MUHSINUN CHOWDHURY

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SKILLS

Languages <u>Proficient</u> Python(7yrs), TypeScript(8yrs), JavaScript(8yrs), C/C++(5yrs), Java(5yrs), PHP(5yrs)
Software AWS, Azure, Langchain, PyTorch, TensorFlow, Pinecone, FastAPI, PostegreSQL, Docker, Kubernetes

EXPERIENCE

AI/ML Software Engineer II   San Francisco, CA
GEICO   January 2024 - Present

- Built 5+ AI/ML tools in Python, TypeScript, Azure cutting costs by 50% and boosting stability by 90%
- Built coding assistant with open-source LLMs and Azure autoscaling, reducing dev lookup time by 70%
- Developed RAG pipeline with vector DB indexing to improve debug time by 90% for 1000+ engineers
- Built synthetic data engine in Python improving model reliability by 10% in crash metric pipelines
- Curated and labeled secure datasets boosting PII classification model accuracy by 10%
- Fine-tuned open-source LLMs on synthetic data from internal docs, improving benchmark accuracy by 12%

Software Engineer - ML   Ann Arbor, MI
Omni Sciences   March 2023 - August 2023

- Led 4-engineer Agile team, hitting milestones 40% early through tight coordination and project ownership
- Cut runtimes by 90% via performance-tuned C++, Python, and MATLAB code for ML-driven workflows
- Built custom thread and vision libraries improving system stability and reducing runtime errors by 10%
- Achieved 95% test coverage by building and running automated test suites on core software
- Accelerated data extraction by 92% by reverse-engineering undocumented ToF camera interfaces
- Resolved 99.9% of Git conflicts while managing branching, PRs, and merges for 7-person team repo

Software Engineer   Detroit, MI
Blue Line Foodservice Distribution   June 2019 - August 2019

- Automated workflows with VBA macros and scripts reducing task time by 95% and saving 250+ hours monthly
- Built a script to automate multi-source data entry, eliminating manual input and reducing entry time by 95%
- Designed scripts to batch financial reports, cutting reconciliation time by 80% and saving 100+ hours monthly

Software Engineer   Stony Brook, NY
The Society of Young Entrepreneurs   February 2018 - June 2019

- Built Discord bot with JavaScript reducing financial analysis time from 15 minutes to 15 seconds
- Predicted stock and cryptocurrency trends using blockchain activity analysis, increasing group profits by 20%
- Automated market data scraping and research pipelines, improving trade response speed by 90%

PROJECTS

Image Classification with Deep CNN Personal Project ∼*100 hours* GitHub   Apr 2023

- Used Python, TensorFlow, Convolutional Neural Networks, transfer learning, and GCP to classify dog breeds from image data
- Built full pipeline with preprocessing, data augmentation, GPU-accelerated training, and model monitoring, debugged misclassifications using Gradient-weighted Class Activation Mapping

Sentiment Classifier Personal Project ∼*60 hours* GitHub   Feb 2023

- Used Python, scikit-learn, NLP, and Support Vector Machines to classify emotion in online forum text with 85%+ accuracy
- Engineered features, tuned hyperparameters, and addressed class imbalance using oversampling strategies

Music Search Web App Personal Project ∼*50 hours*   Nov 2022

- Used Vue.js, REST APIs, JavaScript, and MVC pattern to build a dynamic music search tool using iTunes API
- Rendered real-time song queries with interactive result panels and responsive front-end design

Admin Web Interface Personal Project ∼*40 hours*   Feb 2017

- Used PHP, SQL, and MySQL to build a web dashboard for modifying in-game player records in real time
- Enabled admins to ban, mute, and kick users through secure form handling and database queries
- Deployed interface with session-based auth and error logging to streamline moderation workflows

EDUCATION

University of Michigan   September 2020 - December 2023
Bachelor of Science Computer Science   Ann Arbor, MI

ACTIVITIES

RAG vs. Fine-Tuning – Technical breakdown on choosing between RAG and fine-tuning	Mar 2025
DeepSeek Coder vs. CodeLlama – Compared OSS LLMs on real-world coding tasks	Mar 2025
Building a Deep Learning Pipeline to Identify Dog Breeds – Image classification with CNNs	Mar 2025
Textbook Contributor – Featured on cover of Linear Algebra text for revising core sections	Nov 2022
Research Contributor – Published work on contactless vitals monitoring with NIR ToF, CV, and ML	Aug 2023