

Luke Powell

Education

University of Bath – MEng(Hons) Aerospace Engineering Sept 2017 – June 2022

Avg Mark: **79.1**

Expected Class: **1st**

Dept. of Mechanical Engineering First Year Academic Excellence Commendation

Dept. of Mechanical Engineering Second Year Academic Excellence Commendation

Relevant Modules to Application:

Advanced Helicopter Dynamics, Aircraft Performance, Aerodynamics, Control Systems

The Blandford School

Sept 2010 – July 2017

A Levels: Mathematics **A***, Physics **A***, Further Mathematics **A**

BTEC Level 3: Music **Distinction***

GCSE: 11 (**6A***) including Maths, Physics and French

Experience

MBDA Missile Systems – Undergraduate GCN Engineer Sept 2019 – June 2020

- Independent research project into novel autopilot solutions to meet precise design criteria overcoming unique and challenging flight dynamics problems developing my abilities to provide proof-of-concept for solutions.
- Development of control systems theory with applications to guided munitions.
- Development of 6-degree-of-freedom simulation environments in MATLAB and SIMULINK to aid project development as part of a wider multi-national development team. Gained valuable experience in de-bugging complex environments and comparison to expectations from theory as well as performing sensitivity analysis to inform design decisions presented to the wider time.

3Line Electrical Poole – Admin Assistant

June 2013 – Sept 2018

- Data processing using Excel and Zisk to ensure business needs are met effectively with payments accurately made and received.
- Streamlining warehouse stock-taking procedures to reduce labour time required.
- Took initiative to perform statistical analysis based on client feedback to help identify next steps for the business using processes such as Chi-Squared testing.

Project Experience

3rd Year University Project, Team Bath Drones Feb 2021 – June 2021

- Team-working skills development through a large online team developing a fully autonomous 15kg aircraft with collision-avoidance capabilities. Close collaboration within an iterative design process to ensure all design needs are met.
- As aerodynamics lead, designed and evaluated the aerodynamics for the whole aircraft ensuring both safety and meeting the strict performance criteria. Interpretation of wind-tunnel test data and engineering estimations with use of rigid aircraft design principles as well as algorithmic implementation of 3D wing aerodynamic theory.
- Use of Ansys CFX and Flow5 to provide initial validation of assumptions and produce aerodynamic look-up tables through SIMULINK implementation.
- Managed publicity strategy to maximise visibility and secure sponsorship making use of optimal marketing strategies across a range of online platforms resulting in increased following and engagement.

2nd Year University Project, Space Shuttle Heating Simulation Feb 2019 – June 2019

- Development of 2-Dimensional heat-transfer MATLAB simulation based on space shuttle re-entry to ensure safety of the craft. Implementation of various numerical solving methods both implicit and explicit as well as automatic graph reading to obtain required data. Results are effectively represented in 3D data plots to determine the optimal required thermal protection.

2nd Year University Project, Shuttlecock Trajectory

Oct 2018 – Dec 2018

- Modelling of shuttlecock trajectory within MATLAB considering its complex aerodynamic shape. Full ODE derivation and implementation of Runge-Kutta Fehlberg solving method alongside a shooting method to predict required launch angles for a given impact position. Resulting in reduced computation over other methods whilst retaining accuracy.

2nd Year University Project, Shaft Design Project

Oct 2018 – Dec 2018

- Intensive snowmobile driveshaft design project using load and stress analysis within an iterative design process to optimise for low cost whilst considering stress-concentrations.
- Use of extensive formulas and conditional formatting in Excel to provide rapid intuitive feedback.
- Design of appropriate fixtures and fittings such as bearings and keyways to meet performance criteria.
- Development of CAD model and technical drawings in Autodesk Inventor.

Team Bath Racing (Voluntary University Project)

Oct 2017 – Nov 2017

- Compact wing-stand designed to allow easier disassembly of Formula Student car.

STEM Ambassador

Sept 2016 – July 2017

- Organised an after-school club working on interesting problems to enthuse children into pursuing STEM, improving my public speaking and confidence in taking responsibility to lead a group.

Computing Skills

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|----------------------------|--|
| Microsoft Office Package | Extensive use of Word and Excel to format and analyse data within reports. |
| 3D Modelling | Autodesk Fusion 360, Autodesk Inventor |
| Computation Fluid Dynamics | Ansys, Flow5 |
| MATLAB / SIMULINK | Processing large sets of data, development of simulation environments and general programming. |
| Python | Development of basic functions. |
| Adobe Suite | Use of Photoshop and After Effects for editing promotional material for my music brand to create a professional brand identity |

Interests

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| Music Production | Producing music has always been a passion. The distribution of music has given me invaluable business experience in marketing and social media presence as well as in copyright law. It has also taught me the use of software such as Ableton. |
| PC Building | I have constructed multiple computers, my most recent being ambitious in seeing how much computing power I could fit inside a 10L case. With this I also enjoy using 'overclocking' and 'undervolting' to fine tune machines for most power and least heat output. |

Additional Information

Mandarin – HSK 3/4
References available on request