PERSONAL INFORMATION

Faiq Ahmad khan

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Date of birth 16 Mar 1996 | Nationality Pakistani

WORK EXPERIENCE

May 2024– present

Graduate Research Assistant

Department of Electrical and Computer Engineering, College of Engineering, The University of Alabama, Tuscaloosa, AL, United States

Key responsibilities:

- Real-time data collection from the wearables and data pre-processing
- Developing research-based suitable Machine learning algorithms
- Embedding ML models in Hardware

01 Oct 2020– May 2024

Lab Engineer

Department of Electrical Engineering, Faculty of Engineering & Computer Science, National University of Modern Languages, Islamabad (Pakistan)

Key labs that I conduct:

- Artificial Intelligence
- Machine Learning
- Introduction to Embedded Systems

15 Feb 2019–30 Sep 2020

Research Assistant

AI in Healthcare, IIPL, National Center of Artificial Intelligence, University of Engineering & Technology, Peshawar (Pakistan)

Key responsibilities:

- Real-time data collection and data pre-processing
- Developing research-based suitable Machine learning algorithms
- Documenting research articles
- Embedding ML models in Hardware

1 Dec 2018–14 Feb 2019

Research Internee

Khyber Pakhtunkhwa Information & Technology Board (KPITB)

EDUCATION AND TRAINING

2024–present

PhD Electrical Engineering (In Progress)

Department of Electrical and Computer Engineering, College of Engineering, The University of Alabama, Tuscaloosa, AL, United States
CGPA: 4.0/4.0 (In progress)

2022–2024

MS Electrical Engineering

FAST National University of computer and Emerging Sciences, Islamabad (Pakistan)
CGPA: 4.0/4.0

18 Aug 2014–27 Jun 2018

BS Electrical Engineering

FAST National University of computer and Emerging Sciences, Peshawar (Pakistan)
CGPA: 3.75/4.0

ACCOMPLISHMENTS

Publications

- Khan, F. A., Umar, Z., Jolfaei, A., & Tariq, M. (2024). Explainable AI for epileptic seizure detection in Internet of Medical Things. Digital Communications and networks. (IF 7.5)

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- Khan, F. A., Umar, Z., Jolfaei, A., & Tariq, M. (2024). Explainable fuzzy deep learning for prediction of epileptic seizures using EEG. IEEE Transactions on Fuzzy Systems.(IF 10.7)
- Khan, F. A., Jamil, A., Khan, S. A., & Hameed, A. A. (2024). Enhancing robotic manipulator fault detection with advanced machine learning techniques. *Engineering Research Express*. (IF 1.5)
- Khan, M. S., **Khan, F. A.**, Khan, K. N., Rana, S. I., & Al-Hashemi, M. A. A. (2023). Advanced Deep Learning for Heart Sounds Classification. In *Advances in Deep Generative Models for Medical Artificial Intelligence* (pp. 225-248). Cham: Springer Nature Switzerland. **(Book Chapter)**
- B. Ahmad, **F. A. Khan**, K. N. Khan and M. S. Khan, "Automatic Classification of Heart Sounds Using Long Short-Term Memory," 2021 15th International Conference on Open Source Systems and Technologies (ICOSST), 2021, pp. 1-6, doi: 10.1109/ICOSST53930.2021.9683975.
- K. N. Khan, **F. A. Khan**, A. Abid, T. Olmez, Z. Dokur, A. Khandakar, M. E. H. Chowdhury, M. S. Khan. "Deep learning based classification of unsegmented phonocardiogram spectrograms leveraging transfer learning". Physiological Measurement 42, no 9 (September 2021): 095003. https://doi.org/10.1088/1361-6579/ac1d59. (IF 2.3)
- **F. A. Khan**, A. Abid, M. S. Khan. "Automatic heart sound classification from segmented/unsegmented phonocardiogram signals using time and frequency features". Physiological Measurement 41, no 5 (Junie 2020): 055006. https://doi.org/10.1088/1361-6579/ab8770. (IF 2.3)
- J. Dastagir**, F. A. Khan**, M. S. Khan and K. N. Khan, "Computer-aided Phonocardiogram Classification using Multidomain Time and Frequency Features," 2021 International Conference on Artificial Intelligence (ICAI), 2021, pp. 50-55, doi: 10.1109/ICAI52203.2021.9445235.
- **F. A. Khan** and S. Nisar, "Design and analysis of feedback control system," 2018 International Conference on Information and Communications Technology (ICOIACT), 2018, pp. 16-24, doi: 10.1109/ICOIACT.2018.8350714.
- **Khan, Faiq Ahmad**, Akhtar Jamil, Alaa Ali Hameed, and Momina Moetesum. "Clinical Decision Support System for Diabetes Classification with an Optimized CNN using PSO." In 2023 IEEE International Conference on Artificial Intelligence, Blockchain, and Internet of Things (AIBThings), pp. 1-6. IEEE, 2023.
  ResearchGate: https://www.researchgate.net/profile/Faiq_Khan6
  Google Scholar: https://scholar.google.com/citations?user=4KOpcskAAAAJ&hl=en

