

Samuel Asare Tawiah

347-680-5779 | sat242@cornell.edu | www.linkedin.com/in/samuel-tawiah/ | github.com/Tomtom-debug

EDUCATION

Cornell University

Bachelor of Arts in Computer Science

Ithaca, NY

Aug. 2023 – May 2027

Honors: Milstein Program in Technology and Humanity Scholar, Nexus Scholar

Relevant coursework: Object-Oriented Programming & Data Structures, Web Design & Programming, Backend Development, Discrete Structures, Functional Programming, Calculus 1 & 2

EXPERIENCE

Incoming Software Developer

Aug 2024

RuFaS - Cornell

Ithaca, NY

- Developing an integrated model using Python to simulate production and sustainability outcomes for ruminant farms
- Implementing an interactive data collection tool with Python, HTML, CSS, JavaScript, and Bootstrap

Undergraduate Research Assistant

May 2024 – Present

Assistant Professor William Lai, Department of Molecular Biology and Genetics

Cornell University

- Contributing to the Computational team in Pugh's Lab, focusing on developing predictive models to explore the relationship between motif sequences and protein domain families using high-resolution chromatin binding profiles.
- Preprocessed chromatin data using Pandas and NumPy for efficient manipulation and numerical operations.
- Converted chromatin datasets into HDF5 format with H5py for optimized storage and retrieval.
- Employed one-hot encoding for DNA sequences and building a machine learning model with Scikit-learn to predict motif-domain associations.
- Visualized data trends and model performance using Matplotlib, effectively communicating results to the research team.

PROJECTS

RideShare-X | Python, Flask, SQLAlchemy, Docker, Google Cloud, SwiftUI, Postman, AWS

[GitHub](#)

- Developed a fully functional iOS app with **Google SSO** tailored for Cornell University students, facilitating easy and cost-effective transportation.
- Deployed a **RESTful API** with **Docker** & **Google Cloud**, storing ride and user data in **SQLAlchemy** and images in **Amazon S3**. Implemented comprehensive CRUD operations via **Flask**, capable of handling over **1,000 requests per day** with **94.9% uptime**.
- Utilized **Gunicorn** for network traffic management, employed **HTTP session tokens**, **OAuth2** & **OIDC** for secure user authentication. Conducted rigorous testing with **Postman**, optimizing API response times by **30%** and ensuring efficient concurrent request handling.

Active Pulse | React, HTML, CSS, Javascript

[GitHub](#)

- Developed a mobile-responsive blogging website designed to help users track workouts, set fitness goals, and stay motivated on their fitness journey.
- Utilized **React Hooks (useEffect)** for state management and dynamic updates.
- Implemented features for **creating, deleting, and managing** blog posts to allow users to share and read motivational content.

Interactive image selection App | Java, Swing, GUI

[Youtube](#)

- Enhanced image selection application with an **"intelligent scissors"** tool to trace edges using **Dijkstra's shortest path algorithm**, built with Java.
- Developed **polymorphic selection tools**, allowing users to switch between straight-line and edge-following modes.
- Extended **SwingWorker** to maintain responsive GUI during intensive calculations with a progress bar and cancellation option.

TECHNICAL SKILLS

Languages: Java, Python, JavaScript, TypeScript, HTML/CSS, SQL, OCaml

Frameworks/Libraries: React.js, Node.js, SQLAlchemy, Flask, Next.js, Framer Motion, Tailwind CSS, NumPy, Matplotlib, scikit-learn, Pandas

Tools/DevOps and Clouds: AWS, Docker, Google Cloud, Microsoft Azure, Linux, Git, Postman, VSCode, IntelliJ