

Ioannis Karyotakis

Software & Machine Learning Engineer | MSc Candidate in Data Science & Machine Learning

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Profile

Software and machine learning engineer with experience building production AI applications, recommendation systems, computational pipelines, and developer tools. Experienced in Python, Next.js, HPC environments, performance optimisation, containerisation, and large-scale data analysis. Currently pursuing an MSc in Data Science and Machine Learning at NTUA, with three peer-reviewed publications in software engineering.

Technical Skills

Languages	Python, Java, C#, SQL, R, JavaScript/TypeScript, Unix/Bash
ML & Data	Machine Learning, Data Science, Data Analysis, OpenAI API platform, LangSmith
Backend / Web	Next.js, HTML5/CSS, Bootstrap, REST APIs
HPC & Cloud	ARIS supercomputer (GRNET), SLURM, Numba, performance profiling & optimisation, benchmarking, Containerisation, Google Cloud Platform
Practices	Software analysis & tooling, empirical software engineering, software security

Professional Experience

Co-Founder & Software Engineer – EduCoach (educoach.io) May 2025 – Present

- Co-founded EduCoach, an AI platform for career guidance and lifelong learning; own the full software lifecycle (architecture, implementation, deployment, maintenance) of a live production system and lead its data engineering.
- Designed and built a recommendation engine that suggests undergraduate and master's programmes from user-interaction data, using skill-matching algorithms and real-time labour-market data.
- Won 1st place (Ennovation) and a course distinction for the product (see Honors & Awards).

Next.js Developer – Dalia Labs Jul 2025 – Feb 2026

- Built front-end features for web applications using Next.js and modern JavaScript tooling.

Engineering & Research Experience

Performance Engineer / Research Assistant – BaLab, Athens University of Economics and Business
Part-time, On-site – Athens, Greece Mar 2026 – Present

- Profiling, optimisation, and infrastructure benchmarking of large-scale workloads on High Performance Computing (HPC) systems.
- Run and manage compute jobs on the ARIS national supercomputer (GRNET) through the SLURM workload manager (resource allocation, remote job orchestration).
- Accelerate performance-critical Python code with Numba (JIT compilation) for heavy data-processing pipelines.

Security Researcher / Software Engineer – SecOPERA, AUEB Research Team Oct 2024 – Dec 2025

- Built C and Python tooling for software analysis and hardening of complex open-source software and hardware, using containerisation technologies.
- Work contributed to peer-reviewed tools on software dependency analysis and software security.

Education

National Technical University of Athens (NTUA)

Sep 2025 – Jan 2027

M.Sc. in Data Science & Machine Learning

Current GPA: 9.25 / 10

- Thesis (in progress): dynamic resource management of multi-agent AI workflows – serverless-style autoscaling, cold-start handling, and heterogeneous CPU/GPU placement.

Athens University of Economics and Business (AUEB)

Oct 2021 – Jul 2025

B.Sc. in Management Science & Technology

GPA: 9.27 / 10

- Thesis: improving the portability of kernel-level tracing tools for Android (SliceDroid); advisors D. Spinellis & N. Alexopoulos.

Selected Publications

1. I. Karyotakis et al. **An Empirical Comparison of Security and Privacy Characteristics of Android Messaging Apps**. ACM SAC '26, 2026. DOI: [10.1145/3748522.3779858](https://doi.org/10.1145/3748522.3779858).
2. I. Karyotakis, E. Talos, D. Spinellis. **TGIF: the Evolution of Developer Commit Times**. *Empirical Software Engineering* 31:52, 2026. DOI: [10.1007/s10664-025-10767-2](https://doi.org/10.1007/s10664-025-10767-2).
3. K. Karakatsanis et al. (incl. I. Karyotakis). **PyTrim: a Practical Tool for Reducing Python Dependency Bloat**. *IEEE/ACM ASE 2025 (Tool Demos)*, 2025. DOI: [10.1109/ASE63991.2025.00377](https://doi.org/10.1109/ASE63991.2025.00377).

Honors & Awards

- **1st place – AI Hackathon Greece 2026** (PPC S.A. challenge), ACE / AUEB, Mar 2026. Built *BillSense*, an AI agent that turns a photo of an electricity bill into a personalised, citation-backed analysis with anomaly detection and cost-saving tips.
- **1st place – Greek Cross-University Competition on Innovation & Entrepreneurship (Ennovation)**, Research Stream, for EduCoach. ACE / AUEB, May 2026.
- **Distinction for outstanding project** – “Business Analytics and Personalization Technologies”, AUEB, May 2026.
- **Merit scholarship** – “Ioannis and Aikaterini Samara” foundation, 2021–Present.

Languages

Greek – Native • English – C2 • German – B2