# Marios A. Papachristou

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## Research Interests

Machine Learning, Recommender Systems, Computational Law, Software Engineering, Algorithms

## Education

**National Technical University of Athens** *2015– (expected graduation in 2020)*
Diploma (5-year joint degree, 300 ECTS) Electrical & Computer Engineering (ECE)

- Highest Honours (top 2%). Expected Cummulative GPA:
- *Major:* Computer Science: Machine Learning, Algorithms, Speech and Natural Language Processing, Digital Signal Processing, Control Systems, Applied Mathematics, Software Engineering, Operating Systems

**1st General Lyceum of Hymettus** *2012–2015*
Apolytirion, Valedictorian, top 1% in National Exams, GPA: 19.8/20

## Publications

1. **Papachristou, Marios** and Dimitris Fotakis. "Learning user interests from Influencers in Online Social Networks". *Work in progress.*
2. **Papachristou, Marios**. "Software clusterings with vector semantics and the call graph." Proceedings of the 2019 27th ACM Joint Meeting on European Software Engineering Conference and Symposium on the Foundations of Software Engineering. ACM, 2019. DOI: 10.1145/3338906.3342483. `[link]`
3. 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 31.3 (2014): 434-443. DOI: 10.1016/j.tele.2013.09.006. `[link]`

## Research Experience

**Business Analytics Lab (Undergraduate Researcher)** *August 2018 –*

- Conduct research on Machine Learning on Software Engineering
  - Source Code Embeddings
  - Software Clustering
  - Layering Violations
- Research funded by the Crossminer project, supported by *Horizon 2020* grant

**P2P Lab (Remote Researcher)** *2013–2014*

- Publish self-made Lego 3D Printing-Milling machine at age 16 with Prof. Vasilis Kostakis `[repository]`

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

- Develop a system for marine spieces identification and morphometric analysis using features and ORB, SIFT and SURF descriptors in OpenCV `[repository]`

## Professional Experience

**Google Summer of Code (Summer Internship)** *April 2018-September 2018*

- Developed a fully functional project for text mining, cross-linking and automated codification of Greek Legislation using Natural Languaging Processing Methods and Practices. Project is hosted at `3gm.ellak.gr`. `[repository]`
  - Cross-link legislative texts to dynamic graphs
  - Syntax and Semantic Analysis of Amendments using a hybrid algorithm with statistical parsing and heuristics
  - Topic Modeling (Latent Dirichlet Allocation)
  - Embeddings for legislative texts
  - Ranking of legislative texts
  - Language Modeling
  - Creation of dataset for Greek Legislative Texts at Internet Archive `[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 payment system based on low energy Bluetooth devices to eliminate queues in clothing stores
- Development of denoising algorithms for Bluetooth Signals using Kalman Filters
- Development of client application for product tracking inside stores
- Development of enterprise application for bussiness analytics like customer tracking, heatmap generation and warehouse management
- **Project discontinued due to heavy academic load**

## 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*

## Languages

Greek (Native), English (C2), German (B1)

## Technical Skills

**Programming Languages** Python, C/C++, Java, JavaScript/TypeScript, Bash, OCaml, PHP, R, SQL
**Scientific Programming** SAGE, Octave, MATLAB, Scilab, NumPy, SciPy, OpenCV, NetworkX
**Machine Learning Frameworks** PyTorch, Keras, Sklearn, spaCy
**Data Analysis and Visualization** matplotlib, MATLAB, pandas, Bash
**Databases** MySQL, MongoDB, PostgreSQL, Firebase
**Web Frameworks** Django, AngularJS, Ionic, Laravel PHP
**Version Control** Git, Subversion
**Typesetting** LaTeX, WYSIWYG Typewriting
**Operating Systems** GNU/Linux

## Honors & Awards

- *"Touramanoglu"* Scholarship by Municipality of Helioupolis & Hymettus
- *"The Great Moment of Education"* Scholarship by Eurobank EFG
- 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.
- 2nd Award at the *"be finnovative 2.0 accelerator"* for developing a cashierless system for retail shops to eliminate queues.
- 2nd Place at the *"ECESCON9"* Hackathon

## Volunteering

- Voluntary teaching algorithms courses in National Competition for Informatics Preparation Camp
- Google Summer of Code Mentor
- Member of TEDx NTUA 2018 Organizing Committee
- Contributor to open-source projects
- Member of Greek Free and Open-Source Software Organization GFOSS-OTA

## References available upon request

Dimitris Fotakis (Assoc. Professor at NTUA, Thesis Advisor, `fotakis@cs.ntua.gr`)
Diomidis Spinellis (Professor at AUEB, `dds@aueb.gr`)
Vasilis Kostakis (Prof. at TalTech, Harvard BKC, `kostakis@law.harvard.edu`)
Nectarios Koziris (Prof. at NTUA, `nkoziris@cslab.ece.ntua.gr`)

## Hobbies

Cycling, Bike Restoration, Competitive Programming, Basketball, Reading, Drama