

THOMAS BOURKE

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 Cavendish Laboratory ◇ Cambridge, United Kingdom

RESEARCH INTERESTS

Single-photon avalanche diodes (SPADs), quantum communications, photonics, optical materials and devices, semiconductor physics

EDUCATION

University of Cambridge	Oct. 2025 - present
PhD Candidate in Physics (industry co-supervised project with Toshiba)	
Supervisors: Louise Hirst, Mark Stevenson	
Member of Darwin College	
Member of CDT in Nanoscience and Nanotechnology (NanoDTC)	
University of Bath	2021 - 2025
Master of Physics (BSc + MPhys), <i>first-class honours</i>	
Final year modules: MPhys research project 75%, mathematical physics 87%, advanced problem solving 75%, advanced quantum theory 74%, nanoscience 77%, photonics 72%	
Member of PhySoc	

INDUSTRY EXPERIENCE

Toshiba Research Europe	Oct. 2025 - Present
<i>Doctoral Student</i>	<i>Cambridge, UK</i>
· Member of devices team within the Quantum Information group.	
· Mini project: Optoelectronic performance of enhanced efficiency single photon sensors. Evaluated performance of different SPADs designs via electrical characterization.	
Leonardo	Summer 2024
<i>Student Engineer</i>	<i>Edinburgh, UK</i>
· Developed a data extraction tool for radar systems using Python, which extracted and unified 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.	

CONFERENCES & PRESENTATIONS

National Quantum Computing Centre Hackathon , “Modelling Surface Interactions of Hydrogen for Aerospace.” University of Edinburgh, UK (group oral presentation)	July 2025
Department of Physics MPhys student conference , ‘Moiré pattern imprints magneto-electricity in nickel di-iodide superlattice.’ University of Bath, UK (oral presentation)	Jan. 2025
Leonardo summer student conference , “Automated pipeline for surveillance radar data.” Edinburgh, UK (poster presentation)	Sept. 2024
National Quantum Computing Centre Hackathon , “Network Flow Search Problem: Needle in a Haystack.” University of Warwick, UK (group oral presentation)	July 2024

WORKSHOPS

NanoDTC Autumn School | Aarhus + Copenhagen, Denmark

Oct. 2025

NanoDTC x iNano joint workshop between Cambridge and Aarhus Universities. Attended research talks, workshops on scientific outreach, and “Introduction to Design Thinking” by the Danish Design Centre.

Careers in Quantum | Bristol, UK

Feb. 2024

Engaged with academics and industry professionals to explore the types of opportunities within the growing quantum sector.

Oxford Undergraduate Physics Summit | Oxford, UK

March 2024

Attended workshops on quantum computing and neuromorphic computing, networked with young career researchers from across the UK.

GRANTS, HONOURS & AWARDS

EPSRC Doctoral Landscape Award for study of funded PhD at Cambridge	2025
National Quantum Computing Centre travel grant for UK Quantum Hackathon (Edinburgh)	2025
UCL Doctoral Scholarship (declined to study at Cambridge)	2025
National Quantum Computing Centre travel grant for UK Quantum Hackathon (Warwick)	2024
Silver award at PhySoc undergraduate hackathon	2024
Careers in Quantum travel grant	2024
Silver CREST award (building an electric generator)	2019
Gold award at Norfolk Science and Technology Challenge Day	2016

VOLUNTEERING**Student-Staff Liaison Committee | University of Bath**

2024-2025

Represented student interests in academic matters such as curriculum development, assessment policies and academic regulations. Advocated for reform of outdated rules that prevented MPhys students from taking the module ‘Contemporary Physics’.

Physics Society Welfare and Inclusivity Officer | University of Bath

2023-2024

Coordinated PhySoc Movember fundraising campaign, contributing to £30,000 raised university-wide.

TECHNICAL SKILLS

Computer Languages	Python, C++, MATLAB
Libraries	pandas, NumPy, SciPy, Matplotlib
Databases	SQL
Software	Git, VS Code, L ^A T _E X, COMSOL