Sheza Munir

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Education

Masters in Health Informatics - Data Science Track Aug. 2023 – May 2025
University of Michigan | **GPA: 4.0** Ann Arbor, MI

- Graduate Student Instructor - SI 504: Git, Shell, and Servers
- Relevant courses: Data Manipulation and Analysis, Statistics and Data Analysis, Data Visualization

Bachelor of Science in Computer Science Aug. 2019 – May 2023
Lahore University of Management Sciences (LUMS) Lahore, Pakistan
GPA: 3.97 - Dean's Honor List - Rank 2/242 | 100% merit scholarship awardee

- Relevant courses: Data Structures and Algorithms , Machine Learning, Advanced Programming

Experience

Research Assistant | LAnguage Understanding and generatioN researCH (LAUNCH) Lab Jun. 2024 – Present
University of Michigan Ann Arbor, MI

- Developed VERIFY, a pipeline for evaluating language models' (LLMs) factuality, improving correlation with human evaluations and identifying key hallucination prompts to enhance model accuracy.
- Created FACTBENCH, a dataset of 985 prompts, benchmarking popular LMs and revealing insights on the factual performance of proprietary models and handling of undecidable content.
- Conducted comprehensive evaluations, demonstrating that VERIFY outperforms existing evaluation methods.
- Advisor: Dr. Lu Wang. Paper is currently under review at a leading conference.

Graduate Student Instructor Aug. 2023 – Present
SI 504-Git, Shell and Servers UMSI Ann Arbor, MI

- Managed course content, mentored 200+ students in version control and shell scripting.
- Facilitated a positive learning environment, resulting in high student success rates.

OneTIS Intern May. 2024 – Nov. 2024
Trinity Health Ann Arbor, MI

- Developed the TIS Training Intake app using PowerApps and Power Automate, streamlining employee registration and approval processes, which increased efficiency.
- Maintained and updated SharePoint sites to support data storage and management for various projects, ensuring seamless data integration and accessibility.

AI Research Assistant - Lab Head Aug. 2021 – May 2023
Center for Speech and Learning Technologies-CSALT LUMS Lahore

- Pioneered a Urdu speech training dataset for DeepFake detection with 35,000 audios, using deep learning with advanced end-to-end Text-to-Speech models (the conditional variational autoencoder VITS TTS and Tacotron).
- Recruited and managed student employees, including 33 research students and 40+ interns for 7 unique projects.
- Paper accepted at the **Association for Computational Linguistics (ACL) Findings 2024.**

Data Analysis and Development Intern Jan. 2022 – Jul. 2023
AI in Healthcare Group-LUMS Lahore

- Won Student as Co-Researcher grant (ScR Grant 2022) for the Migraines Prediction Project
- Analyzed a complex dataset of 15 features including longitudinal heart rate, EDA, stress, and environmental factors for 5 patients using wearables and digital diaries over the course of a year to identify recurring patterns
- Designed LSTM models on time-series data using machine learning (ML) and statistical methods in Python to predict migraines one day in advance with 88% accuracy.

Open Source Fellow - SWE Internship May. 2022 - Aug. 2022
MLH Fellowship-Major League Hacking Remote (US based company)

- Contributed to a CLI-based coding tool, enhancing data processing and automation workflows using Python.
- Implemented unit testing and failure management processes, improving reliability of the tool for large user bases.

Qualitative Data Intern Aug. 2021 – Dec. 2021
Pakistan Society for Rehabilitation of the Disabled Lahore, Pakistan

- Conducted user research, interviews, and contextual inquiries, analyzing findings to identify key pain points in physiotherapy processes at Pakistan Society for Rehabilitation of the Disabled hospital.
- Designed and implemented an application tailored for low-income, low-literate end users, achieving a high task-completion rate (100% with doctors, 84.4% with patients) and addressing identified pain points.
- Utilized Figma, Photoshop, React, and Node.js to create a high-fidelity prototype, presenting the project, which earned recognition as the Best Project in Fall 2021 and was featured in the LLI Collaboration Showcase 2022.

Google Developer Student Club Lead Aug. 2021 – Jun. 2022
GDSC LUMS Lahore

- Organized tech talks, camps, projects, teaching workshops, and collaborated with DSCs, fostering a vibrant tech community and boosting student engagement in various educational activities.

Vice President - Innovation and Design Society at LUMS Aug. 2021 – Jun. 2022

- Initiated design sittings, talks, workshops, and competitions focused on UI/UX, accessible tech, and visual design, fostering a creative environment that encouraged skill development and collaboration within the design community.

