

Georgios Vavouliotis | Curriculum Vitae

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Profile

I earned my diploma on Electrical and Computer Engineering from the National Technical University of Athens (NTUA). Currently, I am a 3rd year Ph.D. student in Computer Science at Universitat Politècnica de Catalunya (UPC) and Barcelona Supercomputing Center (BSC-CNS). My supervisors are Dr. Marc Casas Guix from BSC-CNS and Dr. Lluç Alvarez from UPC. Moreover, I collaborate with Prof. Daniel A. Jiménez from Texas A&M University and Prof. Boris Grot from the University of Edinburgh. My research aims at designing microarchitectural prediction/prefetching mechanisms that inherently use machine learning algorithms. In particular, I look at more intelligent predictors/prefetchers for the cache and the TLB hierarchy.

Areas of (Research) Interest

Computer Architecture, High Performance Computing (HPC) Systems, Machine Learning for Computer Architecture; identifying and exploiting the predictability of programs to design microarchitectural prefetching/prediction mechanisms for the cache and the TLB hierarchy, improving the cache/TLB management, and leverage machine learning algorithms to design intelligent microarchitectural components.

Education

- **Universitat Politècnica de Catalunya (UPC)** **Barcelona**
Doctor of Philosophy (Ph.D.) *September 2018-now*
Leveraging Artificial Intelligence Algorithms for Hardware Prediction
- **National Technical University of Athens (NTUA)** **Athens**
Diploma on Electrical & Computer Engineering, 300 ECTS, GPA: 8.9/10 *2012-March 2018*
Academic Directions.....
 - Computer Systems & Software
 - Computer Networks and Networks Security
 - Signal Processing, Automatic Control and Robotics**Diploma Thesis**.....
Performance Analysis of TLB Prefetching Mechanisms, GPA: 10/10
- **General Lyceum, Chalkida, Greece** **Chalkida**
Apolytirion, Top 0.2% in National Qualification Exams, GPA: 19.5/20 *2009-2012*

Research Experience

- **Barcelona Supercomputing Center (BSC-CNS)** **Barcelona**
Researcher at Computer Architecture & Operating Systems Group (CAOS) September 2018–now
- **National Technical University of Athens (NTUA)** **Athens**
Research Student at Computer Systems Laboratory (CSLab) February 2018–July 2018

Participation in Projects

- **SOW 5.3 - Intel and BSC-CNS Collaboration** **Barcelona**
Barcelona Supercomputing Center (BSC-CNS) September 2018–now
- **High Performance Computing VII** **Barcelona**
Barcelona Supercomputing Center (BSC-CNS) September 2018–now

Publications

- [1] **Georgios Vavouliotis**, Goumas Georgios, "[Performance Analysis of TLB Prefetching Mechanisms](#)". Book of my diploma thesis.
- [2] **Georgios Vavouliotis**, Lluc Alvarez, Daniel A. Jimenez, Marc Casas Guix, [Cost-Effective Instruction TLB Prefetching](#). Second Young Architect Workshop (YArch 2020). In conjunction with The 25th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS 2020), Lausanne.
- [3] **Georgios Vavouliotis**, Lluc Alvarez, Vasileios Karakostas, Konstantinos Nikas, Nectarios Koziris, Daniel A. Jimenez, Marc Casas Guix, [Exploiting Page Table Locality for Agile TLB Prefetching](#). To appear in the 48th International Symposium on Computer Architecture (ISCA).

Technical Reviewer for Conferences

- **18th ACM International Conference on Computing Frontiers (CF'21)**
Sub-reviewer
- **IEEE Supercomputing Conference (SC'21)**
Sub-reviewer

Teaching Experience

- **Private Tutor** **Athens**
During my Diploma I was giving private lectures to: **2013–2018**
 - **Undergraduate students of Computer Science Department**
C programming, Computer Architecture, Operating Systems, Automatic Control
 - **High school students**
Mathematics, Physics
- **Lab Assistant at National Technical University of Athens (NTUA)** **Athens**
C programming **2013–2017**

Seminars and Training Courses

- **Summer Schools**
 - *Participation in accredited Summer Schools (**certification provided**)*
 - **HPC Architectures for Artificial Intelligence and Dedicated Applications**
 - Provided by **ACM-Europe**, 17 - 24 July 2019
- **Seminars**
 - *Participation in accredited seminars (**certification provided**)*
 - **Introduction to Big Data & Practical Data Analytics for Solving Real World Problems**
 - Provided by **PACT BSC-CNS**, February 2021
 - **Introduction to Heterogenous Memory Usage**
 - Provided by **PACT BSC-CNS**, February 2019
- **Online Courses (MOOCs)**
 - *Courses offered by accredited universities and training programs (**certification provided**)*
 - **Machine Learning**
 - Provided by **Stanford University** (Prof. Andrew Ng), May 2018 - July 2018, **GPA: 10/10**
 - Supervised Learning (Regression Models, SVMs, NN)
 - Unsupervised Learning (Clustering, Dimensionality Reduction)
 - **Advanced Programming with Python**
 - Provided by **Mathesis Online Platform**, March 2018 - April 2018, **GPA: 10/10**
 - Object Oriented Programming
 - Data Storage (sqlite3, pickle, JSON)
 - Graphic Interface Programming and Game Development

Technical and Personal skills

- **Programming Languages:**
 - Advanced knowledge: C
 - Working knowledge: C++, Python, Matlab, Assembly (8085, 8086, AVR), SML/NJ, HTML
- **Tools:**
 - Advanced knowledge: Unix Bash, \LaTeX , SVN
 - Working knowledge: Git, CACTI, MS Office
- **Simulators:**
 - Advanced knowledge: [ChampSim](#)
 - Working knowledge: [Gem5](#)
- **General Business Skills:**
 - Ability to work with a team
 - Very good presentation skills
 - Able to write well organized and structured reports

Honors and Awards

- **2019 FPI Doctoral Fellowship**
 - *Funded by Spanish Government (MINECO)*
- Barcelona**
2019-2022

- **Mathematics Award - National Technical University of Athens (NTUA)** **Athens**
Excellent marks in all mathematical courses during the first two (2) years. 2014
- **"The Great Moment of Education" Eurobank EFG Scholarship** **Chalkida**
Highest rank in National Qualifications Exams in my school 2012

Affiliations

- Affiliated PhD student in HiPEAC (European Network of Excellence on High Performance and Embedded Architecture and Compilation)

Languages

- **Greek** (Native)
- **Italian** (Beginner)
- **English** (B2 (FCE, KPG))
- **Spanish** (Beginner)

Personal Interests and extra-curricular activity

- Cooking
- Basketball
- Writing
- Challenges
- Travelling
- Cinema

References

References available upon request.