

Andrew Ritchie

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Proficient in: C - Python - VHDL

EDUCATION

University of Glasgow
Master of Engineering
Electronic and Software Engineering

September 2016 - May 2021
4th Year Overall Percentage: 89

MASTERS PROJECT

Web-Based Dashboard for Nanoindentation Experiments

August 2020 - January 2021

- Developing in collaboration with the life science division of Optics 11 to create the next generation application for the filtering and analysis of nanoindentation experiments.
- Utilised and extended Pythons Dash framework using HTML and CSS to realise a minimalist design.
- Produced powerful unique features allowing for graphical interaction with large data-sets. Combined with nanoindentation analysis algorithms that can identify the contact point and apply the hertz model to determine the Young's modulus of materials.
- Constructed interfaces to ensure the platform is fully extendable and will grow beyond its deployment.
- Followed an agile development methodology to allow the customer to direct development and handle changes in requirements throughout the implementation.

WORK EXPERIENCE

Embedded Software Internship

June 2019 - August 2019

Plexus, Bathgate, Scotland.

- Contributed to winning a contract to develop a negative pressure wound therapy system, becoming the lead software developer during phase one of development.
- Implemented various programs in C to control a piezoelectric pump to create a consistent pressure around 80 mmHg under a leaking bandage using an STM microcontroller.
- Created a test suite to determine how long the system met the requirements using various batteries.
- Communicated progress weekly to the client.

RF Electronics Internship

June 2018 - August 2018

Leonardo MW, Edinburgh, Scotland.

- Conducted an investigation into a phase lock loop where I determined whether it could be used in a future radar project.
- Created a user guide outlining how the PLL could be used within a radar system. Including an error log to be relayed back to the supplier.
- Collated performance results using an FSWP Phase Noise Analyzer, VCO Tester and RF near field probe.

Firmware Internship

June 2017 - August 2017

Leonardo MW, Edinburgh, Scotland.

- Investigated an improved method of testing power and control cards.
- Automated testing using Python and increased the performance of individual tests using the JTAG interface.
- Tested modules on various FPGAs.
- Presented the results to engineering and business management to promote the developed testing method.

Repair Engineer

November 2012 - August 2016

DataTechnical, Glasgow, Scotland.

- Undertook workshop component level repairs to computer equipment and televisions.
- Interacted with clients to create tailor-made solutions for their business needs.
- Member of installation team responsible for IT infrastructure project delivery including active network equipment, servers, structured cabling and end user device implementation.

PROJECTS

Smart Badge

September 2019 - May 2020

Glasgow, Scotland.

- Implemented smart badges operating system using various drivers and MicroPython running on an ESP32.
- Ensured that the manufacturing price of the badge was less than ten pounds per unit.
- Developed an interactive timetable application using MicroPython and deployed it onto the badge.
- Adapted development methods in order to finish the design during the COVID-19 pandemic.

Arran Biodiesel Plant

September 2019 - March 2020

Isle of Arran, Scotland.

- Led a team to investigate the technical and business feasibility of producing biofuel from algae, to power the current bus network on the island of Arran.
- Developed a production method that would make the existing bus network a carbon negative system.
- Ensured the construction of the plant and production of the fuel complemented Arran's existing environment and complied with international standards.
- Presented the results to a board of academic and professional experts.

Neural Network Arcade Game

September 2018 - April 2019

Glasgow, Scotland.

- Led a team of software engineers developing an arcade game which utilised a convolutional neural network and could run on a Raspberry Pi to show the user how the technology can be used within space systems.
- Prepared custom data-set and trained the neural network.
- Integrated NN with the game using Python while in constant communication with the client.
- Presented the product to a large audience including the customer and a group of academics.

TECHNOLOGIES AND PRACTICES

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|----------------|--------------------|---------------------------|
| – Python and C | – Embedded Systems | – Agile Development |
| – HTML and CSS | – Neural Networks | – Waterfall development |
| – VHDL | – Dash Framework | – Test Driven Development |

ACADEMIC ACHIEVEMENTS

Saltire Scholarship Award

2019

Glasgow University Engineering Scholarship

2017 and 2018

REFERENCES

All references are available on request. For more information please visit andrewdouglassritchie.com.