Marios Papachristou

PERSONAL INFORMATION	E-mail	mp2242@cornell.edu
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	Nationality	Greek, US Permanent Resident (Green Card Holder)

RESEARCH INTERESTS

Algorithms, Information Networks, Network Economics, Systemic Risk, LLMs, Differential Privacy, Machine Learning, Data Mining, Computational Social Science

EDUCATION

Cornell University *2020 – Expected 2025*
Ph.D. in Computer Science, Minor: *Applied Mathematics*
- *Advisor:* Jon Kleinberg

M.S. in Computer Science *2020 – 2022*

National Technical University of Athens *2015 – 2020*
Diploma in Electrical and Computer Engineering
Major: *Computer Science*.
- *Advisor:* Dimitris Fotakis
- Top 2% of graduating class

INDUSTRY EXPERIENCE

Microsoft Research *Summer 2023*
Office of Applied Research, *with Chin-Chia Hsu and Longqi Yang*

Twitter *Summer 2022*
User Modeling Research Group, *with Rishab Goel, Frank Portman, Matt Miller*

SELECTED HONORS & AWARDS

- **LinkedIn Ph.D. Fellowship** *2022*
  One-year fully funded fellowship by LinkedIn. Acceptance rate 14%.
- **Onassis Scholarship** *2023*
  Three-year fellowship for Greek Ph.D. students. Acceptance rate: 16%.
- **A.G. Leventis Scholarship** *2022*
  Award for graduate students of Greek origin. Acceptance rate 12.5%.
- **Chateaubriand Fellowship** *2022*
  Fellowship granted by the French Embassy in the US for studies in France (declined for personal reasons). Acceptance rate 33%.
- **Cornell Fellowship** *2020*
  One-year fully funded fellowship by the CS department based on "exceptional preparation and promise".
- **IEEEXtreme 11.0 Programming Competition** *2017*
  Top 1% worldwide in IEEE's algorithms competition.

PAPERS
Google Scholar Profile
$^{\alpha\beta}$ = alphabetical order
$*$ = equal contribution

Selected Papers

[S1] **Optimal Resource Allocation for Remediating Networked Contagions**
Marios Papachristou, Sid Banerjee, Jon Kleinberg
Major Revision, *Management Science*, 2024
[preprint]

[S2] **Network Formation and Dynamics among Multi-LLMs**
Marios Papachristou, Yuan Yuan
Under review, 2024
[preprint] [slides]

[S3] **Allocating Stimulus Checks in Times of Crisis**
Marios Papachristou, Jon Kleinberg
ACM Web Conference (WWW), 2022
[paper] [code] [talk] [slides] [news]

Journal Papers

[J1] **Differentially Private Distributed Estimation and Learning**
Marios Papachristou, Amin Rahimian
IISE Transactions, 2024
[paper] [code] [talk]

[J2] **Sublinear Domination and Core–periphery Networks**
Marios Papachristou
Scientific Reports (Nature Portfolio), 2021
[paper] [code]

[J3] **Truncated Log-concave Sampling for Convex Bodies with Reflective Hamiltonian Monte Carlo**
$^{\alpha\beta}$Apostolos Chalkis, Vissarion Fisikopoulos, ***Marios Papachristou***, Elias Tsigaridas
ACM Transactions on Mathematical Software (TOMS), 2023
[paper] [code]

[J4] **Commons-based peer production and digital fabrication: The case of a RepRap-based, Lego-built 3D printing-milling machine**
Vasilis Kostakis*, and ***Marios Papachristou***
Telematics and Informatics, 2014
[paper]

Refereed CS Conference Proceedings

[C1] **Dynamic Interventions for Networked Contagions**
Marios Papachristou, Sid Banerjee, Jon Kleinberg
ACM Web Conference (WWW), Economics and Markets Track, 2023
[paper] [code] [poster] [slides]

