditionals.

Department of Philosophy, Columbia University. Spring 2022
How should we prove theorems? Reviving Hilbert's thesis with interactive proof verification.
For Professor Justin Clarke-Doane's graduate research seminar PHIL 9941: Metalogic.

The Billinge Group, Columbia University. Summer 2020, 2021
Spectral graph theory applied to topological data analysis: using distance matrices to derive higher dimensional simplices, holes, and their persistence.
Collaborators: Professor Simon Billinge (supervisor), Michael Waddell, John Willey

CONFERENCE PROCEEDINGS

Papers

Center-Embedding and Constituency in the Brain and a New Characterization of Context-Free Languages. Daniel Mitropolsky, Adiba Ejaz, Mirah Shi, Christos Papadimitriou, and Mihalis Yannakakis.
- Oral presentation at NALOMA, August 2022. To appear in ACL Anthology.

SEMINARS

Columbia Undergraduate Seminar in Theoretical Computer Science

- Speaker, *Philosophy of computation* — Spring 2022
- Organiser, *Algorithmic game theory* — Summer 2021

Directed reading, *Markov Chains.* Columbia Undergraduate Math Society — Fall 2020

Speaker, *Simple random walks.* Association for Women in Math — Summer 2020

TALKS

The Turing test as interactive, probabilistic proof. CU TCS — Spring 2022

Computability of pure Nash equilibria. CU TCS — Summer 2021

Randomised cover time of a complete graph. CU UMS — Fall 2020

Why the house always wins: the gambler's ruin problem. CU AWM — Summer 2020

Some discrete probability distributions. CU AWM — Summer 2020

INDUSTRY EXPERIENCE

Software Engineer Intern, Stripe. New York, NY. — Summer 2022
Building performance optimisation tool for profiling Go services.

Software Engineer Intern, ServiceNow. Kirkland, WA. — Summer 2021
Wrote server-side class for analysing runtimes of hardware automations.

TEACHING

At Columbia, I have worked as an undergraduate teaching assistant for the following courses, grading problem sets and holding weekly office hours and review sessions.

- MATH GU 4041 Modern Algebra I, Professor Jorge Pineiro — Spring 2022
- MATH GU 4041 Modern Algebra I, Professor Robert Friedman — Fall 2021
- MATH UN 1208 Honors Math B, Professor Evan Warner — Spring 2021

My teaching evaluations are available upon request.

I also volunteer for Corrupt the Youth, teaching introductory philosophy at systemically disadvantaged high-schools in New York.

SKILLS

Programming Languages: Python, C, Java, JavaScript, Bash, Assembly, LaTeX.

Natural languages: English (fluent), French (intermediate), Hindi (native), Urdu (native), Arabic (elementary)

INTERESTS

I love to listen to punk music, write satire, and bike; sometimes all at once.