Ioannis Protonotarios

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About

Embedded Systems Engineer. I design and implement low cost & low power networked sensing systems used in academia, consumer products and cubesats. Experienced in low level real time embedded software, digital electronics, and their intersection. Passionate about space, sustainability, continuous improvement.

Research - Work Experience

Mar. '21 - present **Senior Embedded Flight Software Engineer @ Hiber** - Amsterdam, The Netherlands

Member of Hiber's multi-disciplinary, highly skilled satellite team.

- Real-time embedded software development for cubesat subsystems ranging from powerful FPGAs to puny cortex-M0s.
- Technical support to LEOP & commissioning of Hiber's spacecrafts.
- Hands-on hardware/software debugging.

Feb. '19 - present **Embedded Systems/IoT engineer @ protonotarios.info** - Delft, The Netherlands

Hardware/software co-design. Example of projects undertaken:

- Remote controlled LEDs in fashion products & events for Dreamlux IT. A BLE enabled battery with OTA updates and control via Android & iOS apps, and a DMX512 sub-Ghz wireless system.
- Social interaction wearable. A BLE enabled "badge" that records real-time high frequency stereo audio, IMU data, and proximity on an SD card.
- The Bonnie digital receipt system.
- A LoRa-based, zero-power environmental monitoring platform.
- Enabling remote teaching of the Embedded Systems Lab course of TU Delft during Covid19. Programming and operation of a quadcopter at a distance.

Feb. '14 - Jan. '19 **Research Engineer @ TU Delft** - Delft, The Netherlands

Designed and implemented embedded systems for the Embedded Networked Systems group and the Delft Data Science initiative to be used in research. Administered the electronics lab, a large WSN network, backend servers for experiments (1000+ participants). Supervised MSc & BSc students, advised PhD students. Responsible for procurement. Examples of systems I designed and implemented:

- A device for passive crowd density estimation used in crowd flow experiments, evacuation monitoring, retail shop popularity etc.
- Various low power LoRa nodes & platforms used in LoRa research, environmental monitoring, built environment monitoring.
- An educational quadcopter platform used in a MSc level course. Sensing, filtering, control, communication on a constrained BLE enabled MCU.
- An educational tracked robot for a BSc level course. Line follower using ROS & a smartphone.

- Indoor Localization systems based on BLE and UWB.
- Various Visual Light Communication circuits for communication & illumination.
- A parametric robot infrastructure that positions itself accurately in 3d for repeatable experiments.

Feb. '13 - Jan. '14 **Msc Thesis @ Sense Observation Systems** - Rotterdam, The Netherlands
- Location Unaware Navigation in Wireless Sensor Networks

Feb. - Apr. 2013 **Teaching Assistant @ TU Delft** - Delft, The Netherlands
- Real Time Embedded Systems (IN4073), ES Group

July - Sep. 2012 **Intern @ EPFL** - Lausanne, Switzerland
- Enviromental Sensing with a Quadrotor, DISAL

Jan. - June 2011 **Teaching assistant @ University of Patras** - Patras, Greece
- Telecommunication Electronics, APEL

Sep. - Dec. 2010 **Intern @ Industrial Systems Institute** - Patras, Greece
- Project ASPIS

Education

2011 - 2013 **Delft University of Technology** - Delft, The Netherlands
Faculty of Electrical Engineering, Mathematics and Computer Science
- Master of Science in Embedded Systems

2004 - 2010 **University of Patras** - Patras, Greece
Faculty of Electrical and Computer Engineering
- 5-Year Diploma in Electrical and Computer Engineering
- Major in Electronics and Computers

Technical Skills

Operating Systems *nix, FreeRTOS, Android

Programming C, Python, Java, JS, Matlab, LaTeX, C++, Assembly

CAD KiCad, OpenSCAD

HW architectures Cortex-M, ESP32, Xilinx Zynq, AVR