Rahul Jhuree

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Education

2016 - 2021 **University of Bath** MEng (Hons) Integrated Mechanical & Electrical Engineering

Total average: *70.6%, first class predicted*

My course includes a half split of mechanical and electrical modules. Performed particularly well in modules involving robotics, modelling, and programming.

I have been coding since I was 12, being self-taught and having built a strong intuition and a wealth of experience through my own personal projects. See my projects portfolio at mightybucket.github.io for more information.

Employment

July 2018 – July 2019 **Mechanical Engineering Intern at CERN** *(see Engineering Experience below for technical projects)*

- Assisted my supervisor in overseeing day to day operations at the Compact Muon Solenoid (CMS) experiment of the Large Hadron Collider (LHC).
- Used CATIA and ANSYS to iterate and finalise designs of mechanical structures.
- Procured quotes from suppliers and contractors in English and French.
- Regularly did guided tours for group visits to the CMS site, which entailed speaking to groups of all ages and answering questions in an accessible manner.
- Rapidly picked up French while working, which many teams and technicians were more comfortable with. This also helped while procuring quotes and solving disputes.

July 2016 – Sept 2017 **Hospitality Team at Host Staffing**

- Did waiter and bartender shifts at various events. During term and summer breaks, I would do shifts when I returned home in London.

August 2016 **Teaching Assistant at City of London Academy Islington**

- Was a primary assistant for a coding booster class for 11 year olds. I was personally commended by the Head of Computing at the end, and offered a further tutoring position.

Engineering Experience

2021 **Master's Project**

- Produced an open-source software module for FreeCAD that uses Generative Design to refine CAD parts for 3D printing and Additive Manufacturing
- Development was highly autonomous; almost all work was done independently with occasional guidance from my supervisor
- Devised a Genetic Algorithm routine to generate parts
- Designed a GUI using Qt to wrap the tool inside a user-friendly interface
- Module was evaluated on five design case studies. All designs showed a significant decrease in part volume, good optimisation of support structures, and better safety factor
- Obtained a +75% mark for my final presentation
- Supervisor and assessor were very impressed and showed lots of genuine interest
- Plenty of scope for future work, with possibility to implement machine learning or neural networks.

July 2018 – July 2019 **Projects at CERN**

- Successfully designed and directed assembly of a rig to support an old particle collider unit. Required consultation with several groups and stakeholders to ensure their needs were met, all while fitting tasks around the extremely tight upgrade schedule.
- Designed numerous pieces of infrastructure such as pathways and compartments at the main CMS site. Learned proper procedures for how to ensure structural safety as well as good ergonomic design.
- Managed logistical tasks involving the movement of heavy detector pieces during upgrade work. Successfully directed the transport team in performing work packages to schedule while keeping within regulations and tight time restrictions.
- Performed several integration studies using CATIA, AutoCAD and geographic data to check there was suitable space and resources for work packages. Successfully prevented up to 3 months of delays in the upgrade critical path.

2016 – Present **Personal Projects** *(visit mightybucket.github.io for more information)*

- Designed and constructed an electronic drum sequencer made from an IKEA drawer and inexpensive parts. Iterated through many designs for the layout and architecture after extensive prototyping. Solved many unanticipated engineering problems on the spot and successfully developed it into a deliverable product to an end-user specification, which was a valuable experience.
- Developed a physics sandbox simulator in Python alongside my solid mechanics modules to enhance my understanding. Adapted it into a 2D space-themed game with a friend, which I then transformed into a native portable C++ program.
- Found a discarded 90s games console in a recycling centre. Turned it into a Linux box that could run Python and C++ programs. Used as a test bench for new code ideas, including the physics sandbox simulator that I made.

2016 – 2018 **University Projects**

- Lead a team of three in the development of an autonomous line chasing vehicle. Initiated regular meetings and guided the design and development process. We placed 3rd in one of the rounds and 8th overall out of 40 teams, ensuring a 86% mark.
- In another team, designed a small vehicle that could pick up and dispense parts cyclically. Contributed a lot to the mechanisms we used and used my Python skills to construct a simulation to find necessary gear ratios. The final design travelled the correct trajectory almost exactly with only 0.8% margin of deviation.

Volunteering

October 2016 – Present **Photography Society Committee at University of Bath**

- Elected as Event Manager, later as Chair, which entails managing and organising regular events, and ensuring the society runs smoothly respectively.
- Responsible for organising committee meetings and approving society collaborations.
- Successfully organised the ISB trip abroad to Morocco for a group of 20 people. Entailed a lot of admin and logistical work while adhering to Student Union guidelines.

August - October 2015 **National Citizen Service by The Challenge**

- Did a variety of activities with a group of 14, such as rock climbing, kayaking and a day long hike around Somerset.
  Devised a public scheme to help bereaved young people within Islington. We raised nearly £300 towards a local charity within a week.

July 2015 **James Dyson Foundation: Engineering Challenge at UCL**

- While in a team of four, I designed a wheelchair that could go up a kerb. Being constrained to such a short time span meant that workloads had to be delegated quickly.
- Received an award personally from the Computer Science tutor for a tilt sensor I made, and was personally commended by a judge for my layman but in-depth explanation.

Skills & Interests

Technical Skills **Mechanical and Electrical:** CATIA V5, Autodesk Inventor and Fusion, ANSYS, CoppeliaSim (VREP), FreeCAD, SPICE, PCB Design, OrCAD
Programming: Python, C, C++, C#, Java, JavaScript, MATLAB, HTML, CSS
Data Science and AI: TensorFlow, SciPy, SkLearn, Pandas

Certifications **UK driving license** – 3 years' experience with clean record, manual and automatic. Driven extensively in the UK, France, and Switzerland.
Level 1 first aider – CPR trained

Languages **English (Native), French (A2)**

Interests **Racket Sports** – Regularly play squash, badminton, and tennis to keep myself energised and break the monotony of working continuously.
Bouldering – Another activity that I like to do with friends to keep active
Travelling – I enjoy having a taste of new cultures. Especially during my time at CERN I had the opportunity to travel to many places in Europe and overseas.
Photography – Everywhere that I go hiking and travelling, I bring a camera with me.