

# THOMAS BOURKE

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Cavendish Laboratory ◇ Cambridge, United Kingdom

## RESEARCH INTERESTS

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Single-photon avalanche diodes, quantum communications and computing, semiconductor devices, optoelectronics

## EDUCATION

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**University of Cambridge** 2025 - present

PhD Candidate in Physics (industry co-supervised project with Toshiba)

Supervisors: Louise Hirst, Mark Stevenson

Member of Darwin College

Member of EPSRC CDT in Nanoscience and Nanotechnology (NanoDTC)

**University of Bath** 2021 - 2025

Master of Physics, *First-class honours*

Final year project: Novel 2D magnetic materials for emerging IT technologies. See summary here.

Supervisors: Adelina Ilie, Kei Takashina

Select modules: Quantum mechanics, nanoscience, photonics, mathematical physics, condensed matter physics

Member of PhySoc

## EXPERIENCE

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**Toshiba Research Europe** Oct. 2025 - Present  
*Doctoral Student* Cambridge, UK

- Carried out research in Toshiba's Cambridge Research Laboratory on single-photon avalanche diodes.

**Leonardo** Summer 2024  
*Systems Engineering summer intern* Edinburgh, UK

- Developed a data extraction tool for radar systems using Python, which extracted key information from a variety of data sources (images, log files, un-interpreted binary).
- Created a SQL database to streamline storage and retrieval of key events in radar surveillance data (switching scanning modes, POIs identified) along with accompanying metadata.
- Prepared and delivered poster presentations to diverse audiences from within the company.

## EVENTS AND CONFERENCES

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**National Quantum Computing Centre (NQCC) Hackathon** | *University of Warwick* July 2024  
Tackled Grover's algorithm search problem at 3-day hackathon, which concluded in a presentation delivering our findings to the rest of the cohort. See summary here.

**PhySoc Hackathon** | *University of Bath* March 2024  
Awarded 2<sup>nd</sup> place in astrophysics themed hackathon in which I created a black hole 3D model using Blender.

**Careers in Quantum** | *University of Bristol* March 2024  
Networked with academics and industry professionals at University of Bristol Quantum Engineering CDT.

**Oxford Physics Summit** | *University of Oxford* Feb. 2024  
Attended workshops on quantum computing and neuromorphic computing, networked with young career researchers from across the UK.

VOLUNTEERING

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**Student-Staff Liaison Committee** | *University of Bath* 2024-2025  
Represented student interests in academic matters such as curriculum development, assessment policies and academic regulations.

**Physics Society Welfare and Inclusivity Officer** | *University of Bath* 2023-2024  
Coordinated PhySoc Movember fundraising campaign, contributing to £30,000 raised university-wide. Organised PhySoc x Optica astrophysics-themed hackathon, liased with Optica student chapter to arrange funding and event space access.

TECHNICAL SKILLS

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<b>Computer Languages</b>	Python, C++, MATLAB
<b>Databases</b>	SQL
<b>Tools</b>	Git, VS Code, L <sup>A</sup> T <sub>E</sub> X, COMSOL