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)
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
Independent Researcher & Lead Author (Draft)
London, UK
Oct 2025 – Present

Developing a **Hybrid Q-GNN** (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)
Researcher
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
Engineering Intern
Prüm, Germany
May 2023 – June 2023

Assisted in the design of automated manufacturing components using **Fusion360** 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
Team Member (Competitive Selection)
London, UK
Sept 2025 – Present

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

European Rover Challenge (ERC) Team
Team Member (KCL Electronics Society)
London, UK
Sept 2025 – Present

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

UniBots Robotics
Technical Support & CAD Lead
London, UK
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).