AQSA SARFRAZ

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Objective

I am a motivated, articulate, and inquisitive mathematics student with a strong passion for machine learning and deep learning. Seeking to apply strong problem-solving skills and algorithmic expertise in a computer vision and autonomous systems research environment. Passionate about developing efficient algorithms for AI-driven solutions.

Education

Bachelors of Science in Mathematics *Islamabad, Pakistan*
COMSATS University Islamabad *Sep 2020 - Jul 2024*

- **Thesis Title:** Galex-Heart: A New Deep Learning Based Framework for Predicting Potential Heart Patients in the Dataset of Sick People
  - ♦ Applied GoogleNet & AlexNet to optimize classification algorithms, improving model accuracy.
  - ♦ Developed data preprocessing pipelines handling missing data, feature scaling, and model evaluation.
- **Relevant courses:** Machine Learning, Deep Learning, Statistical Methods, Numerical Analysis and Linear algebra.

Work Experience

Research Assistant
COMSATS University Islamabad, Pakistan *Jul 2023 - Aug 2024*

- Gained in-depth knowledge of the theoretical and mathematical foundations of machine learning and deep learning, while enhancing presentation skills and engaging in data preprocessing, model training, performance analysis, and research writing.
- Designed and optimized AI-driven algorithms for predictive analytics.
- Worked on data preprocessing, model training, and statistical analysis.
- Developed technical reports and research papers on deep learning models.

Mathematics Teacher
Silver Oaks School *Nov 2024 - Present*

- Teaching all subjects to middle school students and mathematics to secondary and higher secondary school students, concepts, effective communication, curriculum development and student engagement.

Projects

Galex-Heart: A New Deep Learning Based Framework for Predicting Potential Heart Patients in the Dataset of Sick People

- Developed and optimized the GalexHeart deep learning model by combining GoogLeNet and AlexNet architectures for heart disease prediction, achieving a 3% improvement in accuracy over individual models.

Prediction of Concrete Strength : Developed a linear regression model to predict concrete strength based on mix features

Credit Card Fraud Detection: Worked on implementing machine learning models for detecting fraudulent credit card transactions.

Publications

Galex-Heart: A New Deep Learning Based Framework for Predicting Potential Heart Patients in the Dataset of Sick People (In progress).

Certifications

Data Analytic Course
Leverify Quest — *Oct 2024*

Introduction to Deep Learning and Neural Networks with Keras
IBM, Coursera — *Aug 2024*

Machine Learning with Python
IBM, Coursera — *Jul 2024*

Essential Math Specialization
University of Colorado Boulder, Coursera — *Nov 2023*

Data Science Math Skills
Duke University, Coursera — *Aug 2022*

Awards and Honours

First Position in "5-Minute Thesis Competition"
SIAM CUI Chapter, COMSATS University Islamabad — *Jan 2023 - Mar 2024*

Awarded Merit Scholarship — *2020 - 2024*

Certificate of Appreciation as the HR of SIAM CUI Student Chapter — *Sep 2023 - Jul 2024*

Certificate of Appreciation as a Part of Social Media Team — *Jan 2022 - Sep 2023*

Certificate of Appreciation as a Part of Event Management Team — *Sep 2022 - Sep 2023*

Organized an Event on International Day of Mathematics — *Mar 2024*

Conferences and Seminars

Two-Day Workshop on "Data Analysis for Next Generation Sequencing (NGS)"
October 2023

Machine Learning 101 Workshop — *March 2023*

One-Day International Conference on "Recent Developments in Applied and Computational Mathematics"
May 2022

Seminar on "Applications of Linear Algebra to Special Functions and Perspective Drawing"
Dec 2022

Languages

Native language: Urdu

Other Language: English: Speaking, Listening and Writing

Other Skills

Software and Tools: Microsoft Office, Google Drive, Google Docs, ZOOM, Microsoft Teams, LaTex

Programming and Modeling: Python, MATLAB, TensorFlow, Keras, Sci-kit Learn