

# Marios Papachristou

CONTACT INFORMATION	E-mail	<a href="mailto:papachristoumarios@cs.cornell.edu">papachristoumarios@cs.cornell.edu</a>
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AREAS Machine Learning, Data Mining, Algorithms, Social and Information Networks

EDUCATION **Cornell University** 2020 – exp. 2026  
Ph.D. in Computer Science (*GPA: 4.0*), Minor: *Applied Mathematics*  
– *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 (*GPA: 4.0*) 2020 – 2022  
  
**National Technical University of Athens** 2015 – 2020  
Diploma in ECE (*GPA: 9.49/10.00 – top 2%*). 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. Preliminary poster presented at the ACM Conference of Economics and Computation (EC)*. 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 (TOMS)*, 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

**Applied Research Intern – Microsoft** *May 2023 – ongoing*  
 – Large Language Models (LLMs) for collective intelligence.  
 – *Office of Applied Research, with Chin-Chia Hsu and Longqi Yang*

**Engineering Intern – Twitter** *May 2022 – August 2022*  
 – Scalable Graph Machine Learning on graphs.  
 – *User Modeling Research, with Rishab Goel, Frank Portman, and Matthew Miller*

**Graduate Researcher – Cornell University** *Sept. 2020 – ongoing*  
 – Research in social and information networks, (allocation algorithms to mitigate contagion in financial and supply-chain networks, statistical graph and hyper-graph models)

**Researcher – GeomScale Organization** *May 2020 – March 2020*  
 – Part-time research on sampling from truncated log-concave densities, and convex optimization, working on the [volesti](#) open-source package.  
 – *Mentors: Apostolos Chalkis, Vissarion Fisikopoulos, Elias Tsigaridas*

**Researcher – Athens University of Economics and Business** *2018 – 2020*  
 – Software architecture recovery via call graphs, source code embeddings, and clustering methods.  
 – *Mentor: Diomidis Spinellis*

**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.*  
[\[code\]](#) [\[data\]](#) [\[talk\]](#)

**Researcher – P2P Lab** *2013 – 2014*

## HONORS & AWARDS

- Onassis Scholarship *2023*
- 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*

	<ul style="list-style-type: none"> <li>– Cornell Fellowship 2020</li> <li>– Thomaïdion Award 2019</li> <li>– ESEC/FSE 2019 ACM Student Research Competition Finalist 2019</li> <li>– 4th (out of 93) in International Space Engineering Competition (CanSat) 2019</li> <li>– 2nd Award at the “be finnovative 2.0 accelerator” 2018</li> <li>– 1st Award at “Crowdhackathon Fintech #2” 2017</li> <li>– Top %1 worldwide in IEEEExtreme 11.0 Programming Competition 2017</li> <li>– Touramanoglu Scholarship 2015</li> <li>– “The Great Moment of Education” Scholarship 2015</li> </ul>
TEACHING EXPERIENCE	<ul style="list-style-type: none"> <li>– The Structure of Information Networks (PhD-level, Cornell) Spring 2023</li> <li>– Discrete Mathematics (NTUA) Spring 2017</li> <li>– Programming Techniques (NTUA) Spring 2016</li> <li>– Introduction to Computer Programming (NTUA) Fall 2016, Fall 2017</li> </ul>
TALKS & PRESENTATIONS † = scheduled * = presented by co-author	<ul style="list-style-type: none"> <li>• <b><i>Production Networks Resilience: Cascading Failures, Power Laws, and Optimal Interventions</i></b> <ul style="list-style-type: none"> <li>– INFORMS Annual Meeting†* October 2023</li> <li>– LinkedIn Campus Visit May 2023</li> </ul> </li> <li>• <b><i>Resource Allocation in a Financial Contagion Environment</i></b> <ul style="list-style-type: none"> <li>– CS6850 (Cornell; guest lecture) April 2023</li> <li>– Cornell Theory Seminar November 2022</li> </ul> </li> <li>• <b><i>Dynamic Interventions for Networked Contagions</i></b> <ul style="list-style-type: none"> <li>– INFORMS Annual Meeting† October 2023</li> <li>– ACM Web Conference April 2023</li> <li>– ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization October 2022</li> </ul> </li> <li>• <b><i>Core-periphery Models for Hypergraphs</i></b> <ul style="list-style-type: none"> <li>– ACM Conference on Knowledge Discovery and Data Mining August 2022</li> </ul> </li> <li>• <b><i>GLINKX: A Scalable Unified Framework for Homophilous and Heterophilous Graphs</i></b> <ul style="list-style-type: none"> <li>– NeurIPS Workshop on Graph Learning Frontiers December 2022</li> <li>– Twitter Machine Learning Seminar August 2022</li> </ul> </li> <li>• <b><i>Allocating Stimulus Checks in Times of Crisis</i></b> <ul style="list-style-type: none"> <li>– ACM Web Conference April 2022</li> <li>– ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization October 2021</li> </ul> </li> <li>• <b><i>Sampling from Truncated High Dimensional Logconcave Densities</i></b> <ul style="list-style-type: none"> <li>– PyData Global December 2020</li> </ul> </li> <li>• <b><i>Software Clusterings with Vector Semantics and the Call Graph</i></b> <ul style="list-style-type: none"> <li>– ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering August 2019</li> </ul> </li> </ul>
SERVICE	<ul style="list-style-type: none"> <li>• <b><i>Program Committee</i></b> <ul style="list-style-type: none"> <li>– ACM Conference on Fairness Accountability and Transparency (FAccT) 2022</li> <li>– ACM Conference on Knowledge Discovery and Data Mining (KDD) 2023</li> </ul> </li> <li>• <b><i>Reviewing</i></b> <ul style="list-style-type: none"> <li>– European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) 2023</li> <li>– Machine Learning (Springer)</li> <li>– NeurIPS 2022 Workshop on Graph Learning Frontiers (GLFrontiers) 2022</li> <li>– NeurIPS 2021 Workshop on Human and Machine Decisions 2021–</li> <li>– Journal of Open Source Software 2021–</li> </ul> </li> </ul>

- *Mentorship*

- Student-applicant Support Program at Cornell CIS
- Google Summer of Code

*2022*

*2019–2022*

LAST UPDATED

August 6, 2023