Nikoleta Papadopoulou

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Applied AI Engineer passionate about Deep learning, LLMs, and deploying AI solutions into production

PERSONAL PROJECT

Arachne Studio

Built a production-ready full-stack computer vision platform to extract and digitize structured grid patterns from scanned documents of the 1910s.

- **Backend:** Developed a Python/FastAPI pipeline using OpenCV for line detection, cell segmentation, and grid reconstruction; automated PDF regeneration (ReportLab).
- **Frontend:** Built a Next.js (React/TypeScript) canvas editor with advanced tooling (lasso, fill, multi-color palette, undo/redo, reusable fragments) and Google OAuth-based per-user persistence.
- **Infrastructure:** Designed non-destructive pattern storage, containerized with Docker (web + API + Nginx + Certbot), deployed on VPS with SSL, rate limiting, and JWT auth.

WORK EXPERIENCE

TDK InvenSense France — **Feb 2025 – Jul. 2025**
Machine Learning Engineer Intern — *Grenoble, France*

- Designed a preprocessing pipeline for accelerometer time series data: filtering, normalization, segmentation.
- Developed and optimized **deep neural networks** combining: 1D **CNNs** (for local temporal feature extraction) with **GRU layers** (for pattern modeling) to classify tap events on noisy wearable-sensor data.
    - **Key challenges:** low SNR on single taps, strong inter-user variability, data inconsistency across use cases and the need for a **small memory efficient model** with strong robustness against false accepts
    - **Solutions:** introduced noise-based data augmentation and imbalance handling methods (focal loss), run extensive hyperparameter searches and applied multiple regularization techniques to prevent overfitting → **achieved > 90% classification accuracy on the embedded prototype.**
- Collaborated with the embedded ML team to deploy the final model using the company's internal inference pipeline and validated reliable real-time earbud prototype within its memory constraints.

Ingeniarius Ltd — **Jun. 2021 – Aug. 2021**
Robotics Trainee — *Porto, Portugal*

- Worked with ROS, Arduino and Raspberry Pi platforms for mobile robot control.
- Gained hands-on experience with Linux system administration and embedded programming.
- Demonstrated Implemented low-level and high-level control algorithms and tested robot navigation behaviors.

Metratek Telematics Ltd — **Apr. 2020 – Jul. 2020**
Junior Project Assistant — *Remote*

- Worked on a pilot project with Motor Oil HELLAS, contributing to the automation of docking processes.
- Collected and analyzed hardware performance data, updated SQL databases, and produced client reports.

EDUCATION

Grenoble INP - Ense³, Université Grenoble Alpes (UGA)
Master's Degree (M2) in Technologies des Systèmes d'Information (TSI) — *Grenoble, France*
Mobile, Autonomous, and Robotic Systems (MARS)

- Relevant Courses: AI and Automation, Systems Monitoring & Diagnostics, Mobile Robotics, Computer vision project on pose detection using ML

University of Patras
Master of Engineering – MEng, Mechanical Engineering — *Patras, Greece*

- Grade: 7.71/10
- Thesis Title: **"Simulation, fabrication and programming of a low-cost quadruped"**
  Developed an open-source 3D-printed quadruped robot using ROS Noetic on a Raspberry Pi 4B (Ubuntu 20.04) and a Teensy 4.0 microcontroller for servo control, with an IMU sensor for orientation tracking.

SKILLS & LANGUAGE

- **Skills:** Python, C++, LLMs and DNNs, TensorFlow, Keras, PyTorch, Scikit-learn, Linux, Git, Docker, MATLAB, Windows Office, SQL , OpenCV
- **Languages:** English (C2), Greek (Native), French (B1 Intermediate), Spanish (B1)
- **Soft Skills:** Team-player, Adaptability, Curiosity and Continuous Learning, Problem Solving, Collaboration