

Jack Zybutz

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Education

The University of Nottingham | Nottingham, UK

September 2020 - Present

Master of Engineering in Mechanical Engineering – Predicted: First

Expected 2025

Key Modules: Individual/Group Design and Make, Computer Modelling Techniques, Biomechanics, Stress Analysis and Materials

JCoSS | London, UK

September 2018 – March 2020

A Levels: Math A*, Biology A*, Chemistry B

Self-taught: Further Math and Physics A level, during the COVID-19 lockdown, to develop my understanding before university

Projects

CubeSat VITA Program

September 2022 - Present

University PhD program

Volunteered to aid in the design, manufacture, and assembly of an experimental CubeSat that will be launched to the International Space Station

- Designed satellite structures, including external casing, internal scaffolding, and science part orientation, resulting in a 35% weight reduction and reduced flight costs through iterative design.
- Conducted thermal and structural FEA for payload safety during launch and return missions.
- Collaborated with European Space Agency to meet critical design criteria for astronaut safety.
- Aided in the testing of instrumentation, microfluidics, and thermal control systems. Utilized various CAD programs and worked in a global team to enhance communication skills.

Formula Student

January 2022 - April 2022

University Challenge

Volunteered to aid in the design, manufacture, and assembly of the 2022 University of Nottingham Formula Student car.

- Selected to work individually to improve the fixture design of a bearing casing, using SolidWorks, to add self-locating features, reducing the weight of the bearing housing by 15%.
- Produced key components, using a lathe and milling machine, to further improve technical manufacturing skills.

Relevant Coursework

Space Gym

September 2022 – Present

Group Design and Manufacture Module

Led a small group of five peers in the design, manufacturing, and testing of a treadmill that can be used by astronauts to reduce the effects of microgravity muscle atrophy.

- Iterated designs, while maintaining strict design requirements, such as a 5kg weight limit
- Led internal and external meetings, using AI to create action plans based off meetings notes, to increase group efficiency by over 20%
- Improved on electrical engineering skills by constructing a circuit board to provide user-feedback via a series of LED lights.

Hirth Coupling Testing System

September 2021 – May 2022

Group Design and Manufacture Module

Led a small group of five peers in the design, manufacturing, and testing of a test rig to find the amount of force that two Hirth-coupling can withstand before slippage.

- Developed the design of the system, using additive manufacturing techniques, to keep the cost of manufacturing as low as possible
- Further upgraded the design of the rig, using SolidWorks and a milling/turning machine to add self-locating features, reducing the assembly time by over 10%#

Professional Experience

Arcadis Consulting | London, UK

October 2019

Intern | Project Management and Engineering

A global design/engineering company for natural and built assets.

- Shadowed lead project manager, allowing key leadership, managerial, and teamwork skills to be developed.
- Authored reports summarizing meetings and key developments in design and presented these to head engineers.

Skills

Hardware: Milling Machine, Lathe, Soldering, Additive manufacturing, Assembly, Quality control checks referring to technical drawings

Software: SolidWorks, Blender, Fusion 360

Programming: MATLAB, Python, C#

Communication: Design proposals, technical reports, instruction manuals and presentations (large and small audiences)