Atanas Dinev

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Education

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

- Research Interests: Sequential Data-Driven Decision Making, Machine Learning, Applied Modelling, Applied Probability, Statistics
- Relevant courses: Linear Programming, Probability, Inference and Information, Machine Learning, Statistical Reinforcement Learning GPA: 5/5

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

- Magna Cum Laude
- 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

Industry Experience

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

- Learned about financial market asset classes. Used time series models to analyze relationships between international ETF returns. Developed a tool for measuring counterparty position accumulation in options.

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

- Collaborated with Aquatic as part of the RIPS (Research in Industrial Projects for Students) 2020 program at IPAM. Investigated a coordinate descent algorithm to optimize its performance on elastic net with applications to quantitative trading. Performed studies on methods for approximating the covariance matrix of the data and studied feature selection rules

Research Experience

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

- Working on problems in sequential decision making and online learning with applications to pricing, online platforms, and online marketplaces.

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

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

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

- Designed and analyzed a Gibbs sampling algorithm to obtain uniform samples from the Birkhoff polytope and studied its convergence rate and mixing time.

Publications and Preprints

- **Tight Bounds on 3-Team Manipulations in Randomized Death Match**
  Atanas Dinev, S. Matthew Weinberg
  - Appeared and presented at Conference on Web and Internet Economics (WINE), 2022
- **Simple and Optimal Online Contention Resolution Schemes for k-Uniform Matroids**
  Atanas Dinev, S. Matthew Weinberg
  - In submission

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
- International Zhautikov Olympiad in Mathematics — 2017, 2018
  2017 - Gold Medal, 2018 - Gold Medal
- Harvard - MIT Invitational Mathematics Competition - Top 8 out of 50 — Apr 2018
- East Coast Regional Datathon, Citadel, Citadel Securities, and Correlation One - Top 8 out of 30 — Feb 2018

Teaching Experience

- **Princeton University, Teaching Assistant** — Spring 2022
  Economics and Computation (COS 445),Undergraduate, 200 students
- **Princeton University, Peer Tutor** — Fall 2021
  Tutor peer students on Probability and Stochastic Systems (ORF 309) and Single Variable Analysis (MAT 215)

Skills

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