Marios A. Papachristou (Last Updated: December 29, 2021)

Contact Information

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Interests

Data Science (information networks, statistical methods, fairness in networks)

Education

Cornell University *2020 – exp. 2026*
Ph.D. in Computer Science (*GPA: 4.0*), Minor: *Applied Math*
- *Advisor:* Jon Kleinberg, *Committee:* Jon Kleinberg, Emma Pierson, Sid Banerjee
- *Coursework:* Analysis of Algorithms, Optimal Stopping, Information Networks, Numerical Methods for Data Science, Design of Online Marketplaces

National Technical University of Athens *2015–2020*
Diploma (5-year joint degree, 300 ECTS) Electrical & Computer Engineering (ECE)
- *GPA:* 3.8/4.0 (top 1%)
- *Major:* Computer Science (*Major GPA:* 3.8/4.0)
- *Thesis: "Stochastic Opinion Dynamics for Interest Prediction in Online Social Networks". Advisor: Dimitris Fotakis. Grade: 4.0/4.0*

Publications

1. **Papachristou, Marios**, and Kleinberg, Jon. "Allocating Stimulus Checks in Times of Crisis". 2021, *EAAMO '21 (Poster).* [preprint] [code]
2. **Papachristou, Marios** "Sublinear Domination and Core–periphery Networks". 2021, *Scientific Reports (Nature).* [preprint] [code] [paper]
3. $^{\alpha\beta}$Chalkis, Apostolos, Fisikopoulos Vissarion, **Papachristou, Marios**, and Tsigaridas, Elias. "Truncated Log-concave Sampling with Reflective Hamiltonian Monte Carlo". 2021 [preprint] [code]
4. **Papachristou, Marios**, and Fotakis, Dimitris. "Stochastic Opinion Dynamics for User Interest Prediction in Online Social Networks". 2020, *Submitted.* [preprint]
5. **Papachristou, Marios**. "Software clusterings with vector semantics and the call graph". ESEC/FSE 2019. [paper] [code] [data]
6. Kostakis, Vasilis, and **Papachristou, Marios**. "Commons-based peer production and digital fabrication: The case of a RepRap-based, Lego-built 3D printing-milling machine". Telematics and Informatics, [paper]

$^{\alpha\beta}$= alphabetical order, * = equal contribution

Research Experience

Cornell University (Graduate Research Assistant) *May 2021 –*
- Thesis-related research

Business Analytics Lab (Undergraduate Researcher) *2018 – 2020*
- Conduct research on Machine Learning on Software Engineering: Source Code Embeddings, Software Clusterings, Layering Violations
- Research funded by the Crossminer project, supported by *Horizon 2020* grant
- Research Advisor: Prof. Diomidis Spinellis

Hellenic Center for Marine Research *June 2014 – August 2014*

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

Professional Experience

Google Summer of Code 2020 (GeomScale) *June 2020–*
- *Project: Sampling from high-dimensional log-concave densities*

– Develop software for the efficient sampling from high-dimensional log-concave densities using first-order oracles in (un)-truncated settings [code]
– Presented at PyData Global 2020 and the Workshop on Geometry and ML at SoCG 2021.
– The software includes ODE and SDE solver and samplers for convex body domains (convex polytopes).

Google Summer of Code 2018 (GFOSS-OTA) *April 2018–September 2018*

– Developed a fully functional project for text mining, cross-linking and automated codification of Greek Legislation using Natural Languaging Processing & Data Mining Methods and Practices. [code] [data] [talk]
  – Cross-linking into Dynamic Graphs, Automated Codification
  – Topic Modeling, Embeddings, Ranking (PageRank)
  – Greek Legislative Texts Internet Archive Collection

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

– Cashierless shopping system start-up.

Teaching Assistantship Experience

Undergraduate Teaching Assistant
– Discrete Mathematics (4th Semester) *Spring 2017*
– Programming Techniques (2nd Semester) *Spring 2016*
– Introduction to Computer Programming (1st Semester) *Fall 2016, Fall 2017*

Technical Skills

Programming Languages	Python, C, C++,, R, SQL
Machine Learning Frameworks	PyTorch, Sklearn
Data Analysis and Visualization	matplotlib, MATLAB, pandas, Bash
Scientific Programming	NumPy, SciPy, NetworkX, MATLAB
Databases	MySQL, MongoDB

Honors & Awards

– Cornell New Student Fellowship (first-year). Cornell University.
– Thomaidion Award. Publication during undergraduate studies (2019). NTUA.
– Programming Competition *IEEEXtreme 12.0*. Ranked 48th out of 4,000 Worldwide (top 1%), 1st in Greece, 13th in Europe (PComplete Team)
– 4th (out of 93) Place in *International Space Engineering Competition at Texas* (CanSat) organized by NASA Goddard and the Americal Astronautical Society
– 1st Award at *"Crowdhackathon Fintech #2"* for developing a cashierless system for retail shops to eliminate queues by National Bank of Greece
– 2nd Award at the *"be finnovative 2.0 accelerator"* for developing a cashierless system for retail shops to eliminate queues by National Bank of Greece
– ESEC/FSE 2019 ACM Student Research Competition Finalist
– 2nd Place at the *"ECESCON9"* Hackathon
– *"Touramanoglu"* Scholarship by Municipality of Helioupolis & Hymettus
– *"The Great Moment of Education"* Scholarship by Eurobank EFG

Volunteering

– Teaching algorithms courses in National Competition for Informatics Camp
– Google Summer of Code Mentor (2019, w/ GFOSS-OTA, 2021 w/GeomScale)
– Member of TEDx NTUA 2018 Organizing Committee, IT Team
– Contributor to open-source projects to the GeomScale organization.
– *Reviewer.* JOSS, WHMD@NeurIPS '21, FAccT '22

References

Jon Kleinberg (PhD Advisor), Dimitris Fotakis (U/G Advisor), Diomidis Spinellis (Research Advisor), Vasilis Kostakis (Harvard BKC)