Brayden Abo

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Education

Stevens Institute of Technology Hoboken, NJ
Bachelor of Science in Computer Science *Expected December 2026*
Awards: Edwin A. Stevens Scholarship, Presidential Scholarship, Dean's List
Relevant Coursework: Data Structures, Algorithms, Discrete Structures, Computer Architecture and Organization

Technical Skills

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

Experience

Undergraduate Researcher September 2025 – Present
Stevens Institute of Technology *Hoboken, NJ*

- Research within Stevens's Health and AI Lab, under the direction of Professor Kleinberg, focusing on Plato, an interactive, multimodal chatbot designed for real-world meal logging and nutritional analysis.
- Engineered a knowledge graph and ontology solution to hierarchically classify food items, deconstructing complex meals into constituent ingredients, to improve the item name recognition F1 score for Plato.

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.
- Developed a PyTorch-based Graph Neural Network (GNN) for GraphRAG framework, improving information retrieval, context understanding, and answer generation accuracy.
- Integrated Model Context Protocol (MCP) into an AI-agent framework, enabling standardized, secure access for agents to diverse data sources and tools.
- Built a AI-agent framework atop a structured knowledge graph, to assist network engineers in understanding network topology intermittencies, and accelerate network decommissioning initiatives.

Projects

Custom CPU Development | *Logism-Evolution, Python* Novemeber 2024 - December 2024

- Designed and implemented a custom CPU architecture using Logism-Evolution, incorporated key components such as a instruction memory, control unit, register file, ALU, data memory and program counter
- Created an assembler program in Python, capable of translating assembly code specific to the CPU design, to machine code
- Developed and implemented a custom instruction set architecture, defining binary encodings for instruction operations, registers, and immediate values, to align with the CPU's hardware design.

Marine Wave Forecast | *Python* March 2024 – June 2024

- Developed a predictive model using historical buoy data to forecast future wave conditions based on weather and marine parameters
- Achieved a 91.7% success rate in wave prediction, demonstrating the model's high accuracy and reliability
- Collected and preprocessed large datasets from marine buoys, ensuring data quality and consistency for effective model training

BRaytings | *Python, Flask, MySQL, TailwindCSS, HTML, Docker* December 2023 – April 2024

- Developed "BRaytings," a full-stack web application using Python, Flask, MySQL, TailwindCSS and HTML, dedicated to documenting and sharing personal dining experiences on a social media like platform
- Utilized MySQL to handle creation, storage and retrieval of user reviews, including functionality for media images
- Integrated front-end and back-end components using Flask routes and REST API's to seamlessly connect user interface and server-side logic
- Ensured state management and data consistency across the application by synchronizing front-end views with back-end data changes in real-time