

BENJAMIN W. THELEN

+49 151 7421 4372 | benjamin.thelen@kcl.ac.uk | LinkedIn | GitHub

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

EDUCATION

King's College London

BSc Physics (Year 1)

London, UK

Sept 2025 – Present

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

Cambridge University Engineering Summer School

Program Participant

Cambridge, UK

Summer 2024

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

Bonn International School

International Baccalaureate (IB) Diploma: 37 Points

Bonn, Germany

Graduated 2025

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

RESEARCH EXPERIENCE

Quantum Machine Learning for Fusion Energy

London, UK

Independent Researcher & Lead Author (Draft)

Oct 2025 – Present

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.

Cosmic Ray Muon Flux Analysis (Triple Coincidence)

Independent Project

2024 – 2025

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**.

INDUSTRY EXPERIENCE

Tesla Automation

Prüm, Germany

Engineering Intern

May 2023 – June 2023

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.

ENGINEERING LEADERSHIP & TEAMS

KCL Rocketry Team

London, UK

Team Member (Competitive Selection)

Sept 2025 – Present

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

European Rover Challenge (ERC) Team

London, UK

Team Member (KCL Electronics Society)

Sept 2025 – Present

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

UniBots Robotics

London, UK

Technical Support & CAD Lead

Sept 2025 – Present

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

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).