Usman Nawaz

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Summary

AI researcher with a master's degree in artificial intelligence and a peer-reviewed publication in digital mental health. Research experience spans natural language processing, speech-based language understanding, and machine learning for behavioral and clinical data. Interested in human-centered NLP, low-resource language processing, and trustworthy AI for mental health applications. Seeking research training and mentorship through the MBZUAI Aspire PhD Fellowship to prepare for doctoral studies.

Research Interests

- Natural Language Processing (NLP) for Mental Health
- Low-Resource Language Processing (Urdu)
- Machine Learning for Clinical & Behavioral Data
- Human-Centered and Ethical AI
- Multimodal Learning for Health Applications

Education

M.Sc. in Artificial Intelligence Sept 2021 – Oct 2024
Pak Austria Fachhochschule Institute of Applied Sciences and Technology, Haripur, Pakistan

- **Master's Thesis:** Urdu Language Command Recognizer and Translator using MFCC and CNN
- Designed an end-to-end NLP + speech pipeline for Urdu commands
- Implemented CNN-based models with MFCC features
- Evaluated system performance using accuracy and confusion matrices
- Strong foundation in machine learning, deep learning, statistical analysis, probability, and statistics

B.Sc. in Computer Software Sept 2017 – Oct 2021
University of Engineering and Technology, Peshawar, Pakistan

- Strong foundation in algorithms, data structures, linear algebra, software development

Publications

Nawaz, U., et al. August 2022
A Machine Learning Approach for Continuous Mining of Non-Identifiable Smartphone Data to Create a Novel Digital Biomarker Detecting Generalized Anxiety Disorder
Journal of Medical Internet Research (JMIR)
DOI: 10.2196/38943

- Developed ML models for detecting anxiety disorders using smartphone-based behavioral signals
- Conducted statistical analysis on PHQ-9 and GAD-7 clinical scores
- Contributed to feature engineering, model evaluation, and result interpretation

Research and Professional Experience

Business Data / Systems Analyst (Research-Focused Role) May 2022 – Jan 2024
Behavidence — New York, USA (Remote)

- Conducted applied machine learning research on behavioral and clinical datasets for mental health assessment
- Designed and maintained ML-driven data pipelines for large-scale longitudinal health data
- Performed statistical analysis on clinical mental health instruments (GAD-7, PHQ-9)
- Collaborated with interdisciplinary teams including clinicians and researchers

- Co-authored peer-reviewed research publication in digital mental health

Software Engineer July 2021 – April 2022
Behavidence — New York, USA (Remote)

- Developed data collection pipelines for mobile-based health applications
- Ensured data integrity and quality for downstream machine learning models

Technical Skills

Programming: Python, SQL, C++
ML / NLP: scikit-learn, PyTorch, TensorFlow, CNNs, Feature Engineering
Data Analysis: Pandas, Numpy, Statistical Analysis
ML Frameworks: scikit-learn, PyTorch, TensorFlow, Pandas, NumPy
Speech & Language: MFCC, NLP pipelines, Statistical Testing
Cloud & Tools: AWS, Docker, Git