Theo Brown

EDUCATION

UNIVERSITY OF CAMBRIDGE
MEng Information Engineering

3rd & 4th year
Including: probabilistic inference, algorithms, deep learning, reinforcement learning, model predictive control, statistical signal processing & analysis, variational calculus, systems & control, information theory, analogue & digital electronics, environmental sustainability, nuclear power engineering

1st & 2nd year: General Engineering

College prize for 2nd year exam results

IET Charles Belling Scholar, one of two recipients of highest scholarship offered by the IET

COLYTON GRAMMAR SCHOOL
Colyford, Devon

A-levels: 5 A*
Maths, Further Maths, Physics, French, General Studies

Additional qualifications:
EPQ (A*), AS English Literature (A), AS Critical Thinking (A)

GCSEs: 12 A*
including Maths, English, German

Arkwright Engineering scholarship

EMPLOYMENT

SOFTWARE DEVELOPER
Internship, University of Cambridge

10 weeks in a team of two developing a suite of analysis tools for the vibrations research group and undergraduate teaching. Worked with clients to build a specification, achieving interim and final deliverables (see right).

MATHS & PHYSICS TUTOR
Young Direction Tutoring Shanghai

One to one teaching of four students, each for 1.5-6 hours per week. Preparation for GCSEs, interviews, and Common Entrance exams.

COMPUTER SCIENCE TUTOR

Teaching C, Arduino and foundations of programming, leading to inspiring projects

JAZZ SAXOPHONE TUTOR

Teaching adults jazz theory and improvisation

PROJECTS

REINFORCEMENT LEARNING FOR PLASMA CONTROL
Master's project with UKAEA (current)

Investigating Bayesian optimisation and reinforcement learning for controlling high-temperature plasmas in tokamak nuclear fusion reactors.

OBJECT-TRACKING QUADCOPTER
C++, computer vision, control

Automated drone using colour segmentation to detect objects in a video feed and follow them using PID control. Kalman filtering IMU from scratch. Awarded a regional prize in the UK Young Engineer of the Year competition.

ESPORTS TOURNAMENT SERVER APP
Python, PostgreSQL, Docker, Redis, CI/CD, FastAPI

Docker Compose application to run university gaming tournaments: dynamically sets up game servers in Docker containers, stores statistics and user data in a PostgreSQL database, controllable via a REST API. Continuous deployment with GitHub Actions to ensure servers are up-to-date.

VIBRATION ANALYSIS TOOLKIT
Software & UI development, Python, Qt

Live data logging from different instruments, interactive data display and graphing, specialised data structures, signal processing and vibration analysis algorithms. Documentation with Sphinx and ReadTheDocs.

MODIFIED RISC-V PROCESSOR
Verilog, computer architecture, 3rd year coursework

In a team, optimised a Verilog computer processor for performance, resource usage and power. Developed a Verilator simulator to debug the code. Achieved a 63% increase in performance on the Pareto boundary.

POSITIONS

VICE PRESIDENT, CAMBRIDGE CHRISTIAN UNION

Management: responsible for support and coordination of 24 diverse college Christian unions, including meeting college reps, running weekly training sessions and writing material for college meetings; worked with UCCF (parent charity) to deploy resources effectively and pursue partnership

Leadership: worked closely with president to set strategy and communicate the vision to the committee and society; restructured society timetable to reflect changing student lifestyles and commitments

Interpersonal: balanced UCCF desires and expectations against the needs of the student body; worked to achieve consensus and reconciliation in meetings from diverse and deeply-held beliefs

Logistics: organisation of 3 residential conferences, including a 4-day conference for 150 people. Booked speakers and catering, liaised with site, planned content, hosted meetings, oversaw delegation of responsibilities.

SKILLS

Python ● C++ ● Docker ● SQL ● LaTeX ● Bash ● Linux sysadmin ● French