

Jaehun Baek

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EDUCATION

Georgia Institute of Technology

Atlanta, GA

Bachelor of Science in Computer Science, GPA: 3.94, Faculty Honors

May 2027

Relevant Coursework: Data Structures & Algorithms, Systems & Networks, Probability Theory

EXPERIENCE

Quantum Compiler Intern

May 2025 – Present

Georgia Tech Open Source Program Office

Atlanta, GA

- Modernize the Qwerty quantum compiler by upgrading its core LLVM dependency, boosting overall performance by **15%** and resolving all cross-platform build failures
- Design and implement a custom MLIR dialect with **20+** new operations to replace deprecated Tweedledum library, reducing the dependency footprint by **40%** and improving code maintainability
- Build lowering passes from Qwerty's Abstract Syntax Tree to Intermediate Representation (MLIR), enabling integration with Quantum IR for quantum circuit generation

Undergraduate Teaching Assistant

Aug 2025 – Present

Georgia Tech College of Computing

Atlanta, GA

- Teaching Assistant for CS1331: Object Oriented Programming
- Assess and troubleshoot problems brought by **1000+** students, faculty and staff
- Organize recitations for **1.5hrs/week** for class of 30 students and create assignments/exams

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 **13,000+** supervised training data preparation

Data Science Intern

Aug 2023 – May 2024

Korn Ferry

Atlanta, GA

- Engineered an NLP application to automate the analysis of sales transcripts, achieving **95%** accuracy in key entity extraction and saving **10+** hours of manual work per week
- Developed a proof-of-concept for LLM integration into the enterprise SaaS platform, demonstrating a **30%** increase in workflow efficiency
- Delivered actionable marketing strategies by transforming raw conversational data into structured insights

PROJECTS

Messenger.ai | *Typescript, Python, MCP*

Nov 2025 – Nov 2025

- Architected agentic workflow where user input (iMessage) is routed through multiple specialized AI agents, ensuring zero-latency automation by pre-processing intent
- Deployed AI agent with dynamic routing to select from **5+** LLMs, improving response speed for common queries by **90%**, while concurrently querying **4+** MCP servers to perform parallel tasks
- Won HackPrinceton 2025 "Best Use of Hybrid Intelligence"

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

TECHNICAL SKILLS

Languages: Java, Python, C/C++, Rust, Swift, JavaScript, Typescript, HTML/CSS, R, SQL, Go

Frameworks: LLVM/MLIR, React, Node.js, Flask, Angular, Kafka, Apache Spark, FastAPI, Linux

Developer Tools: Git, Docker, Google Cloud Platform, VS Code, Visual Studio, PyCharm, IntelliJ, REST API

Libraries: pandas, NumPy, Matplotlib, Tensorflow, PyTorch, OpenMP