

# Harrison F. Squires

Experimental Biophysics PhD Student, University of Edinburgh

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## Research Experience

### Experimental Biophysics PhD, University of Edinburgh *Starting September 2026*

- Project: “Towards machine olfaction, a new ISR modality”, supervised by Prof. Davide Michieletto (Academic) and Dr Neal Hopkins (Industry; Dtsl).
- Research focus: nucleic acid nanotechnology.
- Recipient of SPADS CDT doctoral funding.
- Awarded an additional £10k annual Research Training Support Grant (RTSG) from the OCSA Bio Tech Centre.

### University of Edinburgh

*June 2026 – August 2026*

#### *Bridging Research Intern*

- Awarded bridging funding to undertake research prior to commencing PhD studies.
- Project: “DNA Nanostars”, supervised by Prof. Davide Michieletto and Dr Jenny Harnett.
- Investigated liquid–liquid phase separation in DNA nanostars and their potential application in Lanthanide capture.

### MPhys Project, University of Edinburgh

*September 2025 – May 2026*

- Project: “Evaporation of Breath Figures”, supervised by Dr. David Fairhurst and Dr. Joey Kilbride.
- Extended a recently published study by investigating the dynamics of the “macroscopic edge effect” in respiratory breath figures and its relation to droplet size distribution.
- Designed and built an experimental set-up for imaging large droplet arrays.
- Developed image analysis workflows using FIJI and Python.
- Produced efficient scripts for data and statistical analysis.

### QinetiQ / University of Edinburgh

*June 2025 – August 2025*

#### *Summer Research Intern*

- Project: “Terahertz Methods for the Characterisation of Materials”. Conducted a literature-based review aimed at advising the companies future research direction.
- Summarised findings in a final report and developed a comparative table of practical trade-offs.
- Funded by the University of Edinburgh through the Career Development Scholarship; project hosted by QinetiQ.

### University of Melbourne / Carbon Cybernetics

*July 2024 – June 2025*

#### *Research Intern*

- Project: “On the characterisation of carbon fibre electrodes for neural recording”, supervised by Prof. Steven Prawer.
- *Modelling of Intracortical Microwire Electrodes for Brain–Machine Interfaces*. Manuscript in preparation. Contributing author.
- Designed and built a bench-top testing system to optimise carbon fibre Micro Electrode Array (MEA) performance.
- Undertook a meta-analysis of *in vivo* datasets to inform optimal MEA design.
- Automated data acquisition and analysis workflows using MATLAB and Python.
- Delivered weekly research presentations to the group, incorporating feedback to guide further development.

## Education

### The University of Edinburgh

2021 – 2026

*Master of Physics (MPhys), Physics with a Year Abroad*

- Awarded First-Class Honours (75%).
- Received the Margaret Campbell-Scott Scholarship for outstanding entry qualifications.
- Awarded the Career Development Scholarship for summer project in conjunction with QinetiQ
- Achieved Certificates of Merit for academic excellence in my first two years.
- Awarded the Junior Honours Class Medal for top performance in my third-year cohort.
- Earned the Edinburgh Award for volunteering contributions to the University Sports Union (Jiu Jitsu Club).
- Final-year focus: soft condensed matter (experiment and theory), biological physics, and statistical physics.

### Hills Road Sixth Form College

2019 – 2021

*A-Levels in Maths, Physics, Chemistry, and EPQ*

- Achieved three A\*s at A-level and an A in the EPQ.
- Designed a functional 3D robot using CAD software for my EPQ, tailored to competition standards.
- Created widely-used Chemistry problem sheets benefiting hundreds of students.

## Employment History

### Newman College, University of Melbourne

March 2025 – June 2025

*Academic Tutor*

- Tutored first-year and second-year Bachelor of Science students at the University of Melbourne in *Foundations of Physics (PHYC10009)* and *Quantum and Thermal Physics (PHYC20012)*.
- Ran individual consultations and group tutorials.
- Provided personalised academic support, tailoring sessions to address students' specific areas of difficulty.
- Designed original resources and problem sets to help students engage with physics concepts in novel contexts.

### IJ Mellis

June 2023 – December 2023

*Cheesemonger*

- Independently managed shop operations, including opening and closing responsibilities.
- Completed specialised training in product knowledge and food safety.
- Developed an expert knowledge of artisanal and regional cheeses.

## Volunteering

### Jesuit Worldwide Learning

March 2025 – June 2025

*English as a Second Language Tutor*

- Volunteer with Jesuit Worldwide Learning to support refugees in developing English language skills.
- Provide personalised, one-on-one language support to a student in Kenya through meaningful, conversational engagement.