

# Jason Milionis

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## EDUCATION

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### Columbia University

September 2021 - Present

Doctor of Philosophy (Ph.D.) student in Computer Science

Master of Science (M.S.) in Computer Science (awarded May 2022)

*New York, NY*

- Working with the [CS Theory Group](#)
- Ph.D. Advisors: Prof. Christos Papadimitriou & Prof. Tim Roughgarden

### National Technical University of Athens (NTUA)

September 2016 - June 2021

Master of Engineering (M.Eng.) Diploma: Joint degree in Electrical & Computer Engineering

*Athens, Greece*

- 1st in class, GPA: 10.00/10.00
- Thesis: “Regression with unbounded covariates under differentially private learning constraints”
- Thesis Advisor: Prof. Dimitris Fotakis, CoReLab (Computation & Reasoning Laboratory)

## CONFERENCE & JOURNAL PUBLICATIONS

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### [The Effect of Trading Fees on Arbitrage Profits in Automated Market Makers](#)

FC DeFi 2023

- with Ciamac C. Moallemi, Tim Roughgarden

### [Complexity-Approximation Trade-offs in Exchange Mechanisms: AMMs vs. LOBs](#)

FC 2023

- with Ciamac C. Moallemi, Tim Roughgarden

### [Quantifying Loss in Automated Market Makers](#)

ACM CCS DeFi 2022

- with Ciamac C. Moallemi, Tim Roughgarden, Anthony Lee Zhang
- Informed AMM design and ignited follow-up on approaches for mitigating Loss-Versus-Rebalancing (LVR)

### [A Framework for Single-Item NFT Auction Mechanism Design](#)

ACM CCS DeFi 2022

- with Dean Hirsch, Andy Ardit, Pranav Garimidi
- Selected for the Association for Computing Machinery (ACM) Showcase, to further the outreach beyond academics

### [Nash, Conley, and Computation: Impossibility and Incompleteness in Game Dynamics](#)

SAGT 2022

- with Christos Papadimitriou, Georgios Piliouras, Kelly Spendlove

### [Differentially Private Regression with Unbounded Covariates](#)

AISTATS 2022

- with Alkis Kalavasis, Dimitris Fotakis, Stratis Ioannidis

## PROFESSIONAL & ADVISORY EXPERIENCE

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### Crypto Researcher Intern

June 2023 - August 2023

*Jump Operations*

*New York, NY*

- Ph.D. research internship

### Research Fellow

January 2023 - May 2023

*Uniswap Labs*

*New York, NY*

- Working with Austin Adams, Xin Wan, Matteo Leibowitz

### Research Intern

June 2022 - August 2022

*Archimedes Research Center*

*Athens, Greece*

- Research internship at the inaugural edition of the summer AI intern program of the Archimedes Research Center

### Uniswap Lead, Blockchain@Columbia

May 2022 - December 2022

*Governance Protocol Leader*

*New York, NY*

- **Advisor** on Uniswap Governance Proposals
- Posted technical opinions that helped shape decisions in the Uniswap Governance community ([example](#))
- Mentored members on technical, societal aspects of governance, and treasury allocation for grant funding
- Interviewed candidates for board membership at the Blockchain Club, and planned board meeting agendas

**Technical AI Safety Fellow***Columbia AI Alignment Club (CAIAC), Columbia Effective Altruism (CUEA)*

July 2023 - August 2023

New York, NY

- Selected as a Fellow by the Columbia AI Alignment Club
- Explored approaches to addressing artificial intelligence (AI) risk and aligning advanced AI with human values: reinforcement learning from human feedback, mechanistic interpretability, agent foundations, and AI policy
- Participated in weekly discussions with a diverse cohort of fellows

**Affiliate, Center for Digital Finance and Technologies***School of Engineering and Applied Sciences, Columbia University*

September 2022 - Present

New York, NY

- Inaugural affiliate of the Center, invited by the Center Director, Prof. Agostino Capponi
- The Center leverages multi-disciplinary expertise at Columbia to advance the digital transformation of financial services for higher efficiency and security, increased accessibility, and greater social responsibility

**RESEARCH TALKS & INVITATIONS****The Science of Blockchain Conference 2023, Stanford University***Automated Market Making and Arbitrage Profits in the Presence of Fees*

August 28, 2023

Palo Alto, CA

**Workshop on Decentralized Finance (DeFi), Twenty-Seventh International Conference on Financial Cryptography and Data Security (FC 2023)***How Do Trading Fees Affect Arbitrage Profits?*

May 5, 2023

Brač, Croatia

**Twenty-Seventh International Conference on Financial Cryptography and Data Security (FC 2023)***Complexity-Approximation Trade-offs in Exchange Mechanisms: AMMs vs. LOBs*

May 1, 2023

Brač, Croatia

**ACM Conference on Computer and Communications Security (CCS)****Workshop on Decentralized Finance and Security 2022***Quantifying Loss in Automated Market Makers*

November 11, 2022

Los Angeles, CA

**ACM Conference on Computer and Communications Security (CCS)****Workshop on Decentralized Finance and Security 2022***A Framework for Single-Item NFT Auction Mechanism Design*

November 11, 2022

Los Angeles, CA

**Carnegie Mellon University (CMU) Security and Privacy Institute (CyLab)****Crypto Seminar Series***Automated Market Making and Loss-Versus-Rebalancing (LVR)*

