Atanas Dinev

Email: adinev@mit.edu
Webpage: atanasdinev-99.github.io

Education

Massachusetts Institute of Technology — Cambridge, MA
Ph.D. in Operations Research, Advisor: Thodoris Lykouris — 2022–Current

- Research Interests: Sequential Decision Making for Economic Environments, Machine Learning, Applied Probability, Online Marketplaces and Platforms
- Relevant Courses: Statistical Reinforcement Learning, Machine Learning, Inference and Information, Nonlinear Optimization, Probability, Linear Programming, Inventory Management, Revenue Management, GPA: 5/5

Princeton University — Princeton, NJ
A.B. in Mathematics, Magna Cum Laude, GPA: 3.968/4 — 2018–2022

- Relevant Courses: Probability Theory, High-Dimensional Probability, Stochastic Calculus, Statistical Theory and Methods, Stochastic Control, Financial Econometrics, Machine Learning, Complex and Real Analysis, Combinatorics, Graph Theory, Algebra

Research Experience

Massachusetts Institute of Technology — Cambridge, MA
Research Assistant, Advisor: Thodoris Lykouris — August 2022-

- I develop theoretical frameworks and methodologies for sequential decision making and apply tools from stochastic processes to analyze and improve the efficiency of digital marketplaces.

Princeton University — Princeton, NJ
Undergraduate Researcher, Advisor: S. Matthew Weinberg — 2020-2022

- Designed a novel optimal online contention resolution scheme for k-uniform matroids and proved its optimality.
- Proved new tight bounds on manipulation gains in Incentive Compatible Tournament Design.

Princeton University, Department of Computer Science — Princeton NJ
Undergraduate Researcher, Advisor: Ryan P. Adams — Summer 2019

- Designed and analyzed a Gibbs sampling algorithm for uniform samples from the Birkhoff polytope.

Publications

- **Social Learning with Limited Attention: Negative Reviews Persist under Newest First**
  with Jackie Baek and Thodoris Lykouris
  - 25th ACM Conference on Economics and Computation (EC), 2024
  - Major Revision at Operations Research
  - arXiv link: https://arxiv.org/abs/2406.06929
- **Simple and Optimal Online Contention Resolution Schemes for k-Uniform Matroids**
  with S. Matthew Weinberg
  - Innovations in Theoretical Computer Science (ITCS), 2024
  - arXiv link: https://arxiv.org/abs/2309.10078
- **Tight Bounds on 3-Team Manipulations in Randomized Death Match**
  with S. Matthew Weinberg
  - Conference on Web and Internet Economics (WINE), 2022
  - arXiv link: https://arxiv.org/abs/2301.07862

Talks

- **Social Learning with Limited Attention: Negative Reviews Persist under Newest First**
  - INFORMS Manufacturing and Service Operations Management Conference SIG (MSOM SIG 2025), June 2025
  - Marketplace Innovation Workshop (MIW 2025), May 2025
  - INFORMS Annual Meeting (INFORMS 2024), October 2024
  - INFORMS Revenue Management and Pricing Section Conference (RMP 2024), July 2024
  - 25th ACM Conference on Economics and Computation (EC 2024), July 2024
  - INFORMS Manufacturing and Service Operations Management Conference (MSOM 2024), June 2024
- **Simple and Optimal Online Contention Resolution Schemes for k-Uniform Matroids**
  - Innovations in Theoretical Computer Science (ITCS), 2024
- **Tight Bounds on 3-Team Manipulations in Randomized Death Match**
  - Conference on Web and Internet Economics (WINE), 2022

Honors and Awards

- Phi Beta Kappa, *Princeton University* — May 2022
- Sigma Xi, *Princeton University* — May 2022
- Shapiro Prize For Academic Excellence, *Princeton University*, Top 2-3% of class — Sep 2020
- International Mathematical Olympiad — 2016, 2017, 2018
  2016 - Bronze Medal, 2017 - Bronze Medal, 2018 - Bronze Medal
- William Lowell Putnam Mathematical Competition - Top 200 out of 4000 — 2018,2019
- Balkan Mathematical Olympiad — 2016, 2017, 2018
  2016 - Silver Medal, 2017 - Gold Medal, 2018 - Silver Medal
- East Coast Regional Datathon, Citadel, Citadel Securities, and Correlation One - Top 8 out of 30 — Feb 2019

Teaching Experience

- **Teaching Assistant, Data, Models, and Decisions (15.060)**, MIT — Fall 2024
  Graduate, MBA Core Course, 400 students
  - Led recitations on random variables, linear and logistic regression, classiciation metrics, and optimization.
- **Head Teaching Assistant, The Analytics Edge (15.071)**, MIT — Spring 2024
  Graduate, MBA Course, 200 students
  - Designed and improved course materials on linear regression, classification, regularization, and CART.
- **Princeton University, Teaching Assistant** — Spring 2022
  Economics and Computation (COS 445), Undergraduate, 200 students

Industry Experience

Citadel Securities LLC — New York, NY
Quantiative Trading Intern — Summer 2021

- Learned about financial markets; built time series model for ETF returns; analyzed counterparty accumulation.

Aquatic Capital Management — Chicago, IL
Research Intern — Summer 2020

- Investigated a coordinate descent algorithm and optimized its performance on elastic net for large datasets.

Academic Service

Seminar Coordinator, MIT Operations Research Center (ORC) Spring 2025

Skills

Advanced: Python, R, Numpy, Pandas, scikit-learn, statsmodels, LaTeX, Power Point
Intermediate: Git, GitHub, Julia, JuMP, Gurobi, Java, Excel
Basic: Matlab, C++