Aimilios Christou

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Work Experience

09/21 – Now **ENTRUST Corp. - Data Protection Solutions Engineering, Cambridge, UK**

My current position as an Electrical Engineer II, which amounts to the tasks of a hardware design engineer within the company.

1. I have designed a PCB, tested it, and wrote the firmware for a RP2040-based power monitoring interposer on a PCIe interface. This interposer is used in development for data collection and will be used in production to automate the detection of software updates that increase the power draw of our hardware, thus improving unit reliability.
2. I have developed, in conjunction with a design architect, two iterations of a controller module for a 1U rack server using ARM Cortex M microcontrollers. This module will be used to extend the lifetime of an existing product to include around 3000 more units and result in continuing the product's sales to existing customers.
3. I have been tackling the development of future products alongside the 5-person hardware team, mainly the upgrade to the 1U server appliance. I have developed PCBs for the overall chassis, reviewed my team members' designs to ensure quality, and designed testing to improve performance, with a focus on cooling experiments. Data gathered through the cooling experiments has led to a 33% decrease in temperature with the same power usage.
4. For 3 months (Jun – Aug 2023), I moved across the organisation to take the role of a software engineer. In my new team, I set up the infrastructure, compilation, and linking environment for the Cortex M microcontrollers in the controller module. I developed the prototype firmware for the microcontrollers, allowing the validation of the design. This confirmed that I could safely start work on the second iteration without major blockers or critical design changes.

Overall, I have gained experience using design software, namely Altium Designer, and Solidworks, as well as programming experience in Python, and C used for lab automation and firmware development respectively. I have improved the infrastructure of the office labs by using Raspberry Pis to automate equipment. I have also created resources in the office to use a 3D printer, and I personally handle printing requested designs.

07/20 – 08/20 **CRYSTALVISION LTD, Whittlesford, Cambridgeshire, UK**

A two-month internship that involved hands-on experience with custom FPGA transceivers reaching capabilities of 400Gb/s.

My projects tested three different FPGA chips by designing testing software in VHDL to produce eye-diagrams. I further wrote software for optimisation of their low-level VHDL routines.

This work performed manufacturing error checks while pushing the limitations of custom FPGA boards both in maximum capabilities and reliability of continuous operation.

07/19 – 08/19 **SWINDON SILICON SYSTEMS - SENSATA, Swindon, UK**

A two-month internship at the company, in which I was part of a project involving the development of a custom ASIC solution for a pressure-controlled haptic feedback device.

I used Vivado to program an FPGA to interface with Python via a Jupiter Notebook, to incorporate simulation tests previously running on a PC in order to increase the portability of the overall design.

Education

2017 – 2021 **Gonville & Caius College, University of Cambridge**
MEng Electrical and Electronic Engineering, 2.i, Cambridge MA
Master's Course Summary:

Sensors and Instrumentation, with Embedded Systems for the Internet of Things	• Technical expertise in electronic instrumentation systems, and their respective interface electronics and using I2C and SPI protocols. • A Bayesian approach to measurements and their uncertainty when applied to sensors.
Radio Frequency and Integrated Digital Electronics	• Focused on integrated digital electronics, design, and optimisation techniques for combinational and sequential digital logic circuits.
Data Transmission, Information Theory and Coding	• Delved into the principles of information theory, data transmission, compression, and error-correction in software projects
Computer Systems, Software Engineering and Design	• A course on multithreaded software and analysis of object-oriented design concepts and processes.
Accounting and Finance, Modelling Risk	• Taught modelling methods involving randomness, such as statistics, decision analysis, portfolio management, queueing theory, Markov chains, dynamic programming, forecasting, & regression.

Master's Thesis

Optical digital coherent transceivers have the capability of achieving 1 Tbit/s links in the core networks and 100 Gbit/s links in access networks. I developed algorithms in MATLAB for the simulation of transceivers, mainly those required for synchronisation and equalisation (both linear and nonlinear), as well as modulation techniques such as probabilistic shaping.

Accomplishments

12/2021 Internal company hackathon participation and winner of the entertaining and creative award for a sweater with a scrolling LED display. I am now involved in the organisation of any such future events.

07/2020 Electronics Projects Creator for Hercules Cambridge, a platform for people to learn practical work skills like CAD, hardware, and software design through hands-on projects. I was responsible for creating electronics projects to teach useful applications of hardware in real-life situations.

06/15 – 01/17 18-month Military Service in the Cypriot Army (Artillery), in which after national examination, achieved the rank of Second Lieutenant. As such, I oversaw a squad composed of 20 private soldiers. The experience has led to the improvement of my communication and leadership skills.

2015 First place award for the highest combined mark in the Pancyprian examination in Mathematics, Physics Chemistry, and the highest single mark in Greek. English IELTS with mark 8/9 (July-2012).

Activities and Interests

Learning about firmware and low-level hacking	3D Printing	Strategy/ Puzzle Games	Basketball