

Lorcan Nicholls



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A dedicated, adaptable bioengineering graduate, ambitious to get started in an entry-level position at the forefront of the biotech or renewable energy industry, with an emphasis on data-driven disruptive innovation.

Education

MEng & BA Engineering - University of Cambridge, Class 2:1, Girton College (Oct 2020 — May 2024)
including a Year Abroad at **National University of Singapore (NUS)** (Aug 2022 — May 2023)

- ★ Interdisciplinary grounding in mechanical, structural, thermofluids, electrical and information engineering
- ★ Specialisation in **bioengineering** and additionally qualified in **mechanical engineering**
- ★ Active engagement with CU Biotechnology Society, Engineers Without Borders and CU Hackathons

Relevant specialist modules: Bioelectronics & Biosensors, Enzyme Technology, Cellular Bioengineering, Polymeric Biomedical Materials, Biomechanics, Energy Storage Electrochemistry, Functional Materials, Particle Technology, Computational Materials Science, Process Dynamics & Control, Optimal Control Systems, Computer Vision, Machine Learning, Stochastic Models in Management, Accounting & Finance, International Business.

A-Levels - 4 A* grades; **GCSEs** - 10 qualifications at average grade 8.4 out of 9 (Sep 2016 — Jun 2020)

Experience

Researcher at Bio-Inspired Robotics Lab - Cambridge, UK; 10 week UROP (Jul 2023 — Sep 2023)

- ★ Designed a tactile sensing system for a soft robot hand with electrical impedance tomography
- ★ Attained a 90% accuracy rate on multi-touch detection using a neural network; published with IEEE RoboSoft

Analyst at Oodle Car Finance - London, UK; fintech; 3 month internship (Jun 2021 — Sep 2021)

- ★ Developed a new benchmark for delinquency rates by a variety of customer risk indicators
- ★ Implemented improved metrics for predicting arrears deterioration from live databases with SQL and Excel
- ★ Verified a 30% increase in customer call-to-payment rates due to a new IVR telephony system

Work Experience: prior placements at **Cummins Turbo Technologies** (2019) and **Arm** (2018).

Projects

MEng Project: 3D Bioprinting of Multi-Material Hydrogel Composites - Biomaterials (Oct 2023 — Jun 2024)

- ★ Synthesised novel printable magnetic nanofibre-hydrogel composites designed for fatigue resistant actuation
- ★ Optimal material selection using COMSOL and Ansys Granta and programmed a robotic arm and 3D bioprinter
- ★ Fabricated responsive biomimetic shape-memory composites for use as an *in vitro* lung model

Autonomous Vehicle - Robotics - Electronics, Computer Vision (Oct 2021 — Nov 2021)

- ★ Built a fully autonomous robot capable of navigation and object retrieval within within a period of 4 weeks
- ★ Developed organisational and management skills as the tech lead for our multidisciplinary team of 7
- ★ Employed Bluetooth, computer vision and sensor systems to achieve 100% retrieval rate in all test settings

Flood Warning System - Software - Python, Web Dev, Machine Learning (Jan 2021 — May 2021)

- ★ Designed an LSTM neural network to predict flood risk with more than 95% accuracy for the next 48 hours
- ★ Presented user-friendly browser visualisations of the data in an interactive Dash web app

Skills and Technologies

- ★ **Engineering** SolidWorks, Simulink, COMSOL Multiphysics, Fusion 360, Ansys Granta
- ★ **Programming** Python (extensive), C++, SQL, MATLAB, VBA Excel, Lua, LaTeX
- ★ **Lab Ops** CL1 biolab, SLA 3D printing, laser cutting, microcontrollers, lathe, mill, soldering
- ★ **Software Tools** Docker, GitHub (Git, CI/CD), Confluence, Jira, Google Cloud, Adobe InDesign & Illustrator
- ★ **Key Soft Skills** Cross-functional collaboration, concision, active listening, leadership, problem solving, flexibility
- ★ **Interests** Algo trading, entrepreneurship, aquaponics, Chinese language (HSK3), K-pop dance, karate