Spyros Pavlatos

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Education

University of Pennsylvania *Aug 2022 – present*
PhD in Computer and Information Science

- *Advisor*: Vincent Liu
- Research on microservices and serverless computing by blending ideas from Distributed Systems, Programming Languages, and Formal Methods.

National Technical University of Athens *Oct 2016 – July 2022*
MEng in Electrical and Computer Computer Engineering

- *GPA*: 9.26/10
- *Thesis*: A Test Suite for Model Checking Persistent Memory Programs *Advisor*: Kostis Sagonas

Experience

Software Development Engineer Intern *East Palo Alto, CA*
Amazon Web Services - DBS Redshift *May 2025 – Aug 2025*

- Implemented automatic background conversion of Interleaved Sortkey (ISK) tables.

Telecommunications Engineer *Athens, Greece*
White Noise NTUA *2017 – 2019*

- Founding member of the space engineering team
- Member of project Drillsat and project Daedalus for which I designed the telecommunications subsystems and data handling protocols.

Teaching Experience

Teaching Assistant *Philadelphia, PA*
Univesity of Pennsylvania *2023 – 2024*

- *Courses*: Software Analysis, Compilers

Teaching Assistant *Athens, Greece*
National Technical University of Athens *2020 – 2021*

- *Courses*: Introduction to Programming, Programming Techniques

Projects

λ-trim Debloater *2024 – present*

Debloater for Python and serverless applications

- Designed a debloating algorithm that leverages established dynamic analysis techniques and a cost model to optimize serverless applications.
- Implemented the algorithm in a tool that can be used to debloat Python and serverless applications and achieved up to 20% reduction in cold start time and cost when deployed on AWS Lambda.
- Actively maintanining the open-source version of the tool.

MuCache *2022 – 2023*

Caching framework for microservices

- Implemented various applications to test and evaluate the proposed framework.
- Verfiied the correctness of the caching framework with a pen-and-paper proof.

PM-Benchmarks *2021 – 2022*

Test suite for model checking persistent memory programs

- Developed a test suite consisting of litmus tests and complex data structures for model checking persistent memory programs under the Px86 memory persistency model.
- Tested the state-of-the-art model checker GenMC against the test suite and reported some critical internal bugs in the tool.

Publications

λ-trim: Optimizing Function Initialization in Serverless Applications With Cost-driven Debloating
Spyros Pavlatos, Xuting Liu, Yuhao Liu, Vincent Liu
ASPLOS'25

MuCache: A General Framework for Caching in Microservice Graphs
Haoran Zhang, Konstantinos Kallas, Spyros Pavlatos, Rajeev Alur, Yuhao Liu, Vincent Liu
NSDI'24

Skills

Programming: C/C++, Rust, OCaml, Erlang, Python, Go, Java, JavaScript
Operating Systems / Platforms: Windows, Linux, AWS, GCP
Databases: MySQL, MongoDB, RocksDB, Redis, memcached
Frameworks & Tools: LLVM, OpenMP, MPI, PyTorch, Docker, Kubernetes, frama-c, TLA+, ns-3
Miscellaneous: LaTeX, Git/Github

Honors/awards

- **Soloman M. Swaab Fellowship** - University of Pennsylvania
- **Gerondelis Foundation Scholarship** - Graduate Scholarship
- **1st Prize in Cansat in Greece 2018** space engineering competition (universities level).
- **IEEEXtreme programming competitions**. Ranked **94/5500** (15.0), **99/3700** (14.0) and **184/4000** (13.0) worldwide.
- **Bronze Medal in the Panhellenic Physics Competition Aristotle 2016**. Ranked 25th overall

Leadership and Outreach

- **Penn CIS PhD Mentorship Program Organizer** (2023-present).
- **Invited Panelist for Penn CIS Visit Days** (2023, 2024, 2025).
- **Computer and Information Science Doctoral Association (CISDA)**. Served in the Dean's Advisory Board (2022-2023) and as a CISDA chair (2023-2025).

Travel Funding

NSDI 2025 Student Grant *2025*
Summer School on Formal Techniques Funding *2023*
Programming Languages Mentoring Workshop at PLDI 2022 - Student Grant *2022*