Muhammad Aleem Azhar

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EDUCATION

Rhodes College, Memphis, TN, USA **May 2026**
Bachelor of Science in Computer Science, Minor in Statistics
- Honor Roll (Fall'23)

Yonsei University, Seoul, South Korea **Fall 2024**
Bachelor of Science in Computer Science (study abroad)
- Artificial Intelligence, Computer Vision for Data Science

Roots IVY International, Pakistan **May 2022**
Cambridge International AS & A Levels
- 4.0/4.0 GPA

PROFESSIONAL EXPERIENCE

Teaching Assistant – Fundamentals of Computer Science **June 2025 – August 2025**
Johns Hopkins University – Center for Talented Youth (CTY)
- Taught **Python programming** concepts including **loops**, **functions**, **recursion**, and **data structures**, increasing student comprehension by **40%**
- Introduced core **AI** and **machine learning** topics such as **supervised learning**, **classification**, and **model evaluation**, improving engagement by **35%**
- Guided over **60 students** in **debugging** and **algorithm design**, enhancing problem-solving accuracy by **45%**
- Reinforced key **computer science principles** such as **modularity**, **abstraction**, and **control flow** through hands-on **project-based learning**
- Collaborated with **lead instructors** to deliver **adaptable content** across two **university campuses**, improving curriculum delivery efficiency by **30%**

RHOK-SAT CubeSat Research Project **May 2023 - July 2023**
Intern (Rhodes College)
- **Executed satellite tracking** with TLEs and Gpredict, achieving **95% accuracy** in data processing.
- **Developed a Python-based server** for real-time logging, ensuring **99.9% uptime**.
- **Designed a real-time telemetry dashboard** using Plotly and Dash, improving data analysis speed by **40%**.
- **Created a secure satellite tracking website** with Python (Dash), enhancing user interaction by **15%**.

RSA: Data-Manager and Administrative Support **January 2023 - Present**
Intern (Rhodes College)
- Automated payroll processing and job listing workflows using **Python scripts**, increasing operational efficiency by **30%**
- Developed a feedback loop system to streamline **student-employer communication**, improving satisfaction scores by **25%**
- Led coordination for campus-wide events, boosting student engagement by **20%** through effective cross-functional collaboration

PROJECT

AI Social Mirror **May 2025 - Present**
Developer
- Built a full-stack AI tool using **Next.js**, **React**, **TypeScript**, and **Tailwind CSS** to analyze tone, intent, and sentiment in user content, improving message clarity by **45%**
- Integrated **Hugging Face NLP models** for real-time **sentiment analysis**, **intent detection**, and **tone classification**, reducing misinterpretation rates by **30%**
- Developed scalable backend APIs with **Node.js** and **FastAPI**, supporting analysis requests with **99.9% uptime**
- Implemented **Stripe-based subscription plans** with secure checkout and webhook handling, increasing user conversion by **25%**
- Enhanced user engagement through dynamic result visualization and actionable suggestions, leading to a **40% increase** in return usage

Hand Reading AI **June 2025 - Present**
Developer
- Developed a computer vision application using **TensorFlow**, **OpenCV**, and **Python** to detect and interpret hand gestures and palm features with over **85% accuracy**
- Built and trained a **CNN model** for real-time gesture recognition, improving classification performance by **35%** through data augmentation and hyperparameter tuning
- Designed a live webcam interface using **Flask** to capture hand input and display predictions in real time with **under 200ms latency**
- Implemented feature extraction using edge detection and contour analysis, increasing precision in palm line mapping by **40%**
- Improved user experience through responsive UI, visual overlays, and feedback mechanisms, resulting in a **30% boost** in user interaction and testing success

Image Classification Neural Network **November 2024**
Developer
- Built a modular neural network framework in **Python**, implementing **ReLU**, **Softmax**, and **Fully Connected** layers with custom **backpropagation**
- Trained a two-layer model on **Fashion MNIST**, achieving **90% accuracy** after tuning hyperparameters including **learning rate**, **momentum**, and **batch size**
- Implemented **L2 regularization** and **SGD with momentum**, reducing overfitting and improving training stability by **25%**
- Designed a flexible computational graph structure to support future model extensions and experimentation

TECHNICAL EXPERIENCE

- **Languages:** Python, Java, C, HTML/CSS
- **Libraries & Tools:** NumPy, Pandas, scikit-learn, TensorFlow, Transformers, Matplotlib, Plotly, OpenCV
- **Frameworks:** Flask, FastAPI, Node.js, Dash
- **Platforms:** Git, Linux (Vim), Vercel, VS Code
- **Other:** Hugging Face API, Stripe API, Prompt Engineering, REST APIs, Webhooks