

# Alex Rowan-Smith

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🐙 GitHub alexrowansmith in LinkedIn Alex Rowan-Smith 🌐 Website alexrowansmith.github.io

## Education

### EXETER MATHS SCHOOL

#### A-LEVEL

📅 August 2015 - July 2017

- Mathematics (A), Further Mathematics (A\*), Physics (A)

### UNIVERSITY OF DURHAM

#### BSC MATHEMATICS

📅 October 2017 - July 2021

- Mathematical and Physical Modelling
- Pure Mathematics
- Statistics

### OXFORD UNIVERSITY

#### DEVELOPING AI APPLICATIONS

📅 June 2022 - July 2022

- CNNs, RNNs, MLPs
- Natural Language Processing
- AWS / Azure

## Coursework

### UNIVERSITY

Programming for Data Science  
Complex and Numerical Analysis  
Differential Geometry  
Monte Carlo Simulation  
AI and Machine Learning  
Mathematical Modelling  
Fluid Dynamics  
Operations Research  
Dynamical Systems

### PROJECTS

Modelling the Dynamical Motion of Space Debris  
Modelling the Random Behaviour of Lightning  
Modelling Oscillatory Behaviour of Variable Structured Elastic Knots

## Skills

### PROGRAMMING

Python • R • PHP • C++ • HTML/CSS • JavaScript • LUA • LaTeX

### MISCELLANEOUS

Command Line • Microsoft Office • AWS (Sagemaker) • Git • Unity • Communication

## Experience

### DIGITAL TECHNOLOGIES, MODELLING AND SIMULATION ENGINEER

#### NOVA SYSTEMS INTERNATIONAL

📅 August 2021 - Present

- Networking and integration of software for the RAF's collective mission training simulation environment.
- Integration and evaluation of targeted-fidelity simulation hardware: Development of VR/MR capabilities (XTAL); 180° dome and projector setup; Motion platform integration to IG and CGF platforms (MAK VRForces).
- Assessing functionality of simulation hardware based on HITL interactions and requirements.
- Developer-level training in LUA/C++ and complex scripting of entity behaviours in various CGFs.
- Interpretation of written instructions using natural language processing AI.
- Fundamental development of digital twin models using ML NARX models.
- Restructure of internal early careers progression.
- STEM ambassador.

## Recent Projects

### PROGRAMMING IN VIRTUAL REALITY

📅 January 2017 - April 2017

A project under my own interest looking at developing virtual reality environments and interactions. The simulation environment was created with Unity using the HTC Vive headset and SteamVR plugins. The aim of the project was to look at interactions with simulation objects and modelling four-dimensional meshes.

### VECTORISING RASTER CHARTS

📅 February 2016

A project undertaken in association with the UK Hydrographic Office (UKHO). With copies of their globally distributed charts, our task was to vectorise these images that had been initially hand drawn over several hundred years ago, so that the charts could be digitally analysed. Using text-recognition AI-based software in conjunction with open-source vectorising software the eventual product could digitalise hand-written depths. We later presented our results in front of a panel of UKHO managers, who were able to use our program for their purpose in industry.

### WEB DEVELOPMENT

Web development has been an interest of mine for a long time, where my curiosity inspires me to delve deeper. This website was made from a blank document with the aim not to simply copy, but instead to understand each element implemented. Please use the link at the top of the document to explore all aspects in greater detail.

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