Marios A. Papachristou

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Research Interests

Machine Learning, Algorithms, Speech and Natural Language Processing, Digital Signal Processing, Control Systems Theory, Software Engineering

Education

National Technical University of Athens *2015– (exp. 2020)*
Dipl. Electrical and Computer Engineering. *Current GPA: 9.5/10 (Top 2% of class)*

- *Major:* Machine Learning, Algorithms, Speech and Natural Language Processing, Digital Signal Processing, Control Systems Theory, Software Engineering
- *Minor:* Mathematics (Stochastic Processes, Group Theory, Graphs), Computer Systems, Operating Systems, Computer Architecture

1st General Lyceum of Hymettus *2012–2015* GPA: 19.8/20 (Valedictorian)
Activities: School Drama Team

Currently working on

Google Summer of Code 2019 *Feb. 2019–(exp. Sept. 2019)*
Mentor previously curated project. More details can be found at https://goo.gl/p4tCpn

CanSat USA Engineering Competition *Oct. 2018–(exp. June 2019)*
Member of White Noise space engineering team. Responsible for the development of control systems of an aytogyro payload for the CanSat USA Engineering Competition organized by the American Astronautical Society.

Software Architecture Recovery with Machine Learning *Aug. 2018–*
Conduct research on software architecture recovery using Machine Learning.

Professional Experience

Google Summer of Code (Summer Internship) *April 2018-September 2018*
Developed a fully functional tool for automated codification of Greek Legislation using Natural Languaging Processing Methods and Practices. See the project section for more information. Mentored by Prof. Diomidis Spinellis.

Selected Projects

3gm – Google Summer of Code *May 2018 –*
This project aims to provide an automated codex of with the most recent versions of each law in Greek Legislation via NLP methods and practices. Results are published at 3gm.ellak.gr.
Repository: https://github.com/eellak/gsoc2018-3gm

Ratle *November 2017 – October 2018*
I was co-founder and software engineer of a fintech startup called Ratle. We had implemented a fully-working and automated contactless transaction system (https://goo.gl/UymCdN) that aims to eliminate the need of the cashiers and the struggle of time-consuming waiting queues. The activity of the startup is currently paused due to heavy school load. There are no plans for restarting in the foreseeable future.

SignGlove *March 2016 (Hackathon Contest)*
SignGlove is a gesture glove targeted for people with disabilities. It features a sign langage translator glove capable of transforming sign language to speakable words which was built during ECESCON 9 Hackathon.
Repository: https://github.com/papachristoumarios/SignGlove

TritonFPR *July 2014-August 2014 (Research Project at Hellenic Centre for Marine Research)*
Triton FPR is a Fish Pattern Recognition Project which aims to identify captured species and provide the users and researchers with the proper information. The user

captures a photo of the desired specimen and requests identification. Then, the computer attempts identification by looking at a pre-generated database being acquired during previous research activities on already acquainted species. Finally, it performs morphometric analysis on the selected specimen. It was developed using Python, NumPy and OpenCV
Repository: `https://github.com/papachristoumarios/triton-fpr`

LEGO 3D Printing-Milling Machine *Approx. 2010 (Freelance Project)*
This is a project in which a special (reverse-engineered) RepRap 3D printer and milling machine. Using LEGO as modular components make the machine is made hybrid with the capability of placing a specialized extruder instead of the milling bit. This project also led to a paper publication at Elseviers Telematics & Informatics Journal at age 16 (see [1]).
Repository: `https://goo.gl/rdzkkM`

Scientific Publications

- Kostakis, Vasilis, 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 31.3 (2014): 434-443. DOI: 10.1016/j.tele.2013.09.006
- Papachristou, Marios. "Software Clusterings with Vector Semantics and the Call Graph". ESEC/FSE 2019. To appear.

Technical Skills

Programming Languages Python, C/C++, Java, JavaScript/TypeScript, Bash, Standard ML/OCaml, PHP, R
Scientific Programming SAGE Computer Algebra System, GNU Octave, MATLAB/Simulink, Scilab, NumPy, SciPy, OpenCV
Machine Learning Frameworks PyTorch, Keras, Sklearn, spaCy
Databases MySQL, MongoDB, PostgreSQL
Rapid Prototyping technologies Fused Deposition Manufacturing (3D Printing), Three-dimensional Scanning
Web Frameworks Django, Flask, Laravel, Ionic, AngularJS
Version Control git, svn
Typesetting LaTeX, WYSIWYG Typewriting
Operating Systems GNU/Linux

Honors & Awards

Educational
- Touramanoglu Scholarship

Competitive Programming
- IEEEXtreme 12.0 – Ranked 48th Worldwide (PComplete Team)

Teaching 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*

Volunteering

- Member of TEDx NTUA 2018 Organizing Committee
- Contributor to open-source projects
- Member of Greek Free and Open-Source Software Organization
- Voluntary Blood Donor

Hobbies

Cycling, Competitive Programming, Basketball, Design, Reading, Robotics, Drama