# Georgios Vavouliotis | Curriculum Vitae

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## Profile

I earned my diploma on Electrical and Computer Engineering from 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. Lluc 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 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*

## 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** — **Barcelona**
  *Funded by Spanish Government (MINECO)* — *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 Arcitecture and Compilation)

## Languages

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

## Personal Interests and extra-curricular activity

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

## References

References available upon request.