Gabriel Smithline

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Personal Profile

I am passionate about exploring the intersection between AI, economics & computation, multi-agent systems, and complexity. I hold United States and Polish citizenship.

Personal Website: `https://gsmithline.github.io/`

Education

University of Michigan Ann Arbor   *Ann Arbor, MI*

PhD in Computer Science and Engineering   *August 2024 - Expected May 2028*

- Member of the Strategic Reasoning Group in the AI Lab
- **First Year Advisor:** Michael P. Wellman

Tufts University   *Medford, MA*

MS in Computer Science   *May 2022 - May 2024*

- Graduated summa cum laude while working full time
- Thesis: Partial Observability and Deception in Stackelberg Games

Lafayette College   *Easton, PA*

BA Mathematical Economics, and Statistics-Data Science   *August 2017 - May 2021*

- Data Education and Feminism Scholar at Lafayette and Beyond (DEFLAB)
- 4 year Division 1 Student-Athlete on the men's lacrosse team committing 30 plus hours a week to activities on top of school
- USILA All American
- Thesis: A Statistical and Game Theoretic Approach to a better Housing Market

Industry Work Experience

Tufts University   *Medford, MA*

Machine Learning Course Assistant   *August 2023 - May 2024*

- Helped run office hours, grade assignments, run recitations, answer questions for students, and generally support them in the machine learning course.

Jefferies   *New York, New York*

Quantitative Risk Summer Associate   *June 2023 - August 2023*

- Interned for summer 2023 working to model risk for fixed income trading as well as helping to build out the banks e-trading and algorithmic trading business. Specifically I helped to automate VaR and Monte-Carlo VaR simulations as well as help develop software to price certain fixed income securities. I also developed internal software to run VaR calculations on full fixed income trading data.
- The results of my work helped speed up systematic risk calculations by 50%

Capital One   *Washington, DC*

Software Engineer, Enterprise Data and Machine Learning   *August 2021 - December 2022*

- Scaled and designed API to handle more than 52,000 transactions per second with less than 7 ms response time.
- Enabled canary deployments, identified/remediated bottlenecks in code, built features to track lineage of all data flowing through the API.
- Helped data scientists and ml engineers run models and perform inference in low latency environments.
- Became Certified AWS Solutions Architect.

Recent Projects and Research

Improving Multi-Agent Strategies through Learning   *Shalimar, Florida*

Happ Arnold Summer Fellow, AI and Control Research Lab Eglin Air force Base   *May 2024 - August 2024*

- Spending the summer researching multi-agent systems, differential game theory, pursuit-evasion, Geometric Deep Learning, and Graph Theory.
- I am being hosted by Dr. Scott Nivison

Complexity Theory, Algorithmic Game Theory, and Security Research   *Remote*

Tufts University   *August 2023 - May 2024*

- Worked to develop models of deception as a defensive strategy against attackers using various optimization techniques, Game Theory, AI, Mechanism Design, and other concepts from Computer Science.

Algorithms, Law, and Policy Working Group Member   *Remote*

Equity and Access in Algorithms, Mechanisms, and Optimization (EEAMO)   *September 2023 - Present*

- Member of the Algorithms, Law, and Policy group which is working on research, implementation, and advocacy projects.