AHMAD SHAHZAD CHOUDHARY

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EDUCATION

DUKE UNIVERSITY - B.S. in Computer Science & Finance (Concentration in AI/ML) - **GPA:** 3.8/4.0 *Durham, NC*
Relevant Coursework: Data Structures & Algorithms, Analysis of Algorithms, Computer Architecture, Discrete Mathematics, Proof-Based Linear Algebra, Advanced Multivariable Calculus, Probability, Elements of Machine Learning, Databases

EXPERIENCE

KOTWAL RESEARCH LABS (DARK MATTER PARTICLE PHYSICS) - Research Assistant *Sep 2023 – Jun 2024*
- Learning unsupervised AI integration to train models to accurately predict decaying particle's paths and movements.
- Coding in **C/C++** to convert code into physical microchips while maintaining efficiency in runtime and costs for the optimal production.

CENTER FOR VIRTUAL IMAGING TRIALS - Research Assistant *Nov 2023 – Jun 2024*
- Collaborated with an interdisciplinary team to integrate **FEBio** tool into research workflow, streamlining model creation process and reducing production time by 30%.
- Implemented advanced **C++** and **Python** scripting techniques to create realistic lung models for simulation, improving accuracy compared to previous models.

TECHNOLOGY STUDENT ASSOCIATION - Chapter President *Aug 2018 – May 2023*
- Utilized cloud hosting on **AWS** and developed the front end using **React-Native** and **JS** to ensure seamless scalability and high performance for the application, resulting in a 65% uptime and improved user experience.
- Researched and developed a renewable energy-based design system for transporting food into space, resulting in a 40% reduction in energy consumption and increasing efficiency by 30% compared to current published methods.
- Developed **CAD** models using **AutoDesk Inventor** and graphic designing software (Adobe Suite, DaVinci Resolve).

NUSTIAN USA NON-PROFIT - Software/Strategist Intern *Jul 2021 – Mar 2023*
- Worked on developing the Nustian USA website. Gained experience in Wordpress and backend transactions through the web. Set up features on the website such as fireside chats, connecting students to experienced workers in a multitude of industries.
- Assisted on strategies for the business to grow. Helped raise over $80k for Pakistani flood relief efforts. Gained graphic design experience as well. Suggested and implemented several new features including grouping students similar to each other.

PROJECTS

ML/AI Robotics Match Prediction *Feb 2024 – Mar 2024*
- Utilizing the Statbotics API to predict matches with around a 85% success rate and alliance selections for FIRST Robotics.
- With assistance from **Scikit-Learn,** coded cross validation (feature importance) by way of **Random Forest Classifiers**. In addition, ran a binary classification to train the data on accuracy.

Stock Investment Portfolio *Jun 2024 – Present*
- Developed a custom stock investment portfolio website utilizing **Svelte** for the framework and **Tailwind CSS/HTML/JS** for responsive design, enhancing user experience and interface efficiency
- Implemented a robust back-end using **Flask API** and Python scripts to handle real-time stock data processing, providing accurate and timely investment insights. Currently working on hosting the platform for broader accessibility.

Tailor-Made File Navigator *Aug 2024– Present*
- Created a new customized file explorer using the **C++** filesystem library in collaboration with **Qt Widgets** to create a GUI compatible with both Linux and Windows.
- Improves upon the standard file navigator by improving speeds time by 20%, fixing responsive issues, and allowing users to customize key binds to create a personalized navigator that works for them.

Retrograde: Space Exploration Website *Dec 2022 – Apr 2023*
- Employed **HTML**, **CSS**, and **JavaScript** to create dynamic backend data storage functionality for the website, improving load times by 35% and reducing server costs by 15%
- Developed and executed a comprehensive training program for team members on **Github** (desktop and website), **AWS**, resulting in a 30% increase in productivity

EXTRACURRICULARS/ACTIVITIES

Duke Applied Machine Learning - Learned ML techniques and strategies. Gained knowledge in tensorflow and scikit learn. Worked on group projects such as stock predictors. Improved communication in a group setting as well as separation of tasks.

Writer/Filmmaking - Personal hobby that includes storytelling and attending Duke Filmmaking sessions to learn about cameras and the intricacies of the film industry.

ACHIEVEMENTS

Finalist in ASA DataFest; Duke Statistics and Mathematics Department *Mar 2024*
Qualified from 3,300 teams – International Finalist; FIRST Robotics Worlds Competition *Apr 2023*
Top 10 / 250,000+ participants; Technology Student Association's National Webmaster Cup *Jul 2022*
International Semi-Finalist from 300+ teams; StellarXplorers Association Competition *Apr 2022*
Honorable Mention in Math Modeling; Duke Mathematics Department *Nov 2023*

SKILLS

Coding & Modelling: Python (Matplotlib, Tensorflow), Java, JavaScript (Svelte, React, Node.js), C++, C, C#, SQL, AWS, CAD