Jaehun Baek

(770) 778-6036 | jbaek90@gatech.edu | linkedin.com/in/jaehunbaek | github.com/jaeHbk | U.S. Citizen

Education

Georgia Institute of Technology — Atlanta, GA
BS in Computer Science, Minor in Law, Science, and Technology — *May 2027*

Experience

Quantum Compiler Researcher — May 2025 – Present
Georgia Tech Open Source Program Office — *Atlanta, GA*

- Modernized the Qwerty quantum compiler by upgrading its LLVM dependency, resolving cross-platform build issues, and verifying correctness with regression tests
- Designed and implemented a custom MLIR dialect (CCirc) for classical circuit synthesis to replace the deprecated Tweedledum library; defined new types and operations
- Built lowering passes from Qwerty's AST to MLIR, enabling integration with LLVM IR and QIR for quantum circuit generation

Undergraduate Teaching Assistant — Aug 2025 – Present
Georgia Tech College of Computing — *Atlanta, GA*

- Teaching Assistant for CS1100: Freshman Leap Seminar
- Assess and troubleshoot problems brought by 200+ students, faculty and staff
- Planning workshops to introduce topics of various CS courses, including data structures and computer architecture

Undergraduate Research Assistant — Jan 2025 – Present
Georgia Tech Vertically Integrated Project — *Atlanta, GA*

- Engineer domain-specific LegalBERT transformer architecture for the *SCALES-OKN* open-source project
- Fine-tune protocols on legal corpus with 87% domain-specific accuracy
- Develop custom NER pipeline utilizing Hugging Face's transformer library with CRF layer for legal entity extraction
- Integrate Label Studio for supervised training data preparation

Data Science Intern — Aug 2023 – May 2024
Korn Ferry — *Atlanta, GA*

- Implemented advanced prompt engineering methodologies to evaluate LLM integration feasibility within enterprise SaaS architecture
- Contributed 40K+ lines of code to an established codebase via Git
- Developed NLP-driven applications leveraging OpenAI's GPT-3.5 Turbo API for conversational analytics, including automated sales transcript extraction and data-driven marketing strategy generation

Projects

Agricultural Productivity Forecast | *Python, Flask, React, AWS* — Jan 2025 – May 2025

- Developed scalable agricultural forecasting platform by integrating Sentinel-2 L2A imagery with historical yield data using AWS S3 and Copernicus Data Space Ecosystem (EOData) APIs
- Deployed deep learning models for 75% increase in real-time crop phenology mapping and yield prediction
- Used Redis for asynchronous tasks
- Optimized data pipelines and system architecture to support large-scale geospatial analysis and forecasting

Nomad | *MapKit API, Swift, SwiftUI, Git* — Aug 2024 – Jan 2025

- Developed an all-in-one road trip planning app with the abilities to plan an itinerary manually or with AI assistance
- Published application to App Store gaining 1K+ downloads and an average 4.7/5-star review
- Won Best Overall App on the Demo Day for the club

Technical Skills

Languages: Java, Python, C/C++, Rust, Swift, JavaScript, Typescript, HTML/CSS, R, Julia
Frameworks: LLVM/MLIR, React, Node.js, Flask, JUnit, WordPress, FastAPI, Linux
Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ
Libraries: pandas, NumPy, Matplotlib, Tensorflow, PyTorch, OpenMP