

## Marios Papachristou

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INFORMATION	GitHub	<a href="#">papachristoumarios</a>
	Office	302 Gates Hall, Cornell University, 107 Hoy Rd
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AREAS Algorithms, Information Networks, LLMs, Differential Privacy, Machine Learning, Data Mining

EDUCATION **Cornell University** *2020 – exp. 2026*  
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 (*top 2%*). Major: *Computer Science*.  
– *Advisor:* Dimitris Fotakis

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

- [P1] **Marios Papachristou**, Amin Rahimian. “Differentially Private Distributed Estimation and Learning”. *IJSE Transactions. Special Issue on Federated, Distributed Learning and Analytics* 2024.  
[\[preprint\]](#) [\[code\]](#) [\[poster\]](#)
- [P2] **Marios Papachristou**, Sid Banerjee, Jon Kleinberg. “Dynamic Interventions for Networked Contagions”. *ACM Web Conference (WWW)* 2023.  
[\[preprint\]](#) [\[code\]](#) [\[poster\]](#) [\[paper\]](#) [\[slides\]](#)
- [P3] **Marios Papachristou**, Jon Kleinberg. “Core-periphery Models for Hypergraphs”. *ACM SIGKDD Intl. Conf. on Knowledge Discovery and Data Mining (KDD)* 2022.  
[\[paper\]](#) [\[code\]](#) [\[data\]](#) [\[slides\]](#) [\[poster\]](#)
- [P4] **Marios Papachristou**, Jon Kleinberg. “Allocating Stimulus Checks in Times of Crisis”. *ACM Web Conference (WWW)* 2022.  
[\[preprint\]](#) [\[code\]](#) [\[paper\]](#) [\[talk\]](#) [\[slides\]](#) [\[news\]](#)
- [P5] **Marios Papachristou**. “Sublinear Domination and Core-periphery Networks”. *Scientific Reports (Nature)*, 2021.  
[\[paper\]](#) [\[code\]](#)
- [P6]  $\alpha\beta$  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](#).  
[\[paper\]](#) [\[code\]](#)
- [P7] **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)*
- [P8] 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.  
[\[paper\]](#)

## WORKING PAPERS

- [W1] **Marios Papachristou**, Yuan Yuan. “Network Formation and Dynamics among Multi-LLMs”. *Under review*. 2024.  
[preprint] [slides]
- [W2] **Marios Papachristou**, Sid Banerjee, Jon Kleinberg. “Optimal Resource Allocation for Remediating Networked Contagions”. *R&R in Management Science*. 2023.  
*This paper extends our previous works in WWW 2022 and WWW 2023.*  
[slides]
- [W3] **Marios Papachristou**, Longqi Yang, Chin-Chia Hsu, “Leveraging Large Language Models for Collective Decision-Making”. *Under review*. 2023.  
[preprint]
- [W4] **Marios Papachristou**, Amin Rahimian. “Group Decision-Making among Privacy-aware Agents”. *Under review*. 2023.  
*Preliminary version accepted at the AAAI Workshop on Privacy-Preserving Artificial Intelligence*. 2023.  
[preprint] [poster]
- [W5] **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]
- [W6] **Marios Papachristou**, Rishab Goel, Frank Portman, Matt Miller, Rong Jin. “GLINKX: A Scalable Unified Framework for Homophilous and Heterophilous Graphs”. *Under Review*. 2023  
*Preliminary version presented at NeurIPS workshop on Graph Learning Frontiers (GLFrontiers)*, 2022.  
[preprint] [poster] [workshop]
- [W7] **Marios Papachristou**, Dimitris Fotakis. “Stochastic Opinion Dynamics for User Interest Prediction in Online Social Networks”. *Preprint*, 2020.  
[preprint]

## RESEARCH EXPERIENCE

- Applied Research Intern – Microsoft** *May 2023 – August 2023*
  - 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*
- Cornell Fellowship *2020*
- Thomaidion 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*

TEACHING  
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*

TALKS &  
PRESENTATIONS  
†= scheduled  
\*= presented by  
co-author

- ***Network Formation and Dynamics among Multi-LLMs***
  - Cornell, 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, Seminar\* *November 2023*
- ***Leveraging Large Language Models for Collective Decision-Making***
  - Microsoft Research, Invited Applied Research Talks *August 2023*
- ***Production Networks Resilience: Cascading Failures, Power Laws, and Optimal Interventions***
  - 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***
  - *Invited Talk at* INFORMS Annual Meeting *October 2023*

	<ul style="list-style-type: none"> <li>– ACM Web Conference <i>April 2023</i></li> <li>– ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization <i>October 2022</i></li> </ul>
	<ul style="list-style-type: none"> <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 <i>August 2022</i></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <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 <i>December 2022</i></li> <li>– Twitter, Machine Learning Seminar <i>August 2022</i></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• <b><i>Allocating Stimulus Checks in Times of Crisis</i></b> <ul style="list-style-type: none"> <li>– ACM Web Conference <i>April 2022</i></li> <li>– ACM Conference on Equity and Access in Algorithms, Mechanisms, and Optimization <i>October 2021</i></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <li>• <b><i>Sampling from Truncated High Dimensional Logconcave Densities</i></b> <ul style="list-style-type: none"> <li>– PyData Global <i>December 2020</i></li> </ul> </li> </ul>
	<ul style="list-style-type: none"> <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 <i>August 2019</i></li> </ul> </li> </ul>
REVIEWING	<ul style="list-style-type: none"> <li>• <i>Program Committee</i> <ul style="list-style-type: none"> <li>– ACM Conference on Fairness Accountability and Transparency (FAccT) <i>2022</i></li> <li>– ACM Conference on Knowledge Discovery and Data Mining (KDD) <i>2023</i></li> </ul> </li> <li>• <i>Reviewing</i> <ul style="list-style-type: none"> <li>– International Conference on Computational Social Science (IC2S2) <i>2024</i></li> <li>– ACM Web Conference (WWW) <i>2024</i></li> <li>– Innovations in Theoretical Computer Science (ITCS) <i>2024</i></li> <li>– ACM Conference on Human Factors in Computing (CHI) <i>2024</i></li> <li>– European Conference on Machine Learning and Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD) <i>2023</i></li> <li>– Machine Learning (Springer)</li> <li>– NeurIPS 2022 Workshop on Graph Learning Frontiers (GLFrontiers) <i>2022</i></li> <li>– NeurIPS 2021 Workshop on Human and Machine Decisions <i>2021–</i></li> <li>– Journal of Open Source Software <i>2021–</i></li> </ul> </li> </ul>
MENTORSHIP & VOLUNTEERING	<ul style="list-style-type: none"> <li>• Student-applicant Support Program at Cornell CIS <i>2022</i></li> <li>• Google Summer of Code Mentor <i>2019–2022</i></li> <li>• Volunteer lessons for the National Olympiad of Informatics (PDP) and other programming competitions <i>2019</i></li> </ul>
LAST UPDATED	March 27, 2024