Daniel Flight

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WORK EXPERIENCE

Duality Quantum Photonics **Bristol, UK**
Quantum Researcher *October 2024 – Present*

- Developed a Python simulation and optimisation library for lithium niobate crystals, enabling the design of high-purity single-photon sources for the company's next-generation chip architecture.
- Designed and implemented the company database using Google AppSheets, streamlining internal data management and improving accessibility for the engineering team.
- Built and deployed the company website using HTML, CSS, and vanilla JavaScript, with backend integration via Django and deployment on AWS (Gunicorn + Nginx), enhancing the company's public presence.
- Created high-fidelity emulation software in Python and C++ to simulate variational quantum optical circuits (including spectral degrees of freedom), used to model non-Gaussian continuous-variable resource state preparation with realistic imperfections.

EDUCATION

University of Oxford **Oxford, UK**
MSc Mathematical & Theoretical Physics *Graduation Date: June 2024*

- Grade: Distinction (80% avg.)
- Jesus College

University of Bristol **Bristol, UK**
BSc Physics *Graduation Date: June 2023*

- Grade: First Class Honours (86% avg.)
- Final Year Project: *'Building and Using a Mode-Hopping Acoustic Levitator'*

AWARDS & SCHOLARSHIPS

- Peter Fowler Graduation Prize (2023) - for consistently excellent performance throughout BSc degree and graduating top of cohort.
- Faculty Prize (Faculty of Science, 2022) - for outstanding results in 2nd year of BSc degree.
- Boeing Scholarship (2022) - for outstanding results in 1st year of BSc degree; the only physicist awarded the prize that year.

SKILLS & INTERESTS

Key Skills: Data analysis & visualisation, numerical modelling & simulation, optimisation algorithms, scientific computing, version control (Git/GitHub/GitLab), technical documentation, web development (frontend & backend), cloud deployment (AWS).

Software & Programming: Proficient in Python, HTML, CSS; experience with C/C++, JavaScript, AWS, Django, and photonic simulation software (e.g., ANSYS Lumerical).

Libraries & Frameworks: NumPy, SciPy, PyTorch, Scikit-learn, Pandas, pybind11, Cython, MPI, StrawberryFields, TheWalrus, Blackbird, Django.

Technical Interests: Software development, machine learning, and modelling complex physical systems.