

Brayden Abo

Hoboken, NJ | 201-668-1588 | babo@stevens.edu | [Linkedin](#) | [Github](#) | [Portfolio](#)

EDUCATION

Stevens Institute of Technology

Hoboken, NJ

Bachelor of Science in Computer Science

Expected December 2026

Relevant Coursework: Data Structures, Algorithms, Operating Systems, Machine Learning, Concurrent Programming

EXPERIENCE

Software Engineer Intern

June 2026 – August 2026

Walmart Global Tech

Sunnyvale, CA

- Develop **batching and route-optimization services** in a **Java microservices platform** processing **3.5M orders/day**
- Extended **Last Mile Delivery Optimization solver** to handle new delivery constraints, reducing order cancellations and missing delivery items, avoiding **\$23M in GMV loss**.
- Designed **LMD batch assignment algorithms** to support Vision Center orders with unique fulfillment constraints, to integrate a new delivery vertical and enable **<3 hour lens delivery**.

Health & AI Researcher

September 2025 – Present

Stevens Institute of Technology, Health + AI Lab

Hoboken, NJ

- Improved meal ingredient recognition **F1-score by 9%** by building a **local VLM pipeline (Qwen2.5-VL, Llama3.2)** enabling zero-shot deconstruction of complex, multi-layered food items for Plato, a **multimodal nutrition chatbot**.
- Designed a **multimodal mapping system** that decomposes meal images into atomic ingredients and groups them under standardized food entities, enabling structured nutritional analysis at scale.
- Architected a **full-stack web application** to deploy Plato as a research tool for external institutions, handling multimodal input (image + text), user session management, and nutritional data output.

Software Engineer Intern

June 2025 – August 2025

Verizon

Basking Ridge, NJ

- Developed a **GraphRAG pipeline** to enhance LLM query performance on Verizon's network database, achieving a **70-80% reduction in query time**.
- Integrated **Model Context Protocol (MCP)** into an AI-agent framework, enabling standardized, secure access for agents to diverse data sources and tools.
- Built an **AI-agent framework on a structured knowledge graph** with Python and Llama3 to help network engineers diagnose topology intermittencies and speed up network decommissioning projects

PROJECTS

Micromouse - Autonomous Pathfinding Robot | C++, Python, Arduino

September 2025 - May 2026

- Built a fully autonomous maze-solving robot for the IEEE Micromouse competition, navigating a randomized 16×16 grid using a **custom Flood Fill (BFS) algorithm** to compute optimal paths to the center cell.
- Implemented a **dynamic exploration-to-speed-run pipeline** that guarantees shortest-path discovery, then executes the saved route at incrementally increasing speeds (**+10% per lap**) for competitive performance.

Unified LTSM Memory Management for LLMs | Python, PyTorch, HuggingFace

January 2026 - May 2026

- Implemented Hermes, an **agentic memory management framework** training Qwen2.5-7B-Instruct via **Group Relative Policy Optimization (GRPO)** to natively emit structured memory operations as tool calls.
- Designed a **composite reward function** combining task quality, context efficiency, and memory quality signals, achieving a **0.539 LLM-Judge Score** on HotpotQA multi-hop reasoning benchmarks across 200 evaluation.
- Reduced active context usage by **99.2%** versus a RAG baseline, with an average of only **2.13 tool calls per query**.

PUBLICATION

Ghosh, S., Abo, B., and Kleinberg, S. "Plato: A Conversational Multimodal Chatbot for Real-World Meal Logging and Nutrition Analysis." *IEEE Journal of Biomedical and Health Informatics* (under review, April 2026).

TECHNICAL SKILLS

Languages: Python, Java, C++, C, R, SQL, Assembly, HTML/CSS

Frameworks: Flask, Spring Boot, React, Node.js, JUnit, Django

Developer Tools: Git, Docker, Visual Studio Code, PyCharm, IntelliJ, Eclipse, Logism-Evolution

Libraries: LangChain, Matplotlib, NumPy, Pandas, Scikit-Learn, Neo4J