Joshua Talks

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Education

Gonville and Caius College, University of Cambridge **2018 – 2022**

BA (Honours), MEng, Information/Computer Engineering and Bioengineering

- **First Year (2.1)** – General Engineering
- **Second Year (Ungraded due to COVID-19)** – General Engineering
- **Third Year** – *Modules*: Signals and Systems, Statistical Signal Processing, Information theory and coding, Inference, Molecular Biology I, Introduction to Neuroscience, Medical imaging and 3D computer Graphics, Mathematical methods.

Royal Grammar School, Newcastle Upon Tyne **2009 – 2018**

- **A-levels:** Mathematics(A*) Further Mathematics(A*) Physics(A*) Chemistry(A*)
- **IGCSEs/GCSEs:** 10A*, 1A**

Skills

Python (NumPy, SciPy, Pandas, Pytest, Django, Altair), C++, JavaScript, SQL, HTML, CSS, Git. SolidWorks. Basic Mandarin

Work Experience

Data Engineer Intern, *PragmatIC (Cambridge)* **Jun 2020 – Aug 2020**

- Worked on a full stack project to create a custom web-based data analysis dashboard using a Django web frame work, Python, Altair plots, JavaScript, HTML, SQL and CSS.
- The dashboard provided interactive visualisation and analysis of large data sets containing 100 000s of entries via user configurable Altair plots and data tables.

Design/Software Engineer Intern, *Huxley Bertram Engineering Ltd. (Cambridge)* **Jun 2019 – Sept 2019**

- Design Team: Worked with CAD on bespoke automated machinery projects solving design problems for a range of projects such as an automated silicon chip production process and a Vectura inhaler test unit.
- Software Team: Using Python to create an automated microscope inspection rig to detect and identify faults.

Work experience, *Soil Machine Dynamics, SMD (Newcastle)* **Apr 2017**

- Shadowed managerial team and engineers in the research and production facility. Observed design process; CAD, prototypes and technical drawings of a new ROV model.

Projects

Mine clearing Robot with Computer Vision **Nov 2019**

- Designed and built a robot integrating Mechanical (CAD), Electrical (EAGLE) and software engineering.
- Using C/C++ and Python to code an Arduino based robot that used computer vision combined with IR, ultrasound and hall effect sensors all mounted on a custom chassis to detect, map a route and collect mines.

Two stage Booster Rocket, *Cambridge University Space Flight (CUSF) Society* **Oct 2018 – Jan 2020**

- Student-led team to design (CAD), test and manufacture a two stage Booster dart style rocket.
- Worked in Mechanical sub team on parachute release, fuel regulation and disconnection at launch.

Thermoelectric cooling clothing, *CUED 1A Product design project* **Apr 2019**

- Prize winner in an Aircon alternative design challenge, I used the Peltier effect in wearable thermoelectrics.

Real time UK Flood warning software project **Feb 2019**

- Python project to create a predictive flood warning system based on real current/past data for English rivers.
- Collaborative project using GitHub and PyTest unit tests for a test-driven development process.

Mars lander simulator software project **Jun 2019 – Aug 2019**

- C++/Python project to produce a dynamic simulation that used Euler/Verlet numeric integration to model principle forces from the equations of motion and control theory for an automatic landing procedure.

Package Collection Robot, *Cambridge University Robotics Mini (CUR mini)* **Oct 2018 – Dec 2019**

- Integrated Design Project: Including manufacturing techniques, component design, Microcontroller and circuit design, C/C++ and component control, Presentation.

Automated Motor Controller Test Rig, *Big Bang UK Young Scientists & Engineers Competition* **Sept 2017 – May 2018**

- Used C/C++ and CAD to create a configurable automated test rig for a BorgWarner motor controller to increase the efficiency and affordability of production line quality inspection.
- Second place in National Senior Engineering category, Alan Dixon prize, Gold CREST award.

Interests/Hobbies

Tennis

- University Team
- College Captain: Organise weekly sessions and fixtures for intercollegiate league
- North of England school doubles champions

Badminton

- University Team
- College Captain: Organise twice weekly training sessions and fixtures for intercollegiate league

Mandarin Classes

- Weekly language classes with the University language department.

Photography

Cycling