

# MARIOS A. PAPACHRISTOU

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RESEARCH INTERESTS	Data Science (information networks, statistical methods, fairness in networks)
EDUCATION	<div><div><b>Cornell University</b><i>2020 – exp. 2026</i></div><div>Ph.D. in Computer Science. Concentration on Data Science<ul style="list-style-type: none"><li>– <i>Advisor:</i> Prof. Jon Kleinberg</li><li>– <i>GPA:</i> 4.0</li><li>– <i>Coursework:</i> Analysis of Algorithms, Optimal Stopping, Information Networks, Numerical Methods for Data Science</li></ul></div><div><b>National Technical University of Athens</b><i>2015–2020</i></div><div>Diploma (5-year joint degree, 300 ECTS) Electrical &amp; Computer Engineering (ECE)<ul style="list-style-type: none"><li>– <i>GPA:</i> 3.8/4.0 (top 1%)</li><li>– <i>Major:</i> Computer Science (<i>Major GPA:</i> 3.8/4.0)</li><li>– <i>Thesis:</i> “Stochastic Opinion Dynamics for Interest Prediction in Online Social Networks”. <i>Advisor:</i> Dimitris Fotakis. <i>Grade:</i> 4.0/4.0</li></ul></div></div>
PUBLICATIONS <a href="#">[GOOGLESCHOLAR]</a>	<div><div><ol style="list-style-type: none"><li>1. <b>Papachristou, Marios</b> “Sublinear Domination and Core-periphery networks”. 2021, Preprint. <a href="#">[arxiv]</a></li><li>2. Chalkis, Apostolos, Fisikopoulos Vissarion, <b>Papachristou, Marios</b><sup>b</sup>, and Tsigaridas, Elias. “Truncated Log-concave Sampling with Reflective Hamiltonian Monte Carlo”. 2021, Preprint. <a href="#">[arxiv]</a></li><li>3. <b>Papachristou, Marios</b>. “Software clusterings with vector semantics and the call graph”. ESEC/FSE 2019. DOI: 10.1145/3338906.3342483. <a href="#">[link]</a></li><li>4. Kostakis, Vasilis, and <b>Papachristou, Marios</b>. “Commons-based peer production and digital fabrication: The case of a RepRap-based, Lego-built 3D printing-milling machine”. T&amp;I, 2014. DOI: 10.1016/j.tele.2013.09.006. <a href="#">[link]</a></li></ol></div><div><sup>b</sup> = alphabetical order.</div></div>
RESEARCH EXPERIENCE	<div><div><b>Business Analytics Lab (Undergraduate Researcher)</b><i>2018 – 2020</i></div><div><ul style="list-style-type: none"><li>– Conduct research on Machine Learning on Software Engineering: Source Code Embeddings, Software Clusterings, Layering Violations</li><li>– Research funded by the CROSSMINER project, supported by <i>Horizon 2020</i> grant</li><li>– Research Advisor: Prof. Diomidis Spinellis</li></ul></div><div><b>Hellenic Center for Marine Research</b><i>June 2014 – August 2014</i></div><div><b>P2P Lab (Remote Research Associate)</b><i>2013–2014</i></div></div>
PROFESSIONAL EXPERIENCE	<div><div><b>Google Summer of Code 2020 (GeomScale)</b><i>June 2020–</i></div><div><ul style="list-style-type: none"><li>– <i>Project:</i> Sampling from high-dimensional log-concave densities</li><li>– Develop software for the efficient sampling from high-dimensional log-concave densities using first-order oracles in (un)-truncated settings <a href="#">[github]</a> <a href="#">[post]</a> <a href="#">[talk]</a></li><li>– The software includes ODE and SDE solver and samplers for convex body domains (convex polytopes).</li></ul></div><div><b>Google Summer of Code 2018 (GFOSS-OTA)</b><i>April 2018–September 2018</i></div><div><ul style="list-style-type: none"><li>– Developed a fully functional project for text mining, cross-linking and automated codification of Greek Legislation using Natural Language Processing Methods and Practices. Project is hosted at <a href="#">3gm.ellak.gr</a> <a href="#">[repository]</a><ul style="list-style-type: none"><li>– Cross-linking into Dynamic Graphs</li></ul></li></ul></div></div>

- Automated Codification
- Custom Version Control System
- Topic Modeling
- Embeddings
- Ranking (PageRank)
- Language Modeling and Legal Text Generation with DNNs
- Greek Legislative Texts Internet Archive Collection [\[link\]](#)
- Project is in active development and receives funding
- Supervise graduate student for Google Summer of Code 2019

## Ratle (Co-founder)

*October 2017–October 2018*

- Cashierless shopping system.
- Bluetooth Signal Denoising with Kalman Filters, Product tracking inside stores, Enterprise application for Business Analytics
- Tested at real stores

## 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++, Java, JavaScript/TypeScript, Bash, OCaml, PHP, R, SQL  
**Machine Learning Frameworks** PyTorch, Pyro, Tensorflow Keras, Sklearn, spaCy  
**Data Analysis and Visualization** matplotlib, MATLAB, pandas, Bash  
**Scientific Programming** SAGE, Octave, MATLAB, Scilab, NumPy, SciPy, OpenCV, NetworkX  
**Databases** MySQL, MongoDB, PostgreSQL, Firebase  
**Version Control** Git, Subversion

## HONORS & AWARDS

- Cornell New Student Fellowship (first-year).Cornell University.
- Programming Competition *IEEEExtreme 12.0*. Ranked 48th out of 4,000 World-wide (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 American 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, 2021)
- Member of TEDx NTUA 2018 Organizing Committee, IT Team
- Contributor to open-source projects. Member of the GFOSS-OTA, and Geom-Scale open-source organizations.
- Voluntary Blood Donor

## REFERENCES AVAILABLE UPON REQUEST

Jon Kleinberg (PhD Advisor, [kleinberg@cornell.edu](mailto:kleinberg@cornell.edu)), Dimitris Fotakis (U/G Advisor, [fotakis@cs.ntua.gr](mailto:fotakis@cs.ntua.gr)), Diomidis Spinellis (Research Advisor, [dds@aub.gr](mailto:dds@aub.gr)), Vasilis Kostakis (Harvard BKC, [kostakis@law.harvard.edu](mailto:kostakis@law.harvard.edu))

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