Marios Papachristou

CONTACT INFORMATION		
	E-mail	papachristoumarios@cs.cornell.edu
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	Twitter	@papachristoum
	Website	papachristoumarios.github.io

AREAS   Algorithms, Information Networks, Machine Learning, Data Mining

EDUCATION

Cornell University   *2020 – exp. 2026*
Ph.D. in Computer Science, 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   *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**, Sid Banerjee, Jon Kleinberg. "Dynamic Interventions
for Networked Contagions". *ACM Web Conference (WWW) 2023.*
[preprint] [code] [poster] [paper] [slides]

[P2] **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]

[P3] **Marios Papachristou**, Jon Kleinberg. "Allocating Stimulus Checks in Times
of Crisis". *ACM Web Conference (WWW) 2022.*
[preprint] [code] [paper] [talk] [slides] [news]

[P4] **Marios Papachristou**. "Sublinear Domination and Core–periphery Networks".
Scientific Reports (Nature), 2021.
[paper] [code]

[P5] $\alpha\beta$Apostolos Chalkis, Vissarion Fisikopoulos, **Marios Papachristou**, Elias Tsi-
garidas. "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]

[P6] **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 Fi-
nalist Paper)**

[P7] Vasilis Kostakis*, and **Marios Papachristou***. "Commons-based peer produc-
tion 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.

[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]

[W5] **Marios Papachristou**, Amin Rahimian. "Differentially Private Distributed Estimation and Learning". *Under review.* 2023.
[preprint] [code]

[W6] **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]

[W7] **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 (GLFrontriers), 2022.
[preprint] [poster] [workshop]

[W8] **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 hypergraph 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 IEEEXtreme 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
  • ***Information aggregation and distributed learning in privacy-critical environments***
    – 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*
    – 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*

Reviewing

- *Program Commitee*
  - ACM Conference on Fairness Accountability and Transparency (FAccT) *2022*
  - ACM Conference on Knowledge Discovery and Data Mining (KDD) — *2023*
- *Reviewing*
  - 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–*

Mentorship & Volunteering

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

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