

Maria-Eleni Patsi

LinkedIn: www.linkedin.com/in/patsimarin/ GitHub: www.github.com/marrln Website: www.marrln.github.io

Summary:

Software Engineer with experience in embedded systems, C/C++, and edge AI. Completed M.Sc. coursework and finalizing dissertation research. Familiar with ARM architecture, VHDL, and system-level software development, with strong interest in embedded software and semiconductor technologies.

Skills:

Programming Languages: C, C++, Python, Java, Bash/Shell scripting

Embedded: VHDL, hardware–software co-design, ARM architecture

Software Engineering: OOP, data structures & algorithms, testing & debugging, Git, parallel programming, MySQL

AI & Data Science: PyTorch, scikit-learn, Pandas, computer vision, time-series forecasting, optimization, quantization

Mathematics: Calculus, linear algebra, probability, optimization, numerical methods

Languages: Greek (Native), English (C2 – ECPE, University of Michigan), Japanese (N5, currently learning)

Education:

M.Sc. in Electronics–Radioelectrology, and Control & Computing

GPA: 9.83/10

NKUA, Dept. of Physics & Informatics and Telecommunications, (Oct 2024 - expected Jun 2026)

Dissertation: Radial Basis Function - based Kolmogorov-Arnold Networks: A Comprehensive Study

Relevant Coursework: Digital Systems & Computer Architecture, Advanced Digital Circuit Design, Data Structures & Algorithms, Object-Oriented Programming, Parallel Programming, Communication Networks, Big Data Analytics

B.Sc. in Physics

GPA: 7.89/10

NKUA, Dept. of Physics, (Oct 2020 - Jul 2024)

Dissertation: Short-Term Prediction of Global Horizontal Irradiance from Ground-Based RGB Sky Images Using CNNs

Publications:

G. Venitourakis, I. Koutoulas, K. Charalampeli, M. Patsi, and D. Reisis. “On the Edge-Computing Oriented Inference of Radial Basis Function-based Kolmogorov-Arnold Networks”, submitted to **Electronics, MDPI**, May 2026

G. Venitourakis, M. Patsi, K. Charalampeli, C. Kachris, and D. Reisis. “Skin Cancer Identification on Edge Devices Exploiting Kolmogorov Arnold Networks”, **Emerging Tech Conference on Edge Intelligence**, Athens, Greece, Oct 2025.

Projects:

Sobel Edge Detector Hardware Accelerator - VHDL

- Designed and verified a custom IP core for real-time Sobel edge detection on Xilinx Zynq-7000 AP FPGA.
- Deployed the accelerator on ZedBoard with ARM–FPGA communication and PetaLinux embedded Linux support.

ARM Multicycle Processor - VHDL

- Designed and implemented a multicycle ARM processor in VHDL on a Xilinx Zynq-7000 FPGA, supporting 21 instructions with conditional execution with a 14-state FSM controller, achieving 117.6 MHz.
- Validated through automated custom testbenches and a custom written ARM assembly program.

Image Toolkit - C++

- Developed a C++17 image processing toolkit with convolution filters, padding, max pooling, and custom kernel support with command-line automation for batch filter application.
- Built image I/O to load, process, and save images in an easy and extensible way.

Caves of Chaos RPG Game - Java

- Designed and implemented modular and extensible codebase in Java 24 with Swing Graphics and Assets
- Features real-time combat with multiple different enemies, class-specific abilities, inventory management and others.

Experience:

Private Physics & Mathematics Tutor

Self-employed (2022 - Present)

- Tutored middle and high school students in mathematics and physics.

Courses, Hackathons & Activities:

2026	Online Course - “Getting Started with Accelerated Computing in Modern CUDA C++”, NVIDIA
2024	3rd Place @ RAMONES AI Hackathon, NKUA / RAMONES EU Project
2024	“Natural Science Students as Pioneers in AI”, SciFy, NCSR Demokritos, Latsis Foundation
2024	Online Course - “AI Pioneer Students in Natural Sciences”, SciFy, NCSR Demokritos, Latsis Foundation
2023	Universal AI Course, HIAS, NTUA - NCSR Demokritos
2022	57th Demokritos Summer School
2022	Alumni Career Orientation - Volunteer Speaker @ 2nd General High School of Kaisariani
2020	Female Digital Entrepreneurship Workshop - ACTA AE & EIT
2019	Entrepreneurial Skills Workshop - JA Greece & EIT

Additional Achievements:

National Aerial Acrobatics Medalist

1st Place (Sling 209, 2026), 2nd Place (Sling 208, 2025), 1st Place (Hoop 308, 2024)