OLIVER THOMPSON

Design Engineer

ABOUT ME:

I am a highly motivated Imperial College Design Engineering student on a course combining creative innovative thinking with engineering skills within a culture of innovation and enterprise. A broad range of industry experience (Magic of Things Ltd, Labman Automation Ltdand Cummins Ltd) and extensive group project work have refined my communication, leadership and teamwork skills. I love to discover how different technologies work and am always looking to deepen my technical knowledge. In my spare time I use what i have learnt to design and build ambitious personal projects consolidating hardware, electronics and software into cyber-physical systems. My work can be viewed on my scratch-built website: www.olithompson.com

EDUCATION:

- **Dyson School of Design Engineering - Imperial College London** *2016 - Present*
  - Graduation Date: May 2020
  - 4th year MEng undergraduate currently on track for a first class honours.
  - On the Dean's List 2017-2018
- **Yarm School** *2006 - 2016*
  - *A-Levels*: Design Technology (A*), Maths (A*), Further Maths (A), Physics (B), General Studies (A)
  - *International GCSEs:* 7 A*,
  - *GCSEs:* 2 A*, 2 A

AWARDS:

- **Dean's List for academic excellence** *2017 - 2018*
  Performance above 70% and in the top 5 of the year
- **Desire Award** *2019*
  The most prestigious award in the department, awarded for my sympathetic work environments group project. Also featured in the Evening Standard.
- **Arkwright Scholarship** *2015*
  Awarded to potential future leaders of industry Personally sponsored by Cummins Ltd

COURSES:

- **Machine Learning** *2019*
  Stanford University - Coursera (In progress)
- **Headstart Course** *2015*
  Electrical and Electronic Engineering at Newcastle University
- **Smallpeice Trust Courses** *2014*
  - ECITB Project Management at Reading University
  - Advanced Marine Technology at Newcastle University

EXPERIENCE:

- **The Magic of Things Ltd, London** *2019*
  6 months paid undergraduate internship, working at a start-up designing interactive technology for entertainment. I developed projects from scratch and managed all software development across the entire line of products. I gained experience with linux, JS, the Django framework and extensive microprogramming with C++. I travelled to New York to oversee the installation of my work.
- **Labman Automation Ltd, Seamer** *2017*
  3 months paid undergraduate internship, working on large robotic projects including a paint quality testing robot for Dulux and a bovine egg retrieval and storage machine for artificial insemination. Skills acquired included Python, mechatronics and robotics.
- **Cummins Ltd, Darlington:** *2015*
  3 months paid undergraduate internship. Tasks included auditing, optimising and processing data from the production line. I helped solve problems encountered by the assembly team and learnt about data analysis and statistical methods.
- **Cummins Ltd, Darlington:** *2015*
  Weekly mentoring (1 afternoon per week) for 6 months working across all departments.
- **Amec, Darlington** *2015*
  1 week learning about their design consultancy safety procedure and risk assessment.

Email: olithompson@rocketmail.com **References:** Available upon Request
Website: www.olithompson.com

TECHNICAL SKILLS:

- **Software**
  - Python - Advanced
  - Matlab - Advanced
  - C++ - Intermediate
  - HTML - Intermediate
  - CSS - Intermediate
  - Javascript - Beginner
- **Systems**
  - Linux - Advanced
  - ROS - Intermediate
  - Raspberry Pi - Advanced
- **Electronics & Mechatronics**
  I have extensive experience designing and building mechatronic systems and am able to design my own PCBs and microcontrollers (Eagle). I have completed projects involving signal-processing, discrete electronics and control systems.
- **Robotics**
  I have both theoretical and applied robotics experience and knowledge: I have built my own kinematic models and simulated robots virtually, I have written code to interface with different real-life robots and robotic hardware using ROS and I have completed several computer vision projects using various algorithms.
- **Mechanical Engineering**
  - CAD (Solidworks, Fusion 360 - Advanced)
  - FEA
  - CFD
  - Technical Drawings
  - Optimisation
  - Generative Design
- **Design**
  - Photoshop - Advanced
  - Video Editing (Premiere Pro - Advacned)
  - Graphic Design (Illustrator - Intermediate)
  - Product Visualisation (Keyshot - Advanced)
  - Polygon Modelling (Blender - Beginner)

PROJECT WORK EXAMPLES:

- **Building a well with a Baxter robot**
  In 3rd year my team were challenged with building a brick well using a Baxter robot. We setup a physics simulation of the scenario and used Gazebo to visualise our simulation and test our algorithms. We used Linux, ROS, Python, Matlab and C++ to implemented forward kinematics, force detection path planning and image recognition to complete the task. My personal contribution was writing the path planning and image recognition algorithm. The project was tested on the real robot and gained the highest mark in the year.
- **Zero Gravity Hydroponic Garden**
  Inspired by the idea of hacking nature with technology, I independently designed and builit an automated hydroponic garden in summer break 2018. I used various sensors to monitor PH, temperature and humidity and positional data of the rotating drum. The user could program different parameters through the user interface, such as watering frequency, brightness of the grow lights and the day-night cycle in order to let the plants flourish. The project is on display at the Imperial College Advanced Hackspace.
- **Jumping Robot**
  In 2nd year I designed a jumping robot to meet a strict brief as part of the Gizmo module. The robot was battery powered and could jump 300mm, right itself upon landing, prime itself for the next jump and propel itself forward with a variable pitch propeller mechanism. I used analytical engineering, computational methods and CFD to validate the concept and I designed many of the 100+ parts for 3D printing, and used several off the shelf components. The estimated costing was below £100. The project was awarded the highest mark in the year.

OTHER INTERESTS:

- **Music**
  I am passionate about blues and rock music and I play self taught electric guitar to a professional standard.
- **Travel**
  I have travelled extensively around the world, including a 2 week trekking expedition to Peru.

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