Technical Skills

Languages: Python (Pandas,, Scikit-Learn, Keras, PyTorch, TensorFlow), SQL, JavaScript, Shell Scripting, R, C++

Tools: Jupyter Notebook, PyCharm, VS Code, AWS, Google Colab, Git, Tableau

Frameworks: TensorFlow, PyTorch, Hugging Face, Scikit-Learn, Flask, Django, React, Langchain, SQLAlchemy

Projects

Deepfake Detection | *Machine Learning, Speech Processing* Jan. 2022 – Jun. 2023

- Led the creation of an Urdu speech dataset for deepfake detection, developing machine learning models with Python.
- Performed data transformation tasks using advanced SQL queries and tuned performance for optimal processing.

Migraine Prediction System | *Machine Learning, Health* Jan. 2022 – Jul. 2023

- Analyzed a complex dataset of 15 features including longitudinal heart rate, EDA, stress, and environmental factors for 5 patients using wearables and digital diaries over the course of a year to identify recurring patterns
- Designed LSTM models on time-series data using machine learning (ML) and statistical methods in Python to predict migraines one day in advance with 88% accuracy.
- Managed data pipelines, orchestrating data transformations and validation processes across platforms.

Consumer Behavior - Market Analysis Sep. 2023 - Dec. 2023
U of M School of Information Ann Arbor, MI, USA

- Analyzed daily commodities data using Python to identify correlations among economic indicators for forecasting insights.
- Applied NLP and regression analysis on news articles to explore connections between events and global economic trends.

Aarzu: Physical Therapy Application for Patients with Disabilities | *mHealth* Aug. 2021 – Dec. 2021

- Conducted user research and identified pain points in physiotherapy processes at PSRD hospital.
- Designed a user-friendly app for low-income, low-literate users, achieving 100% task completion with doctors and 84.4% with patients.
- Used Figma, Photoshop, React, and Node.js to create a high-fidelity prototype, awarded Best Project Fall 2021 and featured in LLI Collaboration Showcase 2022.

Portable Accessibility Ramp for Public Transport | *HCI, Accessibility* Dec. 2019 – Mar. 2020

- Conducted user research with disabled students, and admin at PSRD school (n=10) to find pain points.
- Designed 3D prototype of a low cost, portable accessibility ramp for public transport

AI in Primary Healthcare | *ML, Healthcare* Jun. 2022 – Aug. 2022

- Lead the founding team for the research group
- Interviewed doctors and staff at polyclinics, primary healthcare centers to find reasons for technological gaps.
- Designed EMRs for Pakistani hospitals, conducted research on efficacy of EMRs in a local context

Programming Projects

Text Sentiment Analyzer

Coded from scratch a sentiment analyzer that uses logistic regression to predict emotions of a piece of text
Stack: Python, Scikit Learn

Ghambeel: Time Management Application

Designed and implemented a time management app for LUMS students. To-Do list with reminders, pomodoro timer, deadlines calendar, statistics.
Stack: Flutter, MySQL, Figma

Automatic Lane Switching - Computer Vision | Deep Learning

Employed YOLOv5 prediction model to identify objects on the road and designed lane switching algorithms
Stack: Python, Keras, Pytorch

HowDoI: Open Sourced Project | MLH Fellowship

CLI application for coding answers. Set up fall backs for search engine failures, checked using unit-testing
Stack: Python, Flask, JavaScript

Orphanage Management System

Use Cases: adoption application, certificate generation and funds management, DB size: 10000 entries
Stack: Django (Python), JavaScript and MySQL

Awards and Honors

100% Merit Scholarship University of Michigan
Merit Scholarship Award - 100% tuition for 4 semesters of Masters

Winner - Health Tech Pitch Competition Aga Khan University
Conference: Health Data for Pakistan, for the Migraines Prediction Project - 2023 AKU

100% Merit Scholarship LUMS
Annual Award - Topped the Dean's Honor List - 2019, 2020, 2021, 2022

Student as Co-Researcher (ScR) - Grant LUMS
Won grant for the Migraines Prediction project - Summer 2022

Leadership, Societies and Extracurricular

Google Developer Student Club Lead Aug. 2021 – Jun. 2022
GDSC LUMS Lahore

- Organized tech talks, camps, projects, teaching workshops, and collaborated with DSCs, fostering a vibrant tech community and boosting student engagement in various educational activities.

Vice President - Innovation and Design Society at LUMS Aug. 2021 – Jun. 2022

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