Mustafa Tahir

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EDUCATION

Washington University in St. Louis St. Louis, MO
Bachelor of Science in Computer Science and Economics May 2027
Awards: George and Mary Josephine Hamman Foundation Scholar, WashU Chancellor's Career Fellows, National Cyber Scholar
Relevant Coursework: Data Structures + Algorithms, Discrete Math, OOP + SWE Lab, Full-Stack Dev, Data Science, Data Mining

SKILLS

- **Languages:** Bash, C/C++, HTML/CSS, Java, JavaScript, Next.js, PHP, Python, R, React, Swift, SwiftUI, Tailwind, TypeScript
- **Tools:** Android Studio, AWS EC2, Firebase, Git, Godot, Jetbrains, Jira, JUnit, Jupyter, Linux, MariaDB, MongoDB, SQL, VS Code

WORK EXPERIENCE

Sponsors for Educational Opportunity New York City, NY
Tech Developer Intern May 2025 – Present
- Completed 300+ hours of rigorous computer science and software engineering training focused on data structures, algorithms, and full-stack web development.
- Gained software development skills by working in SCRUM-like teams to design, test, and implement full-stack applications using Python (Flask), MySQL, HTML, JavaScript, CSS, and API integrations.
- Led backend development of a GitHub analytics tool, architecting data-fetching pipelines and repository parsing logic that automated metadata extraction and issue detection across 100% of scanned repositories.

Mapable St. Louis, MO
Software Engineering Intern III May 2025 – Present
- Led a team of 5 engineers to rebuild a geolocation-based navigation app with accessibility insights from the ground up using Kotlin Multiplatform, replicating and enhancing a SwiftUI-based iOS app for Android in 12 weeks.
- Implemented advanced map features including elevation-aware routing and real-time location sharing, optimizing route calculations for 5,000+ coordinates per query and enabling location updates for 500+ user sessions monthly.
- Integrated OpenAI-powered Q&A and scalable Firebase backend, enabling live data sync for 500+ reviews, saved places, and routes, which increased user engagement by 25% and reduced data latency by 40%.

Passback St. Louis, MO
Technical Consultant Aug. 2024 – Present
- Engineered and automated an end-to-end inventory management workflow, integrating Google Forms, Sheets, and backend scripts into a unified system, ensuring 100% inbound/outbound gear logging and eliminating manual reconciliation.
- Led a team of five to design a data-driven typology system, categorizing over 50 redistribution partners, improving partner prioritization by 30%.
- Built a dynamic data visualization dashboard using Python and Tableau, enabling more efficient decision-making processes for the supply chain team.
- Developed and deployed 3 mobile-friendly intake and redistribution forms with automated validation, reducing manual entry time by 60% and improving data reliability for thousands of donations monthly.
- Built resilient backend logic for FMV and weight matching with automated receipt generation, leveraging keyword-based matching and error handling to process 500+ entries weekly, achieving 40% improvement in compliance and donor reporting.

Other Organizations: Institute of Electrical and Electronics Engineers, Boulevard, Muslim Students Association

PROJECTS

RepoIntel – AI GitHub Repo Scanner | *Google GenAI, Flask, Jinja, JavaScript, HTML/CSS, SQLAlchemy*
https://github.com/elcalzalt/repo-intel | *https://elcalzalt.pythonanywhere.com*
- Built full-stack web app using Python, JavaScript, HTML, and SQL with RESTful APIs and microservices, managing 500+ users and reducing response time by 75% through containerized deployment.
- Integrated AI/ML via Google AI APIs to automate code analysis across 100+ repos/day, boosting detection accuracy by 90% with real-time data transformations.
- Engineered SQL and NoSQL databases with caching and auto-processing pipelines, supporting 1,000+ concurrent ops and achieving 99.9% uptime with performance monitoring and security protocols.

Simple MNIST Neural Network – Handwritten Number Recognizer | *Python, NumPy, Pandas, Matplotlib*
https://www.kaggle.com/code/tahiro09/neural-network
- Implemented a two-layer neural network from scratch in NumPy to classify handwritten digits (MNIST, 60,000+ samples), achieving ~85% training accuracy after 500 iterations.
- Developed forward and backward propagation algorithms with ReLU and softmax activations, one-hot encoding, and manual gradient descent optimization, iterating over 500+ training epochs.
- Visualized and validated model predictions by reconstructing digit images with Matplotlib, enabling interpretability and debugging across 784-dimensional input vectors.

Yappers – Chatroom App | *Node.js, Express, MySQL, JavaScript, HTML/CSS*
- Independently engineered a full-stack real-time chatroom web application supporting 100+ users and ~10,000 messages weekly.
- Implemented a responsive UI integrated with the Node/Express backend and MySQL database, cutting page load times ~40%.