Projects

Research Projects:

-Developing & Remote monitoring of a robotic manipulator and fault detection via Internet of Things (IoT) & Machine learning.
-AI-assisted medical Diagnosis system
-GPS Logger
-Ai and IoT based health monitoring system
-Computer Vision based activity recognition on construction site
Other Projects: Advanced Scientific Calculator, Four Ways Traffic Light controller, Digital Dictionary, Noise removal from ECG via Independent Component Analysis, PID controller via LabView, Audio Wave manipulation, Filtering over DSP Kit, pattern detector using FPGA Kit

Workshops

I have conducted two training workshops as a trainer.

1. One day hands-on workshop on Internet of Things
2. Two days hands-on workshop on Python and Artificial Intelligence

Honors and awards

- Awarded with five Medals for being a position holder in five semesters during bachelors.
- Inscribed in the Dean's list of Honors for all semesters and awarded with best performance certificates for obtaining above 3.50 GPA in all semesters.
- Awarded with prize and certificate for designing one of the best projects during bachelors.
- Awarded with Prize money of 100 USD, a shield and certificate for being winner of Electrical Engineering Quiz competition in NUTEC'18.
- Awarded with prize in cash and certificate for being runner up at IQ quiz competition at NASCON'17
- Awarded with honors degree of Magna Cum Laude

Online Courses

- AI for Medical Diagnosis (Certified by Coursera)
- Image Classification with Amazon Sagemaker (Certified by Coursera)
- Using Tensorflow with Amazon sagemaker (Certified by Coursera)
- Real-time OCR and Text Detection with Tensorflow OpenCV and Tesseract (Certified by Coursera)
- Using TensorFlow with Amazon Sagemaker (Certified by Coursera)
- Classify Radio Signals from Space using Keras (Certified by Coursera)
- Computer Vision - Image Basics with OpenCV and Python (Certified by Coursera)

- Programming for Everybody (Getting Started with Python) (Certified by Coursera)
- Python Basics (Certified by Coursera)
- Introduction to Deep Neural Networks in Python (Certified by DataCamp)
- Image processing with Keras (Convolutional Neural Networks) (Certified by DataCamp)
- Image processing in Python(Certified by DataCamp)

PERSONAL SKILLS

Languages English, Urdu and Pashto

Communication skills Strong communication and interpersonal skills developed through lab sessions, seminars, and workshops.

Job-related skills - **Decision-Making:** Skilled in strategic decision-making with over 5 years of project and team management experience.
-**Database & Reporting:** Proficient in developing databases and presenting complex data effectively.
-**Team Leadership:** Experienced in leading and motivating diverse teams.

Technical skills Machine learning, deep learning, Computer Vision, Internet of Things (IoT), Biomedical signal and image Processing, Embedded Systems

Software:
MATLAB, Spyder IDE, Anaconda, PyCharm IDE, AutoCAD, Model Sim , Xilinx, ICA lab, LabView, Proteus, Circuit Wizards, KEIL, MPLab, Microsoft office, Latex

Programming languages:
Python, MATLAB, C/C++, Verilog, Assembly language

Hardware tools:
FPGA and DSP kit, RaspberryPi, Arduino, 8051 and PIC18 Micro-controllers, Sensors, Wi-Fi and Bluetooth modules, TM4C123G Tiva C Series Launch Pad

REFERENCES

Dr. Muhammad Salman Khan
Assistant Professor

Department of Electrical Engineering,
College of Engineering, Qatar university,
Doha, Qatar.
Email: salman@qu.edu.qa

Dr. Muhammad Tariq
Professor

Department of Electrical Engineering,
FAST National university of Computer & Emerging Sciences (NUCES),
Islamabad, Pakistan.
Email: tariq.khan@nu.edu.pk