Arsalan Favakeh

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Education

University Of Houston Houston, TX

Bachelor of Science in Computer Science, Minor in Mathematics; GPA: 3.5 *Aug. 2020 – Dec. 2025*

- **Relevant Coursework:** Algorithms and Data Structures, Operating Systems, Introduction to Computer Networks, Graph Theory with Applications, Linear Algebra, Discrete Mathematics, Introduction to Automata and Computation, Database Systems, Data Science I, Data Science II, Software Design, Data Science and Statistical Learning, Statistics for Sciences

Experience

Data Science and Machine Learning Researcher Jan. 2024 – Present

University of Houston *Houston, TX*

- Built predictive models using machine learning algorithms, improving accuracy by 15% through data preprocessing and feature engineering.
- Designed and implemented pipelines for large-scale data cleaning and normalization using Python.
- Collaborated with researchers to visualize trends and patterns, providing actionable insights for publications.

Leadership Roles, Sigma Alpha Epsilon Fraternity Jan. 2022 – Present

University of Houston *Houston, TX*

- Managed a team of 30+ members, streamlined organizational processes, and enhanced recruitment strategies.
- Planned and executed high-profile events, managing budgets and resources to meet objectives.
- Enforced safety protocols and bylaws, ensuring compliance and maintaining a positive chapter reputation.

Projects

NetAnalyzer Suite | *Python, PyShark, TShark, Matplotlib, Plotly*

- Developed a Python-based tool to analyze network traffic, processing 5+ GB of .har and .pcap files to extract metrics such as total download size, average latency, and protocol distributions.
- Implemented real-time packet capture functionality, handling 18,000+ packets and achieving detailed analysis of IP mappings and protocol usage across TCP (70%), UDP (30%), and others.
- Designed interactive visualizations using Matplotlib and Plotly, including pie charts and time-series graphs, providing users with actionable insights through a dashboard accessible via a local server.
- Reduced manual effort in network analysis by 40%, validated accuracy with Wireshark, and enhanced accessibility through comprehensive documentation and tutorials.

Employee Attrition Prediction | *Python, Scikit-Learn, Pandas*

- Built a predictive model to classify employee attrition with 90% accuracy using Random Forest and Logistic Regression.
- Enhanced model performance by applying feature selection techniques, reducing complexity by 25%.
- Created visualizations using Matplotlib and Seaborn to identify critical factors influencing attrition.

Neural Network Implementation | *Python, TensorFlow, NumPy*

- Built a convolutional neural network (CNN) achieving 85% accuracy on CIFAR-10 dataset.
- Enhanced generalization through dropout, batch normalization, and data augmentation techniques.
- Performed hyperparameter tuning to optimize model depth, learning rate, and activation functions.

Casino Database Management System | *C++*

- Built a robust database system using linked lists, enabling CRUD operations on casino records.
- Designed a modular architecture for handling complex queries and sorting operations.
- Integrated error-handling mechanisms to maintain data integrity and prevent duplication.

Technical Skills

Programming and Development: Python, C/C++, SQL, Java, R, JavaScript, HTML/CSS, Bash, Git
Machine Learning and Data Science: TensorFlow, PyTorch, Scikit-Learn, Keras, pandas, NumPy, Matplotlib, Seaborn, Statsmodels, SciPy
Networking and Traffic Analysis: Wireshark, TShark, PyShark, PCAP Processing, Network Protocol Analysis, Real-Time Traffic Monitoring
Cloud and Visualization Tools: Google Cloud Platform (GCP), AWS, Docker, Jupyter Notebooks, Flask, Plotly, Dash, React