FURQAN ARSHAD

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EDUCATION

University of California, Davis, MS, Computer Science - GPA: 3.91 — Sep 2021 – Jun 2023

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, US**

Software Developer | *Python* | *Neural Decoding Software* | *Docker* | *Git* — Jul 2023 – Present

- Key contributor to the ***Python Offline Behavioural Neural Analysis*** software; led the development of features such as parsing, dimensionality reduction, gameplay timestamp alignment, machine learning classification & receptive field analysis.
- This automation achieved a **300% time reduction** in processing multiple recording sessions, showcasing expertise in algorithm implementation.
- Pioneered advanced Machine Learning techniques (Peristimulus time histogram (PSTH) and Artificial Neural Network) for neural decoding in **BMI** experiments (joystick, center-out), achieving a 30% enhancement in joystick pull prediction accuracy for Monkeys.

University of California, Davis — **California, US**

Graduate Student Researcher | *Python* | *Signal Processing* | *Machine Learning* | *Medical Sensor* — Dec 2022 – Jun 2023

- Orchestrated an end-to-end **data analysis** approach for an implantable sensor, achieving 99% benchtop and 80% live subject accuracy, markedly advancing **spinal cord injury** treatment reliability.

Teaching Assistant (Software Engineering) — Sep 2022 – Dec 2022

- Efficiently managed student records, graded assignments, and addressed inquiries, fostering a supportive learning environment.

Facebook Innovation Lab — **Lahore, Pakistan**

Software Developer | *Python* | *C#* | *Unity3D* — Oct 2019 – Aug 2021

- Engineered the end-to-end product lifecycle of VR firefighter training: user research, visiting realistic fire-damaged sites, and developing them on **Unity3d** for **Quest** and **VIVE**, 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.**
- Pioneered early migraine prediction using wearable time series **sensor** data, combining patient diary data (Firebase) and weather data (API) using LSTM. Accomplished a 70% early prediction accuracy (Python, **TensorFlow**, LSTM, CNN).

Nxtbase Technologies — **Berlin, Germany**

Software Engineer | *Unity3d* | *C#* | *Python* — Jul 2018 – Sep 2019

- Directed the creation of an advanced augmented reality project integrating Unity3D, webRTC, and **Arcore** technologies to reshape remote assistance in technical troubleshooting scenarios, achieving 60% accuracy in pinpointing machine parts.
- Developed the integration of a drone control application for Microsoft **HoloLens** and **ODG R7** utilizing voice commands and hand gestures, resulting in a reduction of 40% control error rates while optimizing operational precision and efficiency.

TECHNICAL SKILLS

Programming	Python, Java, C#, JavaScript, C/C++, R, Embedded C, React | **Databases** - MySQL, MongoDB, Postgres, Firebase
Tools/Technologies	Flask, ReactJS, Node.js, Docker, Kubernetes, Git, Agile, Linux, CI/CD, DevOps, Jenkins, Azure
AR/VR	Unity3D, Unreal Engine, UI/UX, ARKit, ARCore, Mobile Development, 3D Modeling, Hololens, Quest, HTC Vive

PROJECTS

HouseWork: AR Furniture Application

- Implemented an augmented reality mobile app for furniture visualization on Android and iOS platforms using Unity 3D, leveraging ARCore and ARKit for precise measurements via smartphone cameras.

Hashing for Intermittent Computing on ARM STM32

- Spearheaded the creation of a state retention solution using a hashing-based approach on the STM32 L152RE board, surpassing traditional methods with a 60 percent performance increase in check pointing 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.* **LiveDliver & HepOrganizer: A Digital No to Hepatitis in Pakistan.** *Proceedings of the 2017* ***ACM CHI*** *Conference. 2017.* Innovated "LiveDliver" an **Android and iOS app** for hepatitis management and awareness.