

BENJAMIN W. THELEN

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Citizenship: German (ESTA Eligible) | Funding: Fully Self-Funded for Summer 2026

EDUCATION

King's College London

BSc Physics (Year 1)

- **Modules:** Calculus, Linear Algebra, Vector Geometry, ODEs, Scientific Computing (Python), Mechanics, Modern Physics, Electromagnetism, Physics Skills (Lab), Biophysics.

London, UK

Sept 2025 – Present

Cambridge University Engineering Summer School

Program Participant

- Completed coursework on engineering principles and practical problem-solving.

Cambridge, UK

Summer 2024

Bonn International School

International Baccalaureate (IB) Diploma: 37 Points

- **Key Grades: Physics HL: 7/7** (Top Band), Mathematics AA HL: 6/7.

Bonn, Germany

Graduated 2025

RESEARCH EXPERIENCE

Quantum Machine Learning for Fusion Energy

Independent Researcher & Lead Author (Draft)

Developed a **Hybrid QNN** (8-qubit ansatz) to predict plasma disruptions, achieving **AUC above 0.85** under 1% simulated noise. Engineered a **Quantum GAN** for data augmentation, generating synthetic shots that improved classical model performance by **+3.21%**. Identified distinct "edge cases" where topological quantum features outperformed classical Random Forests. Selected to present early findings to researchers from **Google Quantum, AWS, IBM, and QuEra** at the KCL Qiskit Fall Fest 2025.

London, UK

Oct 2025 – Present

Cosmic Ray Muon Flux Analysis (Triple Coincidence)

Researcher

Constructed a scintillator telescope using 3x plastic scintillator modules connected to a **Quarknet DAQ card**. Configured a **Linux (Ubuntu)** environment running **Muonic** software to digitize PMT pulses above a 300mV threshold. Modeled zenith angle dependence ($I(\theta) \propto \cos^n(\theta)$), performing non-linear curve fitting to extract attenuation coefficients ($R^2 \approx 0.99$). Calculated rigorous background rejection by implementing a **20ns coincidence window**.

Independent Project

2024 – 2025

INDUSTRY EXPERIENCE

Tesla Automation

Engineering Intern

Assisted in the design of automated manufacturing components using **SolidWorks** and CAD tools. Conducted hardware testing and quality verification for industrial control systems. Executed rapid prototyping using 3D printing and laser cutting for mechanical assembly.

Prüm, Germany

May 2023 – June 2023

ENGINEERING LEADERSHIP & TEAMS

KCL Rocketry Team

Team Member (Competitive Selection)

Conducting manufacturing (3D printing, laser cutting), electronics soldering, and **OpenRocket simulations** for G-Class payloads.

London, UK

Sept 2025 – Present

European Rover Challenge (ERC) Team

Team Member (KCL Electronics Society)

Designing mechanical subsystems (**robotic arm, drill, chassis**) and integrating power electronics for sensor/wheel actuation.

London, UK

Sept 2025 – Present

UniBots Robotics

Technical Support & CAD Lead

Providing cross-functional technical support, including **Fusion360 CAD design** and hardware troubleshooting.

London, UK

Sept 2025 – Present

TECHNICAL SKILLS

Computation: Python (Advanced: PyTorch, NumPy, SciPy), C++ (Intermediate: ROOT/OOP), MATLAB, LaTeX.

Quantum: Qiskit, PennyLane, Hamiltonian Simulation.

Hardware/Lab: Scintillators, PMTs, DAQ Systems, Oscilloscopes, Raspberry Pi/Arduino, CAD (Fusion360).

OS: Linux/Ubuntu (Terminal/Bash scripting), Windows, macOS.

Languages: German (Native), English (Native), Spanish (B2).