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# PRAJWAL RAI

Aerospace  
Engineer

## EDUCATION

Jun 2018 - Present  
**University of Bath**  
**MEng Aerospace Engineering**  
Predicted 2:1

Aug 2016 - Jun 2018  
**Sixth Form College Farnborough**  
A\* in Maths and Physics

Aug 2011 - Jun 2016  
**Collingwood College (GCSE)**  
15 A\* - B

## PROJECTS

**Flight Controller**  
PID controller that implements multirotor control concepts, tuned to provide a slow response to inputs

**Nimbus (James Dyson Award)**  
A disguised Bluetooth security device that gives its user 3 distinct functions

**Two speed gearbox**  
A compact gearbox for small motorboats in an African market

## SKILLS

SolidWorks, AutoCAD, CAD, 3D printing, Autodesk Inventor, DFM/DFA, High-volume manufacturing, Product design/development, Fusion 360

MATLAB, HTML5, CSS, Soldering, PCB

## AWARDS

2021 **Arthur Clements Fund**

## EXPERIENCE

Sep 2020 - Aug 2021  
**Mechanical Engineer, Monodraught**

- Led the product design of a low-energy, mechanical heat recovery ventilation system using **SolidWorks**, applying **FEA** for design validation
- Successfully planned and organised a lean assembly line, increasing production by 16%
- Improved **DFA** on assemblies by implementing self-fastening features and optimising components for minimal reorientation
- Designed parts to be injection molded and sheet metal formed/stamped, reducing manufacturing costs by 10%

May 2019 - Aug 2020  
**Secretary, Engineers Without Borders Bath (EWB)**

- Arranged hackathons to introduce members to the 14 grand challenges
- Coordinated the EWB outreach programs using various interactive science experiments in local schools to promote STEM

Jun 2017 - Nov 2017  
**Tutor, Explore Learning**

- Provided 30 students with weekly progress notes, setting learning objectives and tracking their improvements
- Tracked each student's learning progress to identify opportunities to enhance tutoring methods and help students achieve their goals

## EXTRACURRICULAR

Jan 2022 - Jun 2022  
**Stability & Control specialist, Team Bath Drones**

- Conducted stability and control analysis of the team's eVTOL UAV design using **XFLR5** to validate control surface sizing
- Successfully developed a low-order model of UAV in cruise and VTOL configuration using **MATLAB Simulink** to demonstrate its compliance with MIL-F-8785C's level 1 handling qualities
- Implemented **DFMEA** and mitigation plans to address design issues
- Created engineering drawings for manufacture and assembly

Jan 2019 - Sept 2022  
**Mechanical specialist, Team Bath Drones Marine (TBDM)**

- Built mechanical prototype fixtures using FDM and SLA **3D printing** for rapid testing to deliver tangible, early-stage proof of concepts
- Optimised DFM/A on subassemblies, reducing BOM costs by 20%
- Designed an electronics pressure vessel, performing a **tolerance analysis** to ensure water tightness

Aug 2019 - Sep 2019  
**RAE Global Grand Challenges Summit 2019 (GGCS)**

- Led a team of 7 to develop a **business model** to commercialise virtual reality for accessible educational content