Youssef Ibrahim

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Education

Northwestern University Evanston, IL

Bachelor of Science in Computer Engineering, ***GPA (major)****: 3.79(3.8)* *August 2024*

Coursework: Intro to Web Development, AI & Machine Learning, Systems Design, Fundamentals of Programming I&II, Data Structures & Algorithms, Computer Architecture, Computer Systems Security, IoT, Agile Software Development

Technical Skills

Programming Languages: C++, C, Rust, Python, JavaScript, R, Verilog
Frameworks & Platforms: Nvidia Jetson, React, Node.js/Express, MongoDB, Firebase, Scrum, REST API
Technologies and Infrastructure: Microsoft Azure, Git, Amazon Web Services (AWS), Docker, Linux

Work Experience

Software Engineer Intern March 2023 - January 2024

Siemens Healthineers *Hoffman Estate, IL*

- Optimized brake test code on SPECT cameras using C++ and MATLAB, enhancing response time by 6%
- Identified and fixed 30+ bugs through conducting 50+ manual integration tests, reducing potential failures by 10%
- Automated 10 manual subsystem tests with C++, saving 6 hours of manual testing
- Reduced 20% of error analysis time by enhancing error identification and reporting diagnostic tool used by 6 teams
- Streamlined unit testing process in C++, reducing redundancy by 10%, leading to a 3% decrease in testing time

Co-Founder & Full-stack Lead October 2022 - December 2023

Circular: Clothing Resale Platform *Evanston, IL*

- Co-developed a sustainable clothing resale platform for Northwestern, winning "Best Idea" from Techstar investors
- Led technical development of the MVP, including pickup scheduling, user dashboards, and secure payments
- Implemented a JavaScript-based pricing algorithm, using sales data to optimize pricing for better user experience
- Gained hands-on experience in startup dynamics, iterative development, and sustainable business practices

Battery Management System (BMS) Lead September 2022 - November 2023

Northwestern Formula Racing *Evanston, IL*

- Refined C++ code for a Battery Management System, improving battery efficiency by 25%
- Utilized embedded programming with CAN protocols for voltage regulation and fault detection

Undergraduate Teaching Assistant May 2023 - August 2023

Northwestern University *Evanston, IL*

- Instructed 100+ students in Intro to AI (CS 348) and Data Structures & Algorithms (CS 214), helped with understanding of AI algorithms, problem-solving, and advanced data structures
- Led recitations & 6-hour weekly office hours, clarifying challenging topics, and providing individual support

Projects

Virtual Try-On: AI Smart Mirror | *Linux, Jetson Orin, OpenCV, MediaPipe, OOTDiffusion* March – Jun 2024

- Co-architected and deployed a high-performance client-server system on Jetson Orin, leveraging CUDA-accelerated processing to reduce latency by 20% for real-time AI-powered virtual try-ons.
- Engineered a Python algorithm with MediaPipe, achieving 95% accuracy in body measurements for virtual try-ons
- Integrated advanced OOTDiffusion Model for precise virtual garment overlays and high-resolution body tracking
- Optimized computer vision pipelines with OpenCV and MediaPipe for enhanced real-time image processing.

TechNol: Ethical Tech Dialogue Platform | *React, REST API, Node.js/Express, MongoDB* Jun – Aug 2024

- Developed a 4000+ Lines-of-Code MERN stack web app for fostering discussions on tech ethics
- Architected secure and intuitive user interfaces using React and Redux, ensuring a seamless user experience.
- Optimized error handling for enhanced UX and orderly debugging and Integrated JWT for stateless authentication
- Applied OWASP top 10 security principles to secure code against vulnerabilities, ensuring robust access controls and data protection within the application.

Communicity | *React, Firebase, Tailwind CSS* November 2023

- Co-developed a full-stack community engagement platform using React and Firebase, enabling real-time post creation, voting, and discussions for enhanced user interaction
- Engineered a real-time voting system integrated with Firebase, allowing users to Upvote or Downvote posts while maintaining data integrity and preventing duplicate votes
- Built a responsive user interface with React and Tailwind CSS, featuring dynamic postcards, search functionality, and tag-based categorization for improved content discovery