October 27, 2022

Pittsburgh, PA

**Panelist at the CBER (Crypto and Blockchain Economics Research Forum) Symposium***Decentralized Exchanges*

October 20, 2022

Online

**15th International Symposium on Algorithmic Game Theory (SAGT) 2022***Nash, Conley, and Computation: Impossibility and Incompleteness in Game Dynamics*

September 14, 2022

Colchester, UK

**The 25th International Conference on Artificial Intelligence and Statistics (AISTATS 2022)***Differentially Private Regression with Unbounded Covariates (poster presentation)*

March 30, 2022

Online

**Simons Institute for the Theory of Computing, University of California Berkeley (UCB)***Dynamical Systems, Games, and Topology: a relationship in formation*

March 8, 2022

Berkeley, CA

**Columbia CS Theory Student Seminar***Dynamical Systems, Games, and Topology: an introduction*

New York, NY

February 24, 2022

**HONORS & AWARDS****Columbia CS Department Service Award**

In recognition of superior achievement and in honor of the integrity, curiosity, and creativity exhibited

May 2022

**General Michael Arnaoutis Foundation Scholarship**

Scholarship for post-graduate studies, cash prize

May 2021

**Excellence Award (State Scholarships Foundation & Ministry of Education)**

For graduating 1st in the class of 2021 among all graduating students of the ECE School at NTUA

July 2022

**Chrisovergi and Kondouli Honorary Awards**Awarded by NTUA Dean's Council for graduating 1st in class among all students of the Department of ECE and **across all Departments** of NTUA, respectively

March 2022

<b>Kary Honorary Award</b>	2016-2017, 2017-2018, 2018-2019, 2019-2020
Medal accompanying the award, awarded by the NTUA Dean's Council for the highest GPA among all classes of the ECE School at NTUA	
<b>Thomaidio Honorary Award</b>	2016-2017, 2017-2018, 2018-2019, 2019-2020
First Award by the NTUA Dean's Council for the highest GPA among all classes across NTUA Departments	
<b>Silver Medal (2018) and Bronze Medal (2017) in SEEMOUS</b> representing Greece	2017, 2018
(South Eastern European Mathematical Olympiad for University Students)	<i>North Macedonia &amp; Romania</i>
<b>Christos Papakyriakopoulos Honorary Award and Nikolaos Kritikos Scholarship</b>	2016-2017
For the best academic performance and excellence in Mathematics during the first year of studies at NTUA	

## ACADEMIC SERVICE

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### Program Committee (PC) Member

- International Conference on Advances in Financial Technologies (AFT 2023)
- Workshop on Decentralized Finance (DeFi), Twenty-Seventh International Conference on Financial Cryptography and Data Security (FC 2023)

### Reviewer

- 2024 ACM-SIAM (Association for Computing Machinery - Society for Industrial and Applied Mathematics) Symposium on Discrete Algorithms (SODA 2024)
- 2023 Special Issue on The Microstructure of Decentralized Finance, Applied Mathematical Finance journal
- 2023 ACM Distributed Ledger Technologies: Research and Practice (DLT) journal
- 50th EATCS (European Association for Theoretical Computer Science) International Colloquium on Automata, Languages and Programming (ICALP 2023)

## DEPARTMENT SERVICE

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<b>Coordinator, Columbia CS Theory Student Seminar</b>	Fall 2022, Spring 2023, Fall 2023
• Organized research talks to be given by Ph.D. students at the Columbia CS theory student weekly seminar	
<b>Mentor, Columbia Undergraduate Seminar in Theoretical Computer Science</b>	Spring 2023
• Lectured on recent prediction markets research (game theory, economics and computer science)	
• Advised a group of advanced undergraduate students in theoretical computer science on their presentations for the student-run seminar on computer science	
<b>Reviewer, Columbia CS PhD Pre-Submission Application Review (PAR) Program</b>	Fall 2022
• Volunteer reviewer of application materials from under-represented populations to promote diversity and equity	

## TEACHING EXPERIENCE

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<b>Graduate Teaching Assistant, "Reading the CS Classics"</b>	Spring 2023
• Organized research paper discussions and assignments, graded students' paper presentations, and evaluated students' final research papers	
• Ph.D.-level course (Topics in Computer Science, COMS 6998) taught by Prof. Christos Papadimitriou	
<b>Teaching Assistant (TA), "Cryptography"</b>	Fall 2020
• Created problem sets, held office hours, and graded assignments in this graduate-level course	
• Lectured on blockchain consensus-related topics	
<b>TA, "Introduction to Programming" &amp; "Programming Techniques"</b>	Fall & Spring 2017-2020
• Assisted students with the laboratory exercises for the courses, and prepared course materials for teaching C & C++	

## VOLUNTEERING

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<b>Vice-Chair, IEEE NTUA Student Branch</b>	October 2018 - January 2020
• Arranged technical talks by distinguished technological companies' guests, met with Dean to discuss future plans and funding of the branch, and managed yearly competitive programming contest	
• While in office, our Branch was awarded the <b>IEEE Region 8 Exemplary Student Branch Award</b> .	

**Programming Experience & Analytical Skills:** Proficient in Python, C++, Matlab, Wolfram Mathematica, SQL