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.