Ariff Muhammed Ahsan Husain

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About

Driven Computer Engineering student with strong programming fundamentals and analytical problem-solving skills. Adept at building efficient and user-centric software solutions from concept to deployment. Aspiring to contribute to impactful work in Software Engineering, Artificial Intelligence and FPGA Design with a keen interest in financial technology. Eligible for H-1B1 Visa.

Education

National University of Singapore Aug 2024 - Present

Bachelor of Engineering in Computer Engineering, Honours *Singapore*

- **CGPA:** 4.54/5.0
- **Minor:** Data Analytics
- Relevant Courses: Engineering Principles and Practices, Data Structures and Algorithms, Digital Circuit Design with Verilog

Technical Skills

Programming Languages: Python, Java, C++, C, SQL, TypeScript, Verilog
Frameworks & Libraries: React, Flask, Spring Boot, TensorFlow, PyTorch, NumPy, Pandas, Tailwind CSS
Databases & Tools: PostgreSQL, Supabase, SQLite, Git, Vite

Projects

Psonia | *NUS Orbital 2025* May 2025 – Jul 2025

- Engineered a user-focused, full-stack web application using **React** with **TypeScript** and **Tailwind CSS**, leveraging **Supabase** and **PostgreSQL** for the backend.
- Designed and implemented a complex **Category Optimizer** with a *multi-objective greedy heuristic algorithm* to provide users with optimized credit card recommendations, maximizing rewards.
- Built a reliable web-scraping feature using the **Firecrawl API** to track product prices on Amazon, providing users with historical data and real-time updates to aid in purchase decisions.

OCR Model with hOCR Training | *DSTA BrainHack AI Challenge 2025* May 2025 – Jun 2025

- Engineered an end-to-end OCR pipeline using Microsoft TrOCR, achieving 94% recognition accuracy with hOCR annotations.
- Mapped XML-based hOCR data to image regions, generating precise training samples for the model.
- Built a robust **PyTorch** training framework featuring progress tracking and a comprehensive post-training evaluation suite.
- Contributed to a multidisciplinary AI solution (ASR, OCR, CV, RL) that reached the competition semifinals.

Personal Portfolio Website | *Personal Project* Feb 2025

- Architected and deployed a high-performance, responsive portfolio using **React** and **Tailwind CSS**, leveraging **Vite** for an optimized build process.
- Implemented an interactive UI to showcase work in programming and robotics, deployed on Netlify for fast global access.
- Regularly maintain and update content to reflect ongoing projects and professional growth.

Pawgress – Personal Task Manager with Virtual Pet | *NUS Hack&Roll 2025* Jan 2025

- Designed a novel product experience integrating task management with a virtual pet to enhance user engagement and motivation.
- Utilized **Vite** for fast bundling and leveraged **React** and **Tailwind CSS** for a responsive and dynamic user interface.
- Engineered the backend using **SQLite** for effective local data persistence and management.

Awards

NUS Hack&Roll Hackathon (2025): Quacker's Commendation Top 15 Award for Innovation
DSTA BrainHack (Artificial Intelligence) (2025): Semifinalist
WorldQuant International Quant Competition (2025): Gold Level
UBS Global Coding Challenge (2025): Top 15 award