

FURQAN ARSHAD

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EDUCATION

University of California, Davis , MS, Computer Science - GPA: 3.88/4	Sep 2021 – Sep 2023
Relevant Coursework: Machine Learning, Statistical Practice & Data Analysis, Software Engineering, Computer & Info Security	
Lahore University of Management Sciences , MS, Computer Science	Mar 2015 – Jun 2017
University of Management and Technology , BS, Electrical Engineering	Mar 2010 – Dec 2014

EXPERIENCE

Moxon Neurorobotics Lab, UC Davis	California, USA
Research Software Developer Python Azure Machine Learning	Jul 2023 – Present
<ul style="list-style-type: none">Developed scalable neural decoding software by building data pipeline for Neuralink Brain chip data and converting legacy Matlab code to Python, achieving 95% accuracy in predicting pull duration to aid spinal cord injury patients.Designed and developed a circuit board to synchronize control between a robot, sensors, neural stimulation (Intan), and neural recording (Plexon) hardware using Embedded device.Managed and trained a team of 5 graduate students to research ML and AI use cases for neural decoding and develop novel solutionsUtilized Azure tools (Azure ML, Power BI, Azure Data Explorer/KQL, Synapse, Databricks) to build data pipelines and reporting solutions for neuroscience research, enhancing neural data analysis and decision-making.	
University of California, Davis	California, US
Graduate Student Researcher Python C/C++ Signal Processing IOT	Sep 2022 – Jun 2023
<ul style="list-style-type: none">Collaborated on a DARPA project to design and test a implantable blood monitoring sensor for spinal cord injury patients, improving performance by 200% through real-time signal processing and calibration, and achieving 99% benchtop and 80% live subject accuracy.	
Facebook Innovation Lab	Lahore, Pakistan
Research Scientist Python AR/VR Git	Oct 2019 – Aug 2021
<ul style="list-style-type: none">Built an early migraine prediction system using wearable time series sensor data combining patient diary data (Firebase) and weather data, achieving 87% accuracy. Utilized TensorFlow, LSTM, CNN, Azure for deployment.Pioneered end-to-end product life cycle of firefighter training system: developing realistic fire scenarios on Unity3d using C#, managing a cross-functional team of software developers and 2 UX/UI designers.Crafted a cutting-edge VR training module using Unity 3D, C#, and VIVE/Quest for sexual harassment awareness in Pakistan, significantly boosting bystander intervention willingness and understanding, as evidenced by comprehensive A/B testing.	
Nxtbase Technologies	Berlin, Germany
Software Developer Python AR/VR Computer Vision	Jul 2017 – Sep 2019
<ul style="list-style-type: none">Directed the creation of an advanced remote assistance application for hololens using Unity3D, webRTC, and Arcore SDK to reshape remote assistance in technical troubleshooting scenarios, achieving 75% accuracy in pinpointing machine parts.Orchestrated a drone control application for Microsoft HoloLens and ODG R7 using voice commands and hand gestures, reducing control errors by 40%.	

TECHNICAL SKILLS

Programming	Python, C/C++, Embedded C, C#, JavaScript (familiar), R Databases - MySQL, MongoDB, Firebase
Tools/Technologies	Azure (Azure ML, Power BI, Azure Data Explorer/KQL, Synapse, Databricks), Docker, Kubernetes
Libraries/Frameworks	TensorFlow, PyTorch, Keras, Scikit-Learn, NumPy, Pandas, Hugging Face, ggplot2, sklearn, XGBoost
Machine Learning	Classification, Regression, Segmentation, Time-series Analysis, LLM, Dimensionality Reduction, Computer vision
Data Visualization	Matplotlib, Seaborn, ggplot2, MS Excel, RShiny, Plotly Dash, Power BI

PROJECTS

Hashing for Intermittent Computing on ARM STM32

- Spearheaded the creation of a state retention solution using a **C++** and **assembly language** on the STM32 L152RE board, surpassing traditional methods with a 60 percent performance increase in checkpointing efficiency.
- This innovative approach utilized a binary search tree for efficient hash management, showcasing a deep understanding of data structures in optimizing embedded systems.

PUBLICATIONS

- [1] Abdul Ghafoor, Maryam, et al. **LiveDeliver & HepOrganizer: A Digital No to Hepatitis in Pakistan**. *Proceedings of the 2017 ACM CHI Conference Extended Abstracts on Human Factors in Computing Systems*. 2017. Innovated "LiveDeliver" an **Android and iOS app** for hepatitis management and awareness.
- [2] Furqan Arshad, et al. **Fully Implantable, Minimally Invasive Blood Pressure Sensor for Hemodynamic Management**. (In Progress). A closed-loop hemodynamic control system that will enable hemodynamic management for subjects after severe spinal cord injury.