Matt J Bryan BA MEng (Cantab) MIET AMIMechE

PhD Student, Cambridge University Engineering Department

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Education

University of Cambridge: PhD in Engineering — Oct 2024 – present

- *'Hybrid machine learning and physics-based modelling for active noise control in automotive vehicles'*
- My PhD research focuses on developing novel hybrid physics-informed machine learning architectures in the context of noise cancellation and is wholly funded by Bose Corporation (Boston MA) - I am a member of the Dynamics and Vibration Research Group within the Department of Engineering (CUED)
- This research combines dynamics, vibration, control, acoustics, signal processing, and machine learning.
- **Supervisors:** Dr Tore Butlin (CUED) and Dr Ole Nielsen (Bose).

University of Cambridge: BA MEng in Engineering (Mechanical & Control) — Oct 2020 – June 2024

- **Grades:** 1^{st} Class Honours (BA), Distinction (MEng) (1^{st} Class in all years)
- **Course highlights:** Advanced Linear Vibration, Random & Nonlinear Vibration, Vehicle Dynamics, Systems & Control, Statistical Signal Processing, Inference, Mathematical Methods - two general years.
- **MEng Project:** 'Pushing the bounds of energy harvesting' - 1^{st} Class.

The Portsmouth Grammar School: A-Levels — Sept 2018 – June 2020

- **Grades:** 4 A* (Maths, Further Maths, Physics, Chemistry) - best extended project on the history, development, and modelling of cycling's hour record which combined many of my passions.

Experience

Undergraduate Supervisor - Magdalene College, Cambridge — Oct 2024 – present

- Small group teaching (in groups of 2-4) for undergraduate engineering students at Cambridge.
- Supervising students for 1^{st} year Mechanics at Magdalene, and 3^{rd} year students for the two optional Dynamics and Vibration courses - discussion of problem sheets and reinforcement of lecture material.

Admissions Interviewer - Magdalene College, Cambridge — Dec 2024 - present

- Aiding with undergraduate admissions interviews and setting technical questions for engineering applicants.
- Completing and reporting on 30+ interviews and partaking in the decision process.

R&D Intern - Siemens Healthineers Magnet Technology, Oxford — Jul - Aug 2022 & 2023

- Selected for Siemens' Sponsorship Scheme of Cambridge students following a competitive interview process.
- I spent two eight-week summer placements developing superconducting magnets for MRI systems - including work on novel practical vibration measurement techniques for modal indentification, and the finite-element simulation of unwanted field-induced vibration to inform design choices for its mitigation.

Awards

Senior Scholarship - Magdalene College, Cambridge — Jun 2024

- Awarded for a first class result in my Master's degree and continuation to doctoral study.

Undergraduate Scholarship - Institute of Mechanical Engineers — Oct 2020 - Jun 2024

- Academic scholarship awarded for my undergraduate degree following a competitive application process.

Projects

'Pushing the bounds of energy harvesting' — MEng Thesis

- **Description:** An investigation into methods for circumventing the 'mass bound' for general energy harvesting systems. This involved the design and testing of a dual translation and rotationally excited piezoelectric harvester to demonstrate a performance benefit in simulation and practice.
- **Skills:** Practical vibration testing, test rig design, data analysis, MDOF simulation, Python.

Computing: Python (inc. PyTorch), MATLAB, TEX, CAD, FEA.

Hobbies: Cycling (road and MTB), choral singing (Queens' College Choir, Portsmouth Cathedral Choir).