Appiah-Sekyere Reginald Kotey

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EDUCATION

New York University   New York, NY
Bachelor of Science in Computer Science, Minor in Mathematics   *Aug. 2022 – May 2026*
GPA: 3.8

EXPERIENCE

Audio Visual Technical Assistant   Jan 2023 – Jul 2024
New York University Abu Dhabi   *Abu Dhabi, UAE*
- Developed and improved the Audio-Visual user interface for classroom systems across campus by working together with a team of A/V and software engineers, resulting in a 24% increase in usage and overall satisfaction
- Provided expert technical support for over 500 customers, resolving 95% of reported bugs within 24 hours and maintaining a 98% customer satisfaction rate
- Completed and optimized the department database by filling in critical gaps, leading to a 15% increase in operational efficiency and improved data structure.

Network Sector Software Engineer Intern   Jun 2023 – Aug 2023
University of Cape Coast   *Cape Coast, GH*
- Developed a campus network problem management system using React, Express, and MongoDB, increasing error detection by 20% and reducing resolution costs by 30% through web application implementation.
- Implemented advanced debugging techniques, including profiling and memory leak detection with tools like GDB, on a legacy codebase, resulting in a 10% improvement in system performance and stability.
- Built and tested complex network configurations using GNS3, simulating high-traffic and failure scenarios, resulting in a 20% improvement in overall network reliability

PROJECTS

UniShop | *React, Express, MongoDB, Tailwind CSS*
- Designed an image management system with Multer and Node.js `fs` module to handle image uploads and storage on the server, enabling seamless integration of product images with optimized retrieval and minimal latency
- Architected a secure e-commerce platform with JWT authentication and bcrypt password hashing, implementing protected routes and role-based access control for customers and administrators
- Engineered a RESTful API using Express and MongoDB, featuring real-time inventory management, order processing, and payment integration with optimized database queries for enhanced performance

EStore Simulator | *C*
- Developed an advanced e-commerce simulation using parallel threads to manage simultaneous supplier and customer operations efficiently, significantly enhancing system throughput and responsiveness
- Utilized mutexes, pthread conditional locks, and monitors to ensure data consistency, prevent race conditions, and implement deadlock-free synchronization, maintaining stable performance during high-volume transactions
- Designed and implemented a custom sync queue data structure to efficiently manage task scheduling and resource allocation across threads, further optimizing system performance and concurrency control

fork() & ls | *Assembly, C*
- Developed a custom ls command using readdir, stat, amongst other system calls, to navigate file structures and retrieve file information. Included support for -R, -a, -l, and -h options for recursive listing, hidden files, detailed metadata, and human-readable file sizes
- Developed a fork system call to duplicate the parent process's page table mappings, ensuring proper memory isolation and process creation in the Weensy OS
- Engineered a high-performance mapping algorithm in Weensy OS to translate virtual addresses to physical memory efficiently, reducing memory fragmentation by 10% and improving overall process memory utilization

TECHNICAL SKILLS

Languages: C++, C, JavaScript, Python, SQL (MySQL), HTML, CSS, Assembly, MATLAB
Frameworks: React, Express, Node.js, WordPress, Tailwind, THREE.js, GSAP, MongoDB, Supabase
Developer Tools: Git, Google Cloud Platform, Visual Studio, MongoDB, Replit, Docker, Arduino IDE
Others: DevOps Programming, Full-Stack Development, Photography