Theo Brown

EDUCATION

UNIVERSITY OF CAMBRIDGE
MEng Information Engineering

3rd & 4th year
Specialisations include:
- Probabilistic inference
- Systems & control
- Statistical signal processing
- Deep learning & reinforcement learning

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

PLASMA SUMMER SCHOOL
Culham Science Centre, 2022

Two-week intensive course on the foundations of plasma physics for nuclear fusion at UKAEA

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*

Arkwright Engineering scholarship

EMPLOYMENT

SOFTWARE DEVELOPER
Internship, University of Cambridge

10 weeks in a team of two developing analysis tools for the vibrations research group and undergraduate teaching (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

RESEARCH

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

Investigating Bayesian optimisation and reinforcement learning for controlling plasmas in tokamak nuclear fusion reactors. Instigated AI for nuclear fusion collaboration between University of Cambridge & UKAEA.

PROJECTS

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

Automated drone using colour segmentation to detect objects 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

Containerised application to run university gaming tournaments: dynamically sets up servers, stores data in a PostgreSQL database, controllable via a REST API. Continuous deployment with GitHub Actions.

VIBRATION ANALYSIS TOOLKIT
Software & UI development, Python, Qt, Sphinx

Worked with clients to build specification; developed suite with interactive data logging and graphing, specialised data structures and analysis.

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

In a team, optimised a Verilog CPU design and developed a simulation testbed. Achieved a 63% increase in performance on the Pareto boundary.

POSITIONS

VICE PRESIDENT, CAMBRIDGE CHRISTIAN UNION

Management: support and coordination of 24 diverse college Christian societies, including 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; overhauled 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: organised and chaired 3 residential conferences

SKILLS

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