Michael Elrod

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github.com/Michael-Elrod-dev

Skills

Languages: Python, C/C++, Java, SQL, JavaScript, TypeScript, HTML/CSS

Tools: PyTorch, AWS, MySQL, Git, Docker, React, Flutter, Tailwind, Postman

Education

Clemson University, BS in Computer Science — Aug 2020 – May 2024

- Coursework: Software Engineering, Cloud Architecture, Database Management, Machine Learning

Clemson University, MS in Computer Science — Aug 2023 – May 2025

- Coursework: Software Architecture, AI-Receptive Software, Database Systems, Data Mining, Deep Learning

Experience

Machine Learning Engineer - Intern, MIT Lincoln Laboratory – Boston, MA — May 2024 – Aug 2024

- Researched and developed a solution using a graph neural network for multi-agent path planning in unknown environments to increase autonomous collaboration in UAVs using Python & PyTorch
- Worked with the Lincoln Laboratory Super-computing Center (LLSC) to run simulations using parallel processing to decouple agent experiences during training

Full-Stack Software Engineer, Independence County Contracting – Batesville, AR — Aug 2024 – current

- Designed and developed a full-stack project management web application hosted on AWS, built with a MySQL database architecture, TypeScript API, and React/Next.js & Tailwind frontend frameworks
- The cloud architecture was engineered using AWS Amplify for streamlined CI/CD

Graduate AI Researcher, Clemson University – Clemson, SC — Aug 2023 – current

- Researched and implemented the conversion of a traditional mathematical solution for drone swarm plant pollination to a deep reinforcement learning approach by combining graph neural networks and deep q-learning using Python & PyTorch to facilitate communication between drones with limited fields of view
- Worked with other student researchers to engineer the architecture in a collaborative lab environment

Full-Stack Software Engineer - Intern, NIWC Atlantic – Charleston, SC — Jan 2023 – Dec 2023

- Led collaboration with the Blue Ridge Innovation Foundation to develop a STEM-focused educational mobile app as part of the NIWC STEM Outreach Program
- Engineered the RESTful API using TypeScript with Docker for local hosting, and implemented the Flutter-based frontend with integrated API endpoints
- Deployed the solution on AWS and managed the development workflow using Figma for collaborative design

Machine Learning Engineer - Intern, NIWC Pacific NREIP – San Diego, CA — Oct 2024 – Dec 2024

- Worked in a collaborative environment to research and propose a machine learning solution to dynamically locate and decode unique QR codes for the purpose of measuring atmospheric turbulence from images
- Developed the proposed solution using a mixture of predefined ML models and python libraries such as QReader, OpenCV and YOLO, a real-time object detection framework

Software Engineer - Intern, BlueCross BlueShield SC – Columbia, SC — May 2023 – Aug 2023

- Engineered an autonomous solution to identify and remove unused objects from the department's database, resulting in a 12% reduction in storage usage using Python & Selenium
- Developed and maintained new features for client contact centers using Java, Python, and proprietary software