

Ali Nawaf

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Education

Case Western Reserve University | Cleveland, OH

BS/MS in Computer Science (Integrated Program), Secondary Major: Mathematics

May 2027

Experience

Software Engineer | Eaton | Cleveland, OH

Jan 2025 – May 2025

- Built an automated ETL Azure data pipeline to process customer-service data from salesforce, delivering Business Intelligence insights via Tableau dashboards. Led a presentation and a workshop for the senior leadership team.
- Optimized the business analytics throughput with batch jobs, handling thousands of inputs at lower latency and cost.
- Implemented role-based access control (RBAC), strengthening access control and reducing security risk.

Machine Learning Intern | Heads-up Hockey | Waterford, VA

Dec 2024 – Aug 2025

- Automated dataset annotation pipeline, reducing training time by ~67% and cutting compute costs significantly.
- Trained computer-vision models in PyTorch and TensorFlow; achieved ~3× accuracy gains and ~3× faster inference speed, enabling real-time video analysis thus improving gameplay.
- Built an on-device iOS ML system that detects and extracts high-velocity shots on goal using only the camera.
- Built an interactive Swift-based game integrating responsive front-end design with optimized back-end logic.

IT Intern | EarthLink ISP | Remote

May 2024 – Aug 2024

- Built a Java-based monitoring system for real-time network health tracking, improving fault detection by 50%.
- Automated support ticket classification with Python, reducing manual workload and response time by 60%.

Research Experience

Researcher | UWC Science Collective | Remote

July 2025 – Present

- Implemented and optimized variational autoencoders (VAEs) in Python using PyTorch, contributing to research in a Cornell University PhD-led lab.
- Applied advanced mathematical concepts to design and test VAEs and diffusion models, enhancing data generation.

Research Assistant | Case Western Reserve University | Cleveland, OH

July 2025 – Present

- Researching privacy-preserving frameworks leveraging PCA, differential privacy, and federated learning for scalable use in agriculture and bioinformatics.

Researcher | Houston Methodist Hospital | Remote

Aug. 2025 – Present

- Collaborating with Houston Methodist Hospital's computational team to build AI-powered CT scan analysis models, predicting cardiovascular disease risk in high-risk patients.

Projects

Computer Vision SmartLabeler | Pytorch, Python, Systems design, API, git, GitHub

- Built an interface on top of the popular open source tool Label-Studio to automate annotations lowering cost and manpower required for labeling images.
- Architected project with modular systems design, containerized via Docker for reproducibility.

ElectroVector App | Swift, Python, git, GitHub, API

- Developed ElectroVector, a data analytics Swift + Python app converting ECGs into vectorcardiograms, extracting clinically meaningful metrics for medical staff.

Leadership

Peer Tutor | Case Western Reserve University

- Tutored peers in Data Structures, Calculus III, Logic Design, and Discrete Mathematics, improving their problem-solving skills and academic performance.

Social Chair | Sigma Nu Fraternity

- Organized events with 100+ attendees, managing budgets and logistics to ensure smooth execution.
- Fostered relationships with other campus organizations to create collaborative events, boosting participation.

Skills

Languages: HTML, C++, C, Swift, JavaScript, SQL, R, MySQL

Frameworks/Tools: Django, PowerShell, XML, XSLT, Snowflake, Excel, web application development, distributed training

Cloud / DevOps: AWS, Azure, Docker, Linux/Unix, Git, GitHub Actions, CI/CD, REST APIs, distributed and parallel systems

ML / Data Analytics: PyTorch, TensorFlow, Scikit-learn, Pandas, NumPy, Power BI, Tableau, MongoDB, Label Studio, NLP