Curriculum Vitae

M. FAWAD AKBAR KHAN

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EDUCATION

Utah State University, Logan, UT, USA – Ph.D. Computer Science – "Applying Heuristics and Pattern Mining Algorithms for Behavioral Pattern Recognition in an Educational Environment"
Aug 2021–Present

- CGPA: 3.87/4.00

University of Engineering & Technology Peshawar - M.S. Computer Systems Engineering
Sep 2018–Oct 2020

- CGPA: 4.00/4.00

University of Engineering & Technology Peshawar - B.S. Computer Systems Engineering
Aug 2014–Sept 2018

- CGPA: 3.1/4.00

Relevant Courses: Calculus I & II | Differential Equations | Probability and Statistics | Object-Oriented Programming | Database Management Systems | Signal Processing | Linear Algebra

WORK EXPERIENCE

Utah State University, Logan, UT, USA
August 2021- Present

Positions: Graduate Research Assistant (NLP, Data Mining, AI in Education, Fairness in AI)

National Center of Artificial Intelligence, UET Peshawar, Pakistan
April 2019- May 2021

Position: Research Associate

Conducting data mining operations on satellite spectral image datasets using cloud-based computing constitutes my primary role. Responsibilities encompass data collection, annotation, pipeline development, and the application of advanced techniques in pattern recognition, object detection, and segmentation. ***Copernicus Article on our Lab***

Technology Stack*:* Python (Tensorflow/Keras), Google Cloud Platform, GEE (Python API),

U.S-Pakistan Center for Advanced Studies in Energy – University of Engineering and Technology Peshawar, Pakistan
Aug 2018- March 2019

Position: Project Engineer

Prognosis and health-monitoring of Aircraft hydraulic systems using machine learning technique. Data analysis for a wind farm to detect anomalies.

Technology Stack*:* MATLAB, Tableau, Python

U.S-Pakistan Center for Advanced Studies in Energy – University of Engineering and Technology Peshawar, Pakistan
Aug 2017- March 2018

Position: Undergraduate Researcher

Data analysis of SCADA sensors data for hydro-power plant enhancement and prognosis

Technology Stack*:* MATLAB, Tableau, Python

PROJECTS

1. **Fairness in AI (GitHub):** A new framework based on the ROC curve and AUC measure to assess the individual fairness of probabilistic classifiers

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2. **Reinforcement Learning Actor-Critic method for learning to fly a Quadcopter (GitHub):** Solving the normal rotor and tilt-rotor environment of a quadcopter using actor-critic (A2C and A3C) methods using a 9-tail DQN.

LEADERSHIP EXPERIENCE & SOCIAL SERVICE

Mentoring Students: Max Ramsdell (B.Sc.), Ben Hamner (B.Sc)
Founder and President – USUSA Filmmaking Club
Aug 2022 - Present
Co-Founder – Rethinker Media
June 2019 – present

- Film production company and social media network for entertainment.

Founder – Google Earth Engine (GEE) Tutorials Facebook Group
June 2019 – present
Research Fellow – Torque Communities (NGO)
August 2020 – present
Co-Founder and Executive Member – Chitra Engineering and Doctors Association
Feb 2016 – May 2021

TEACHING EXPERIENCE

- **Teaching Assistant Social Media Mining** (CS6840) and **Introduction to Data Analysis** (CS6890) – CS USU, USA
- **Teaching Assistant Digital Logic Design Course** (CSE202) – Professor and Chairman **Dr Laiq Hasan**.
  Responsibilities: Conducting tutorials and training sessions | Managing Outcome Based Education Portal | Office hours | Designing and marking quizzes, assignments and projects.

HONORS AND AWARDS

- Graduate **Summa Cum Laude** with Masters in Computer Systems Engineering
- **Merit-based** scholarship in Bachelor of Computer Systems Engineering
- **1st Position** in the Department of Computer Systems Engineering in the Entry Exam
- **2nd Position** in College and **3rd** in District – International Kangaroo **Mathematical Contest.**

OTHERS

- **Publication:**
  - **Khan, M.F.A;** Karimi, Hamid, **"A New Framework to Assess the Individual Fairness**
  - **of Probabilistic Classifiers**", 2022 21st IEEE International Conference on Machine Learning and Applications (ICMLA), https://conferences.computer.org/icmlapub/pdfs/ICMLA2022-1oIbEyrqlxdYNqIVuUdynF/628300a876/628300a876.pdf
  - **Khan, M.F.A**., et. al "Mapping Allochemical Limestone Formations in Hazara, Pakistan using **Google Cloud Architecture**", ISPRS Int. J. Geo-Inf. (Impact Factor: 2.239)
  - **"**Din, S.U.; Muhammad, K.; **Khan, M.F.A**., et. al." A Fusion of **Feature-Oriented Principal Components of Multispectral Data** to Map Granite Exposures of Pakistan. Appl. Sci. 2021, 11, 11486.
  - "Elahi, F.; Muhammad, K.; Din, S.U.; **Khan, M.F.A**.; et. al," Lithological Mapping of Kohat Basin in Pakistan Using Multispectral Remote Sensing Data: A Comparison of Support Vector Machine (SVM) and Artificial Neural Network (ANN). Appl. Sci. 2022, 12, 12147.
- **Under Review:**
  - **"Mining Student Behavior Patterns for Enhanced Performance Prediction in Introductory Programming: Keystroke Analysis and Ensemble Strategies"**
  - **"Assessing the Promise and Pitfalls of ChatGPT for Automated Code Generation."**
  - **"Enhancing Automated Grade Prediction in MOOC Using Graph Representation Learning (Accepted)"**
- **Proficient** in Python (Numpy, Keras, Scikit-Learn, NLT, TensorFlow, PyTorch, Pandas, OpenCV, SQLAlchemy, Flask, Django, Seaborn, Matplotlib, Requests)