Taliqa Muhib

Coventry, United Kingdom
Postgraduate Researcher – Computational Neuroscience & Data Science
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Professional Summary

Computational Researcher with 4+ years of Data Analysis and Machine Learning experience across Healthcare, Entrepreneurship, and Biosignal Processing. Specialized in transforming complex EEG and clinical data into actionable insights using advanced Signal Processing and Machine Learning algorithms. Proven ability to build end-to-end Machine Learning pipelines from data preprocessing to model deployment. British Council Women in STEM Scholar with a strong track record in research and applied Data Science.

Professional Experience

Postgraduate Researcher *Jan 2025 – Present* Coventry University, UK
- Designed and implemented graph-based algorithms for analysing brain connectivity networks from EEG data.
- Developed efficient graph filtering algorithms using spectral graph theory and Laplacian eigendecomposition.
- Applied combinatorial optimisation techniques to feature selection and graph construction problems.

Junior Consultant Data Analyst *Dec 2023 – Aug 2024*
ConsumerCentriX (CCX), Geneva, Switzerland
- Analysed entrepreneurship data across 50+ countries using Python and statistical methods to identify gender gaps and policy opportunities, delivering actionable insights to international stakeholders through Power BI dashboards.
- Built an automated data pipeline in Python to process and visualise GEM datasets, reducing analysis time by 60
- Created 15+ interactive Power BI dashboards tracking gender gaps in entrepreneurship across regions and industries..

Consultant *Jun 2024 – Jul 2024, Aug 2023 – Oct 2023*
Rupani Foundation, Kabul, Afghanistan
- Supported the UN-WFT project by training Afghan women trainers in technical skills for community implementation.
- Facilitated program roll-out by providing digital tools and a strategy for grassroots technical education.

Education

MRes in Computational Science and AI *2025 – Present*
Coventry University, UK
Thesis: *Graph Signal Processing on EEG Data for the Detection of Neurodegenerative Diseases*

BSc in Computer Science *2018 – 2022*
Fatima Jinnah Women's University, Pakistan

Technical Skills

Signal Processing: Graph Fourier Transform (GFT), Spectral Energy Mapping, Graph Filtering, Denoising
AI/ML: Python, PyTorch, TensorFlow, Scikit-learn, CNNs, Transformers
Visualisation : Power BI, Matplotlib, Seaborn, EEG Topomaps
Complexity, Graph Theory, Formal Languages, Automata Theory, Advanced Algorithms
Cloud/ETL: Azure Data Factory, AWS, GCP, SQL
Tools: Jupyter, Git, MNE-Python, MySQL, PostgreSQL

Projects

EEG Alzheimer's Detection with GSP
Coventry University (2025–Present)
- Built a full signal processing pipeline: preprocessing, connectivity graph construction, GFT analysis, ML classification. Achieved high accuracy in AD/Control classification.

Water Body Segmentation with Deep Learning
Kaggle (2024)
- Designed and trained U-Net segmentation model using PyTorch on masked satellite images. Evaluated performance using IoU and F1 scores.

Renal Stone Detection Using Vision Transformers
Fatima Jinnah Women University (2022)
- Built a CT-scan image classifier using ViT models for renal stone detection. Employed transfer learning, yielding improved generalisation and classification precision.

Posters & Presentations

GSP-Based Spectral Biomarkers for Alzheimer's Detection
Coventry CSMM Conference (2025) – Poster Presentation

Awards

British Council Women in STEM Scholarship *2024–25*
AKES Undergraduate Scholarship *2018–22*

References

Dr. Fei He
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