

Cosmin-Gabriel SAMOILĂ

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<https://github.com/gabrielcsmo> | <https://www.linkedin.com/in/cgs10/>

SKILLS

Programming Languages **C, Python**, Parallel programming (CUDA, MPI, OpenMP, TBB)
Computer Science **High Performance Computing**, Compilers, Profiling and Optimization
Language Skills **English (C1)**, French (A1)

WORK EXPERIENCE

Principal Engineer (Development Tools) @ Microchip Technology Aug 2022 - present
Mar 2019 - May 2022

Key Projects and Contributions: Procedural Abstraction Tool, Smart-IO Optimization, Stack Usage Analysis, Memory Report by Module, Pure Code Support for XOM, Board Farm Management System, LibC Integration with XC32, Automated Benchmarking Framework, Zephyr RTOS Support in XC32

Research & Teaching Assistant @ Politehnica University of Bucharest Oct 2014 - Oct 2025

- **Teaching Assistant** - Faculty of Automatic Control and Computer Science: 2016 - 2025
Computer Systems Architecture, Parallel Processing Architectures
- **Research Assistant** - AMI Lab (AIMAS) 2014 - 2015
Computer Vision: Face detection and recognition
- **Scientific Research Assistant** - Space Science Institute 2018 - 2019
High Performance Computing (CORSIKA)
- **Research Assistant** - ATLAS Experiment at LHC/ATLAS (CERN): 2020 - 2022
Porting Athena C++ Algorithms to GPU (CUDA)

Software Engineer @ Adobe May 2022 - Aug 2022
Horizon - Tooling Infrastructure

Software Engineer (Linux Kernel) @ NXP Semiconductors Sept 2017 - Mar 2019
Key Projects and Contributions: Linux kernel audio drivers for NXP's i.MX MPUs, firmware and bootloader development, board management system, upstream contributions to Linux kernel

Software Engineer @ Luxoft Jan 2017 - Aug 2017
Network Function Virtualization

Software Engineer @ Intel Jun 2015 - Jan 2017

- Internship (Bachelor's Thesis): Developed a Branch Hinting Tool as part of my Bachelor's degree thesis, which aimed to improve branch prediction accuracy and overall CPU performance on Intel processors.
- Software Engineer: Promoted to Software Engineer, where I focused on speed optimizations for interpreted languages (PHP, HHVM, Python) to enhance performance on Intel Xeon datacenter processors.
- Designed and implemented optimizations that improved execution efficiency for high-performance workloads commonly found in data centers.
- Created and maintained benchmarking frameworks used for Profile Guided Optimizations (PGO), providing essential data for tuning interpreters and further optimizing their runtime performance.
- Collaborated with cross-functional teams to integrate optimizations into Intel's software stack, driving tangible improvements in server-side performance for enterprise clients.

Software Engineering Intern @ Teamnet Summer 2014
Opinion mining for social media and news items

EDUCATION

- 2018 - 2024 PhD (High Performance Computing) at **Politehnica University of Bucharest**
- 2016 - 2018 Master's Degree (Parallel and Distributed Computer Systems) at **Faculty of Automatic Control and Computer Science - Politehnica University of Bucharest**
- 2012 - 2016 Bachelor's Degree (Computer Science) at **Faculty of Automatic Control and Computer Science - Politehnica University of Bucharest**
- 2021 Certificate of Examination - ATLAS GPU Training in CUDA at **CERN/NVidia**
- 2019 Certificate of Examination - CERN School of Computing at **CERN**

PUBLICATIONS

- Gabriel, Samoilă Cosmin, Predescu Maria, Slusanschi Emil Ioan, et al. (2024). "High-Throughput Computing: Case Study of Medical Image Processing Applications". In: *Workshop on AI and Scientific Computing at Scale using Flexible Computing Infrastructures (FlexScience '24)*. URL: <https://dl.acm.org/doi/abs/10.1145/3659995.3660039>.
- Gabriel, Samoilă Cosmin et al. (2024). "Performance Analysis of Medical Imaging Workflows". In: *U.P.B Scientific Bulletin - Series C* 86.3. ISSN: 2286-3540. URL: https://www.scientificbulletin.upb.ro/rev_docs_arhiva/rez61c_220678.pdf.
- Gabriel, Samoilă Cosmin et al. (2023). "COSMOS Framework: Simulation and Optimization of 3D Search". In: *U.P.B Scientific Bulletin - Series C* 85.1. ISSN: 2286-3540. URL: https://www.scientificbulletin.upb.ro/rev_docs_arhiva/rezb44_158379.pdf.
- Gabriel, Samoilă Cosmin, Muraru Sebastian, et al. (2020). "Molecular Dynamics Simulations of DNA Adsorption on Graphene Oxide and Reduced Graphene Oxide-PEG-NH₂ in the Presence of Mg²⁺ and Cl⁻ ions". In: *Coatings* 10.3. ISSN: 2079-6412. DOI: [10.3390/coatings10030289](https://doi.org/10.3390/coatings10030289). URL: <https://www.mdpi.com/2079-6412/10/3/289>.
- Cosmin-Gabriel, Samoilă and Slusanschi Emil-Ioan (2019). "COSMOS-Framework for Combining Optimization and Simulation Software". In: *2019 22nd International Conference on Control Systems and Computer Science (CSCS)*, pp. 162–169. URL: <https://ieeexplore.ieee.org/abstract/document/8744916>.
- Cosmin-Gabriel, Samoilă, Carabas Mihai, et al. (2018). "Integrating Parallel Computing in the Curriculum of the University Politehnica of Bucharest". In: *24th International European Conference on Parallel and Distributed Computing*. URL: https://link.springer.com/chapter/10.1007/978-3-030-10549-5_18.
- Gabriel, Samoilă Cosmin et al. (2014). "Experimenting Face Detection and Recognition in an Ambient Intelligence Laboratory". In: *The 20th International Conference on Control Systems and Computer Science (CSCS20-2015)*, Submitted for review. URL: https://drive.google.com/file/d/1nyMYXjmtqzX1si6MkwGRV0_qdlnG6rKD/view?usp=sharing.

PROJECTS

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|---|------------------------------|
| COSMOS Framework | Link to Code |
| Branch Hinting Tool | Link to Code |
| PHP Profile Guided Optimization (PGO) Training Benchmark | Link to Code |