[C2] **Core-periphery Models for Hypergraphs**
Marios Papachristou, Jon Kleinberg
ACM Intl. Conf. on Knowledge Discovery and Data Mining (KDD), 2022
[paper] [code] [data] [slides] [poster]

[C3] **Allocating Stimulus Checks in Times of Crisis**
Marios Papachristou, Jon Kleinberg
ACM Web Conference (WWW), Economics and Markets Track, 2022
[paper] [code] [talk] [slides] [news]

[C4] **Software Clusterings with Vector Semantics and the Call Graph**
Marios Papachristou
ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), 2019
[paper] [code] [data]
(ESEC/FSE Student Research Competition Finalist Paper)

Preprints & Working Papers

[WP1] **Optimal Resource Allocation for Remediating Networked Contagions**
Marios Papachristou, Sid Banerjee, Jon Kleinberg

Major Revision, *Management Science*, 2024
[preprint] [slides]

[WP2] **Group Decision-Making among Privacy-aware Agents**
Marios Papachristou, Amin Rahimian
Under review at Operations Research, 2024
Preliminary version presented at the Theory and Practice of Differential Privacy Workshop (TPDP)
[preprint] [talk]

[WP3] **Network Formation and Dynamics among Multi-LLMs**
Marios Papachristou, Yuan Yuan
Working paper, 2024
Preliminary version presented at the International Conference on Computational Social Science (IC2S2)
[preprint] [slides]

[WP4] **Leveraging Large Language Models for Collective Decision-Making**
Marios Papachristou, Longqi Yang, Chin-Chia Hsu
Major revision at CSCW, 2024
Preliminary version presented at the LLMs as Research Tools at CHI 2024
[preprint] [slides]

[WP5] **Structural Measures of Resilience for Supply Chains**
Marios Papachristou, Amin Rahimian
Under review at Management Science, 2024
[preprint] [code] [slides]

[WP6] **The Power of Choice in Random Sampling**
Marios Papachristou, Jon Kleinberg
Under review, 2024
Preprint available upon request

[WP7] **Echoes of Disagreement: Measuring Disparity in Social Consensus**
Marios Papachristou, Jon Kleinberg
Under review, 2024
Preprint available upon request

Refereed CS Workshops

[W1] **GLINKX: A Scalable Unified Framework for Homophilous and Heterophilous Graphs**
Marios Papachristou, Rishab Goel, Frank Portman, Matt Miller, Rong Jin
NeurIPS workshop on Graph Learning Frontiers (GLFrontriers), 2022
[paper] [poster]

Other Experience

GeomScale Open-source Organization *May 2020 – March 2020*
Sampling from truncated log-concave densities, and convex optimization, working on the `volesti` open-source package *with Dr. Apostolos Chalkis, Dr. Vissarion Fisikopoulos, and Dr. Elias Tsigaridas*

Athens University of Economics and Business *2018 – 2020*
Department of Management Science and Technology, *with Prof. Diomidis Spinellis*

Google Summer of Code 2020 (GeomScale) *June 2020 – August 2020*
Sampling from high-dimensional truncated log-concave densities, *with Dr. Apostolos Chalkis, Dr. Vissarion Fisikopoulos, and Dr. Elias Tsigaridas*
[code] [talk]

Google Summer of Code 2018 (GFOSS-OTA) *April 2018–September 2018*
Automated codification of Greek Legislation, *with Prof. Diomidis Spinellis*
[code] [data] [talk]

Researcher – P2P Lab *2013 – 2014*

Teaching & Mentorship Experience

- The Structure of Information Networks (PhD-level, Cornell) *Spring & Fall 2023*
- Discrete Mathematics (NTUA) *Spring 2017*
- Programming Techniques (NTUA) *Spring 2016*
- Introduction to Computer Programming (NTUA) *Fall 2016, Fall 2017*

- Student-applicant Support Program at Cornell CIS *2022*
- Google Summer of Code Mentor *2019–2022*
- Volunteer lessons for the National Olympiad of Informatics (PDP) *2019*

