

# Marios Papachristou

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AREAS Machine Learning, Data Mining, Algorithms, Social and Information Networks

EDUCATION **Cornell University** 2020 – exp. 2026  
Ph.D. Candidate in Computer Science (*GPA: 4.0*), Minor: *Applied Math*  
– *Advisor*: Jon Kleinberg  
– *Relevant Coursework*: Analysis of Algorithms, Information Networks, Numerical Methods for Data Science, Design of Online Marketplaces, ML Theory  
  
M.S. in Computer Science, Minor: *Applied Math (GPA: 4.0)* 2020 – 2022  
  
**National Technical University of Athens** 2015 – 2020  
Diploma in ECE (*GPA: 9.49/10.00*). Major: *Computer Science*.  
– *Advisor*: Dimitris Fotakis

PUBLICATIONS  
[Google Scholar Profile](#)  
 $\alpha\beta$  = alphabetical order,  
\* = equal contribution

1. **Marios Papachristou**, Amin Rahimian. “Differentially Private Distributed Estimation and Learning”. *Under review*. 2023.  
[\[preprint\]](#) [\[code\]](#)
2. **Marios Papachristou**, Amin Rahimian. “Production Networks Resilience: Cascading Failures, Power Laws and Optimal Interventions”. *Under review. Poster to be presented at the ACM Conference of Economics and Computation*. 2023.  
[\[preprint\]](#) [\[code\]](#) [\[slides\]](#)
3. **Marios Papachristou**, Sid Banerjee, Jon Kleinberg, “Optimal Resource Allocation for Remediating Networked Contagions”. *Under review*. 2023. This paper incorporates and extends our previous papers: [link](#) and [link](#).  
[\[slides\]](#)
4. **Marios Papachristou**, Sid Banerjee, Jon Kleinberg. “Dynamic Interventions for Networked Contagions”. *ACM Web Conference (WWW) 2023*.  
[\[preprint\]](#) [\[code\]](#) [\[poster\]](#) [\[paper\]](#) [\[slides\]](#)
5. **Marios Papachristou**, Rishab Goel, Frank Portman, Matt Miller, Rong Jin. “GLINKX: A Scalable Unified Framework for Homophilous and Heterophilous Graphs”. *NeurIPS workshop on Graph Learning Frontiers (GLFrontiers)*, 2022.  
[\[preprint\]](#) [\[poster\]](#) [\[workshop\]](#)
6. **Marios Papachristou**, Jon Kleinberg. “Core-periphery Models for Hypergraphs”. *ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (KDD) 2022*.  
[\[paper\]](#) [\[code\]](#) [\[data\]](#) [\[slides\]](#) [\[poster\]](#)
7. **Marios Papachristou**, Jon Kleinberg. “Allocating Stimulus Checks in Times of Crisis”. *ACM Web Conference (WWW) 2022*.  
[\[preprint\]](#) [\[code\]](#) [\[paper\]](#) [\[talk\]](#) [\[slides\]](#) [\[news\]](#)
8. **Marios Papachristou**. “Sublinear Domination and Core-periphery Networks”. *Scientific Reports (Nature)*, 2021.  
[\[paper\]](#) [\[code\]](#)
9.  $\alpha\beta$  Apostolos Chalkis, Vissarion Fisikopoulos, **Marios Papachristou**, Elias Tsigaridas. “Truncated Log-concave Sampling for Convex Bodies with Reflective Hamiltonian Monte Carlo”. *ACM Transactions on Mathematical Software*, 2023.

This paper incorporates and supersedes our previous [preprint](#).  
[\[paper\]](#) [\[code\]](#)

10. **Marios Papachristou**, Dimitris Fotakis. “Stochastic Opinion Dynamics for User Interest Prediction in Online Social Networks”. *Preprint*, 2020.  
[\[preprint\]](#)
11. **Marios Papachristou**. “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 (ESEC/FSE) 2019*.  
[\[paper\]](#) [\[code\]](#) [\[data\]](#) (*ESEC/FSE Student Research Competition Finalist Paper*)
12. Vasilis Kostakis\*, and **Marios Papachristou\***. “Commons-based peer production and digital fabrication: The case of a RepRap-based, Lego-built 3D printing-milling machine”. *Telematics and Informatics*, 2014.  
[\[paper\]](#)

## RESEARCH EXPERIENCE

**Microsoft Research (Office of Applied Research)** *May 2023 –*  
 – Large Language Models (LLMs) to increase productivity in organizations.

**Twitter Cortex Applied Research** *May 2022 – August 2022*  
 – Scalable Graph Machine Learning on graphs.

**Cornell University** *May 2021 – May 2022*  
 – Graduate Research Assistant. Advisor: Jon Kleinberg.

**GeomScale Organization** *May 2020 –*  
 – Part-time research on sampling from truncated log-concave densities, and convex optimization, working on the [volesti](#) open-source package.

**Business Analytics Lab** *2018 – 2020*  
 – *Project: SADE*. Architecture recovery via call graphs, source code embeddings, and clustering methods.

**Google Summer of Code 2020 (GeomScale)** *June 2020 – August 2020*  
 – *Project: Sampling from high-dimensional truncated log-concave densities*.  
[\[code\]](#) [\[talk1\]](#) [\[talk2\]](#)

**Google Summer of Code 2018 (GFOSS-OTA)** *April 2018–September 2018*  
 – *Project: 3gm*. Automated codification of Greek Legislation.  
[\[code\]](#) [\[data\]](#) [\[talk\]](#)

**P2P Lab (Remote Research Associate)** *2013 – 2014*

## OTHER EXPERIENCE

**Rattle (Co-founder)** *October 2017–October 2018*

## TEACHING EXPERIENCE

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

## HONORS & AWARDS

- LinkedIn Ph.D. Fellowship (14.8% acceptance rate) *2022*
- Gerondelis Scholarship *2022*
- A.G. Leventis Scholarship (12.5% acceptance rate) *2022*
- Chateaubriand Fellowship (*declined*) *2022*
- Cornell Fellowship *2020*

- Thomaïdion Award 2019
- ESEC/FSE 2019 ACM Student Research Competition Finalist 2019
- 4th (out of 93) in International Space Engineering Competition (CanSat) 2019
- 2nd Award at the “be finnovative 2.0 accelerator” 2018
- 1st Award at “Crowdhackathon Fintech #2” 2017
- Top %1 worldwide in IEEEExtreme 11.0 Programming Competition 2017
- Touramanoglu Scholarship 2015
- “The Great Moment of Education” Scholarship 2015

#### TALKS & PRESENTATIONS

- ***Resource Allocation in a Financial Contagion Environment***
  - CS6850 (Cornell; guest lecture) April 2023
  - Cornell Theory Seminar November 2022
- ***Dynamic Interventions for Networked Contagions***
  - 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

#### SERVICE

- ***Program Committee***
  - ACM Conference on Fairness Accountability and Transparency (FAccT) 2022
  - ACM Conference on Knowledge Discovery and Data Mining (KDD) 2023
- ***Reviewing***
  - 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–
- ***Mentorship***
  - Student-applicant Support Program at Cornell CIS 2022
  - Cornell Undergraduate AI Group 2022–
  - Google Summer of Code 2019–2022

LAST UPDATED June 30, 2023