Gabriel Elijah Kekia Cole

Kaneohe, HI • gabrielcolehi@gmail.com • gcole.dev • GitHub/LinkedIn: gabrielcolehi

Profile

Honors Computer Science (AI) and Biological Data Science (Computational Biology) student with minors in Mathematics and Music Performance at Oregon State University. Founder of NeurQL and QuARC OSU, focusing on AI, quantum computing, and bioinformatics.

Education

Oregon State University — Honors College Expected Spring 2027
Honors B.S. in Computer Science (AI) & Biological Data Science (Computational Biology) — Minors: Mathematics, Music Performance

Research & Technical Experience

Honors Thesis — Quantum Algorithm Efficiency & Genomic Search Software Sep 2025 – Present
Oregon State University — Honors College *Corvallis, OR*
– Designing **C-QuEE v2**, a framework benchmarking quantum algorithms by circuit complexity, runtime, and accuracy.
– Developing **Q-GENE**, a hybrid quantum–classical search tool for genomic motifs and amino-acid regions.
– Comparing quantum vs. classical pipelines using *Conus textile* datasets.

Undergraduate Research Assistant — Computational Genomics Oct 2025 – Present
Dr. Hendrix Lab, Oregon State University *Corvallis, OR*
– Analyzed RNA-seq data from *Humulus lupulus* using **Bowtie**, **STAR**, and **DESeq2** to study viroid-induced gene regulation.

Research Assistant — Genomics & Bioinformatics May 2025 – Present
Dr. Bingham Lab, Univ. of Hawai'i Mānoa — INBRE & CTAHR *Honolulu, HI*
– Built AI pipelines for cysteine-rich peptide detection and classification in *Conus textile* conotoxins.
– Created theoretical mass prediction tools with **Python**, **BLAST**, and **Biopython**.
– Integrated genomic and proteomic data for peptide annotation.

Student Research Collaborator — Software & Embedded Systems May 2025 – Present
Dr. Chet Udell — OPEnS Lab, Oregon State University *Corvallis, OR*
– Built sensor-based music systems with Arduino and Circuit Playground Express.
– Developed RESTful control tools using Node.js, MongoDB, and Python.

Founder & Lead Quantum Architect — NeurQL / President — QuARC OSU Mar 2025 – Present
Independent Project & Oregon State University *Corvallis, OR*
– Created the **C-QuEE metric** for hybrid benchmarking; deployed 29-qubit simulations on PowerEdge and Raspberry Pi 5 servers.
– Leading **NeurQL** and **QuARC OSU** to expand undergraduate quantum research and outreach.

Selected Projects

- **Q-GENE:** Hybrid quantum–classical genomic search engine for motif and amino-acid recognition.
- **C-QuEE v2:** Quantum algorithm benchmarking framework with standardized efficiency metrics.
- **ConoADAMM:** AI workflow for conotoxin motif detection and theoretical mass prediction.

Certifications & Skills

- **Certifications:** SQL for Data Science (UC Davis) • Python for AI (IBM) • R for Bioinformatics (INBRE Hawai'i) • TensorFlow Developer (in progress) • IBM Quantum Developer (in progress)
- **Languages & Tools:** Python, C/C++, Java, JavaScript, R, SQL, Node.js, Docker, MongoDB, Git, Arduino, BLAST, Biopython, NCBI Tools, FASTA/FASTAQ, Pandas, NumPy, Matplotlib
- **Systems:** Linux (Ubuntu, Kali), Raspberry Pi, Dell PowerEdge Servers

Publications

- **AI in Genomics: Trust, Trends, and the Trajectory of Precision Medicine.** Oregon State University, 2025. Examines AI in genomics, public trust, and quantum computing's role in large-scale data analysis. *Available at* gcole.dev.
- **C-QuEE: A Quantum Efficiency Evaluation Framework for Benchmarking Quantum and Classical Algorithms.** NeurQL Whitepaper, 2025. Introduces the Classical–Quantum Efficiency Equation (C-QuEE) for hybrid algorithm benchmarking. *Available at* gcole.dev.

Leadership & Music Performance

- Principal Horn — OSU Wind Ensemble, Chamber Winds, Symphony; Lead Mellophone — The Academy Drum and Bugle Corps (World Class DCI).
- Brass Staff & Choreographer — Moanalua HS; National Honor Society and Outstanding Service in Music awardee.