Invited Talks & Lectures

†= scheduled
⋆= presented by co-author

- ***From Spread to Stability: Insights into Network Dynamics and Resilience***
  - MIT, Research Group Meeting *June 2024*
- ***Network Formation and Dynamics among Multi-LLMs***
  - INFORMS Annual Meeting† *October 2024*
  - IBM Research, Exploratory Math Sciences Council Seminar *April 2024*
  - UIUC, Guest Lecture at the Network Analysis Course *April 2024*
  - Cornell University, AIPP Group *March 2024*
  - Learning on Graphs (LoG) NYC Meetup *February 2024*
- ***Information Aggregation and Distributed Learning in Privacy-critical Environments***
  - TOC4Fairness Online Seminar Series⋆ *March 2024*
  - Information: Theory and Applications (ITA) Workshop⋆ *February 2024*
  - Rutgers University Business School, Seminar⋆ *November 2023*
- ***Leveraging Large Language Models for Collective Decision-Making***
  - LLMs as Research Tools: Applications and Evaluations in HCI Data Work Workshop, ACM Conference on Human-Computer Interaction⋆ *May 2024*
  - Microsoft Research, Invited Applied Research Talks *August 2023*
- ***Structural Measures of Resilience for Supply Chains***
  - NSF Conference on Network Science and Economics *April 2024*
  - Columbia University, Student Theory Seminar *November 2023*
  - Cornell University, Theory Tea *November 2023*
  - INFORMS Annual Meeting⋆ *October 2023*
  - Cornell University, LinkedIn Campus Visit *May 2023*
- ***Resource Allocation in a Financial Contagion Environment***
  - University of Chicago, Theory Seminar *October 2023*
  - Indiana University, Center for Complex Networks and Systems Research *September 2023*
  - Cornell University, CS 6850 Guest Lecture *April 2023*
  - Cornell University, Theory Seminar *November 2022*
- ***Dynamic Interventions for Networked Contagions***
  - INFORMS Annual Meeting *October 2023*
  - ACM Web Conference *April 2023*
  - ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization *October 2022*
- ***Core-periphery Models for Hypergraphs***
  - ACM Conference on Knowledge Discovery and Data Mining *August 2022*
- ***GLINKX: A Scalable Unified Framework for Homophilous and Heterophilous Graphs***
  - NeurIPS Workshop on Graph Learning Frontiers *December 2022*

  - Twitter, Machine Learning Seminar *August 2022*
- ***Allocating Stimulus Checks in Times of Crisis***
  - ACM Web Conference *April 2022*
  - ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization *October 2021*
- ***Sampling from Truncated High Dimensional Logconcave Densities***
  - PyData Global *December 2020*
- ***Software Clusterings with Vector Semantics and the Call Graph***
  - ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering *August 2019*

Professional Service

Program Commitee

- ACM Conference on Fairness Accountability and Transparency (FAccT) *2022*
- ACM Conference on Knowledge Discovery and Data Mining (KDD) *2023*

Reviewer

- International Conference on Computational Social Science (IC2S2) *2024*
- ACM Web Conference (WWW) *2024*
- Innovations in Theoretical Computer Science (ITCS) *2024*
- ACM Conference on Human Factors in Computing (CHI) *2024*
- European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) *2023*
- Machine Learning (Springer)
- NeurIPS 2022 Workshop on Graph Learning Frontiers (GLFrontiers) *2022*
- NeurIPS 2021 Workshop on Human and Machine Decisions *2021*
- Journal of Open Source Software *2021*

Referees

Jon Kleinberg (kleinberg@cornell.edu)
Dept. of Computer and Information Science, Cornell University

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Office of Applied Research, Microsoft Research

Yong-Yeol Ahn (yyahn@iu.edu)
Dept. of Informatics, Computing, and Engineering, Indiana University