

HALO KWOK

(626) 829-2688 | halo.kwok@duke.edu | <https://www.linkedin.com/in/halo-kwok>

ECE and Physics student interested in building solutions for experimental quantum systems with an emphasis on hardware.

EDUCATION

Duke University

Expected May 2028

B.S.E. Electrical & Computer Engineering | B.A. Physics | Certificate in Innovation & Entrepreneurship

Durham, NC

- **Karsh STEM Scholar** | **Relevant Coursework:** Microelectronic Devices & Circuits, Optics & Modern Physics, Introductory E&M, Data Structures & Algorithms, Linear Algebra, Differential Equations, Multivariable Calculus

Glen A. Wilson High School

Aug 2020 – May 2024

National Merit Finalist | 2x CA All-State Honor Band

Hacienda Heights, CA

EXPERIENCE

Duke Quantum Center

June 2026 – Present

Research Assistant

Durham, NC

- Writing code in ARTIQ to interface with an FPGA-controlled DAC system for ion-trap electrode control, spanning the software and firmware layers of the quantum-classical control stack.

Code+: Developing Cybersecurity Protocol Emulators using AI

May 2025 – Jul 2025

AI Developer Intern

Durham, NC

- Built end-to-end pipelines integrating backend and frontend components for honeypot experimentation and deployment.
- Fine-tuned 7–8B parameter models (Qwen, DeepSeek) on Duke's HPC cluster using PyTorch and Hugging Face and generated ~1,000 curated prompt–response pairs from preprocessed datasets.
- Evaluated model stability using zero-shot and few-shot prompting, emphasizing repeatability and response consistency.

PROJECTS

Duke AERO

Oct 2025 – December 2025

- Validated avionics instrumentation for a parachute-guided recovery system; researched and prototyped HIL simulation approaches for flight-control calibration.

Refrigeration for Low-Income Communities

Aug 2024 – Dec 2024

- Designed and tested a **Peltier-based thermoelectric refrigeration system**, analyzing heat flow, insulation losses, and power constraints; thermal performance was iteratively improved through materials selection and system-level optimization.
- Prototype featured in *Make: Magazine* (“MacGyver in a Box”) for accessible, physics-driven engineering design.

LEADERSHIP & EXTRACURRICULAR INVOLVEMENT

Duke Institute of Electronics and Electrical Engineers Chapter

Sep 2025 – Present

Co-President

- Oversee 360+ ECE students and allocate a \$10K annual budget toward corporate outreach, technical competitions, and professional development; recognized with the 2024–2025 IEEE-HKN Outstanding Chapter Award (top 10% worldwide) for our combination of administration, programming, and service.

Duke University Marching Band

Nov 2025 – Present

Alto Saxophonist

- Dedicate 8+ hours per week to rehearsals and performances at football games, men's basketball games, alumni reunions, and other major university events that strengthen Duke's community and donor relationships.

TECHNICAL SKILLS

Languages & Computation: Python, MATLAB, Java, C/C++; NumPy, Pandas, PyTorch, TensorFlow; Git, Docker, HPC workflows

Hardware & Systems: Circuit analysis and characterization, embedded systems, FPGA interfacing, ARTIQ/DAC integration, signal processing, PCB design

Languages: English (Native), Mandarin (Intermediate), Spanish (Beginner)