

# Georgios Vavouliotis | Curriculum Vitae

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in [georgios-vavouliotis](#)

## 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

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- **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

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- **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

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- [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

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

## Teaching Experience

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- **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

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- **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

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- **Programming Languages:**
  - Advanced knowledge: C
  - Working knowledge: C++, Python, Matlab, Assembly (8085, 8086, AVR), SML/NJ, HTML
- **Tools:**
  - Advanced knowledge: Unix Bash,  $\text{\LaTeX}$ , 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

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- **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

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

## Languages

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

## Personal Interests and extra-curricular activity

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

## References

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References available upon request.