Alexandros Agrafiotis

Tel: +30 6937932037 **Email:** alexander.agrafioths@gmail.com

Education and Certifications

- **M.Eng. in Electrical and Computer Engineering, UThessaly** **2020 – Present**

Work Experience

Software Engineer Intern - NITLab **Oct 2023 – Present**

Volos, Greece

- Acquiring software engineering experience as part of the IoT team that is responsible for the InterConnect European research project, under the guidance of Prof. Athanasios Korakis and doctoral student Panagiotis Tzimotoudis.
- Currently researching open-source home automation software (OpenHAB, Home Assistant), testing their capabilities and weaknesses by building small-scale projects, writing the scripts that provide functionality in YAML.
- Creating multi-service environments using Docker Compose, that communicate exclusively through a containerized MQTT broker (Mosquitto).
- Handling JSON-formatted data published to the broker from heterogeneous smart devices (Zigbee, Bluetooth, etc.)
- I will soon be taking on a more advanced project that is based around the idea of a synchronous system of cameras equipped with object detection software, with the ability to communicate with eachother in real time. (more info can be provided)

QA Intern - Kodika.io **Winter 2020**

Athens, Greece

- A three-month internship for a small startup in Athens, where I had the chance to familiarize myself with RESTful architecture, JSON formatting, using Postman and Google Firebase, in order to test the beta version of the company's product.
- I worked on the full-stack creation of applications using the company's product, a No-Code iOS app creation platform, as a way to assess the end user experience.

Technologies and Programming Languages

- **Programming Languages**: C, Java, Python, Matlab
- **Technologies**: Docker, MQTT, SQL, YAML, REST, JSON, Linux, Git, make, Postman, Wireshark
- **Other**: Data Structures and Algorithms, Unix Programming

Languages

- **Greek**, Fluent
- **English**, Working Proficiency

Projects

Automated Night Light:

- Configured Home Assistant with MQTT Docker setup to automate smart devices: door contact sensor, luminance sensor, and Tasmota smart plug.
- Script-triggered smart plug to turn on light when door is open and luminance is below threshold (meaning that it's nighttime); light turns off when door is closed.
- Integrated devices with different protocols: Zigbee sensors via Zigbee2MQTT and Tasmota plug using MQTT; data exchanged in JSON format.

Randomized Playlist Creator:

- Developed Python script for local business to broadcast radio advertisements between music tracks inside their shop.
- Utilized XML format for playlist creation, incorporating tracks from 'music' and 'ads' folders.
- Implemented random selection algorithm to intersperse music tracks with advertisements at 15-minute intervals, providing the client with a new randomized playlist daily.

Auto-grader for coding assignments:

- Implemented automated grading system for C/Unix programming course final project.
- Utilized separate child processes for each grading component, including compilation, execution, and diff comparison, with challenges in managing data pipe capacity and packet size.