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. "Production Networks Resilience: Cascading Failures, Power Laws and Optimal Interventions". *Under review.* 2023. [preprint] [code]
2. **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.
3. **Marios Papachristou**, Sid Banerjee, Jon Kleinberg. "Dynamic Interventions for Networked Contagions". *ACM Web Conference (WWW) 2023.* [preprint] [code] [poster]
4. **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 (GLFrontriers)*, 2022. [preprint] [poster] [workshop]
5. **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]
6. **Marios Papachristou**, Jon Kleinberg. "Allocating Stimulus Checks in Times of Crisis". *ACM Web Conference (WWW) 2022.* [preprint] [code] [paper] [talk] [slides] [news]
7. **Marios Papachristou**. "Sublinear Domination and Core–periphery Networks". *Scientific Reports (Nature)*, 2021. [paper] [code]
8. $^{\alpha\beta}$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]
9. **Marios Papachristou**, Dimitris Fotakis. "Stochastic Opinion Dynamics for User Interest Prediction in Online Social Networks". *Preprint*, 2020. [preprint]

10. **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)***
11. 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

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

Ratle (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*
– 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 IEEEXtreme 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*
  - NTUA Theory Seminar
- ***Dynamic Interventions for Networked Contagions***
  - ACM Web Conference *April 2023*
- ***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*

Service

- *Program Commitee*
  - 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

April 2, 2023