ALFRED RENN

SOFTWARE ENGINEER

WORK EXPERIENCE

ByteSnap Design

https://www.bytesnap.com/

August 2022 – March 2023

Software Engineer

Designed, developed, and engineered various web applications for both internal and customer projects, utilizing a range of programming languages and frameworks to build powerful software solutions.

Highlights

- Utilised **Vue** and **TypeScript** to create an intuitive, user-friendly web application, using robust design patterns and best practices to ensure optimal functionality and user experience
- Designed and developed a responsive, feature-rich web application using **Flutter** and **Dart**, incorporating a range of views and user-friendly interfaces for maximum ease of use
- Employed **WPF** and **C#** to create a high-performance application, using **SQL** and an MVC architecture to facilitate the viewing, manipulation, and analysis of data
- Streamlined the deployment process of complex code with multiple dependencies, using **Docker** and **GitLab** CI to optimise the development process and improve productivity

Durham University Physics Department

https://www.dur.ac.uk/qlm/

June 2021 – August 2021

Solar Physics Research Student

Researching novel telescope imaging techniques using quantum gases

Highlights

- Developed robust code with **Python** for fabricating and analysing images from a solar telescope
- Performed deep literature review to justify techniques used in the creation of said telescope
- Discussed and acted upon desires and needs of telescope engineers, theorists, and observationalists

Durham University Physics Department

https://www.durham.ac.uk/departments/academic/physics/

August 2020 – October 2020

Content Developer

Developing interactive teaching content for a better online learning experience in the pandemic

Highlights

- Utilised **Python** to create highly interactive learning resources for Durham physics students
- Worked remotely with lecturers to deliver content tailored to their needs and desires
- Organised fellow interns as a group by creating task rotas to encourage teamwork and mitigate work-duplication, establishing efficient development

Viper RF

https://www.viper-rf.com/

August 2019 – September 2019

Design Engineer (Internship)

Designing and testing real-time optimisation for an ion satellite thruster

CONTACT

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http://alifeee.co.uk

Blog
https://blog.alifeee.co.uk

LinkedIn
alfredrenn

GitHub
alifeee

EDUCATION

2018 – 2022

Durham University

https://www.durham.ac.uk/

MPhys

Physics

Grade: 1st (77%)

Courses

- Masters Project
- Atoms, Lasers and Qubits
- Advanced Theoretical Physics
- Advanced Astrophysics
- Advanced Laboratory

2016 – 2018

Cottingham High School and Sixth Form College

https://www.cottinghamhigh.net/

A Level

Physics, Mathematics, Further Mathematics

Grade: A*A*A*

Courses

- A* Physics
- A* Mathematics
- A* Further Mathematics

2011 – 2016

Cottingham High School and Sixth Form College

https://www.cottinghamhigh.net/

GCSE

Grade: 6A*, 4A, 2D*

Courses

- A* Mathematics
- A English
- + 5A*, 3A, 2 Dist*

Highlights

- Programmed and debugged a real-time optimisation algorithm on a microcontroller with **C**
- Provided R&D updates and creative input to problem solving
- Worked on commercially sensitive and highly confidential new product developments using advanced software
- Liaised directly with customers on work done with radio-frequency electronics

CRODA
https://www.croda.com/
June 2017 – June 2017

Chemical Engineering Maintenance Technician (Work Experience)
Maintenance of chemical engineering equipment

Highlights

- Shadowed engineering, maintenance, and instrumentation teams at a chemical-production facility
- Designed hanging basket using TIG welder, requiring fast learning of techniques
- Worked alongside diverse teams with a professional conduct
- Gained an awareness of health and safety, commercial awareness, value for money, and customer service

New Village News
June 2014 – June 2017

Paper Boy
Delivering newspapers to local residents as a subscription service

Highlights

- Demonstrated reliability and excellent timekeeping on my weekly morning paper round
- Undertook additional responsibilities as required covering people's rounds last minute when needed

AWARDS

July 2019

Durham University
Florence Nightingale Award for Graphical Excellence

Awarded for the optimal presentation of quantitative data to illustrate a Helmholtz coil. Used **Python** for graphing.

July 2019

Durham University
Durham Award for Academic Excellence

Awarded for achieving over 80% in first year of university.

VOLUNTEER

British Heart Foundation
https://www.bhf.org.uk/
March 2023 – Present

Electrical Tester
Testing electrical equipment for the British Heart Foundation home shop

SKILLS

Data Analysis
Python **Statistics**

Web Development
HTML **CSS** **JavaScript** **Vue**

INTERESTS

Board games
Founding president of Board Gaming Society at Sixth Form

Electronics
Arduino (microcontroller and circuit board building)

PC building

REFERENCES

Available on request
— Jim Mayock, Viper RF

Available on request
— Dr. Ifan Hughes, Durham University

Available on request
— Graeme Wintle, ByteSnap Design

National Citizen Service
https://www.ncsyes.co.uk/
June 2016 – July 2016

National Citizen Service

Highlights

- Outdoor activities as a team including orienteering
- Organisation of charity fundraiser and litter pick as a group of young people

PROJECTS

- **Custom racing wheel**: Used Arduino to create a steering wheel for driving games, improving practical knowledge of electronics and coding skills, and evolving a robust toolset for microcontroller development
- **Real-time power optimisation for a satellite thruster**: Used a microcontroller to minimise power losses for a microwave generator, to be used in space satellites, improving industry knowledge and personal skills
- **Optical rotation research project**: Investigated the phenomenon of optical rotation when light is shone through sugar solutions, including potential uses in science and industry, culminating in a 5-page scientific report
- **Personal website**: Used free time over summer to learn HTML/CSS/JavaScript to create a versatile website with physics simulations, games, and a collation of many physics resources for fellow Durham students
- **Quantum mechanics simulation**: Simulated a finite square well with Python to create a learning resource for physics students, requiring data manipulation and creative problem solving to get a responsive application
- **Atomic-force microscopy**: Imaged surfaces on the μm- and nm-scale to investigate the effect of carbon micro-particle size on the surface structure of glass, culminating in a 10-page scientific report
- **Machine learning for optimising laser cooling experiments**: Used machine learning to optimise the cooling of atoms in a laser trap, culminating in a 33-page scientific report