**Akhilesh Pathange**

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**Education**

**College of William and Mary:** B.S in Data Science, Minor in Mathematics, GPA 3.95 *May 2025*

**Relevant Coursework:** Algorithms, Data Structures, Probability & Statistics for Scientists, Advanced Applied Machine, Learning, Statistical Data Analysis, Data Visualization, Databases, Linear Algebra, Discrete Mathematics

**Technical Skills**

**Languages:** Python, SQL, R, JavaScript, C++, HTML, CSS

**Tools Proficiency**: Pandas, NumPy, Scikit-leanr, PyTorch, Matplotlib, Jupyter Notebook, Tableau, Snowflake, SSMS, AWS, Git, React Native, Tkinter, Powershell

**Relevant Experience**

**CostarGroup** **|** Data Analyst Intern *June 2024 – August 2024*

* Utilized SQL in SSMS and Snowflake to analyze usage patterns and predict user activity, developing complex queries for extracting and preprocessing data related to sale listings and property features.
* Created a Python script to fetch data from Snowflake and seamlessly integrate it into SSMS, enhancing accessibility.
* Implemented Isolation Forest for usage anomaly detection, identifying unusual patterns in user behavior and developed detailed visualizations of usage trends using statistical analyses (t-tests, ANOVA) to validate data relevance.
* Led a project to create a machine learning model to classify office building images by their architectural style, introducing a new dimension for property discovery.

**Hudson Institute |** Center for Defense Concepts and Technology Spring Intern *March 2024 – June 2024*

* Developed a war game simulation project with a GUI for data management and simulation outcomes.
* Created a GUI budget tool for Excel integration, enabling real-time updates and interaction with spreadsheet data.
* Implemented backend functionality to dynamically update values based on simulation results.
* Designed a map visualization tool to display troop movements and outcomes during simulated turns.

**Personal Projects**

**ASL Alphabet Classification using Neural Networks**

* Developed and deployed machine learning models to recognize and classify American Sign Language (ASL) alphabets, achieving the highest accuracy with AlexNet in real-time recognition of over 87,000 images, resulting in a robust system for instantaneous predictions of ASL letters.
* Created comprehensive preprocessing pipelines, including image augmentation and normalization, to prepare the dataset for model training.
* Implemented and compared various neural network architectures including Deep Neural Networks (DNNs), Convolutional Neural Networks (CNNs), AlexNet, and ResNet34, with comprehensive preprocessing and hyperparameter optimization.
* Authored a research paper detailing the methodologies, experiments, and findings of the ASL classification project.

**Nutrition Insight Mobile App**

* Developed an intuitive mobile application with React Native, enabling users to capture ingredient labels via camera.
* Implemented seamless user authentication through AWS Cognito, providing personalized experiences based on attributes like age, allergies, and health concerns.
* Utilized AWS Lambda for efficient image uploads and processing, integrating Lambda, S3, and Textract for streamlined image analysis and text extraction.
* Utilized OpenAI API to dynamically generate personalized and detailed insights about extracted ingredients, ensuring users are informed about potentially harmful substances in products.