Andrew Ritchie

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andrewdouglasritchie.com
Proficient in: C - Python - VHDL

EDUCATION

University of Glasgow *September 2016 - May 2021*
Master of Engineering 4th Year Overall Percentage: 89
Electronic and Software Engineering

MASTERS PROJECT

User Oriented Dashboard for Nanoindentation Experiements *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.
- Utilized and extended Pythons Dash framework to realise a minimalist design and attract a new user base.
- Produced powerful unique features allowing for a graphical interaction with large data-sets. Combined with nanoindentation anaylsis algorithms that can identify the contact point and apply the hertz model to determine the youngs modulus.
- Constructed user and authentication systems to allow for collaboration and encourage the community.
- Followed an agile development mythology 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.
- Controlled a piezoelectric pump to create a consistent pressure around 80 mmHg under a leaking bandage using an STM microcontroller.
- Created a test program 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.
- Proved that the automation of testing was more efficient and was able to increase performance even more by reducing the scope of the test.
- Presented the results to engineering and business management to promote the testing method.

Repair Engineer *November 2012 - August 2016*
Data Technical, Glasgow, Scotland.

- Undertook workshop component level repairs to computer equipment and televisions.
- Interacted with clients to create tailor-made requirements 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 custom touch screen badges firmware using various drivers and micropython running on an ESP32 microcontroller that can be used to enhance Glasgow University open days.
- Ensured that the manufacturing price of the badge was less than ten pounds per unit.
- Developed and embedded an interactive timetable application using micropython into the devices operating system.
- 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 could run on a Raspberry Pi that used a convolutional neural network to show the user how they can be used within space systems.
- Trained the NN and integrated it with the game 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

- Python and C
- HTML and CSS
- VHDL
- SQL
- Neural Networks
- Dash Framework
- Agile Development
- Waterfall development
- 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 andrewdouglasritchie.com.