Sheza Munir

Portfolio: shezamunir.github.io/Portfolio/ Email : shezamnr@umich.edu
LinkedIn: linkedin.com/in/shezamunir/ Mobile : +1-734-837-1252

Education

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

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

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

- Relevant courses: Data Structures and Algorithms , Machine Learning, Advanced Programming, Internet of Things, Software Engineering, Human Computer Interaction, Computer Vision

Experience

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

- Mentored 100+ students through their first version control system and shell course.
- Managed course content, developed and administered exams, conducted review sessions, and held weekly office hours, ensuring the successful delivery of the course. The proactive mentoring approach contributed to a positive learning environment, resulting in the overall success of the students and the course.

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

- Spearheaded the creation of an Urdu speech training dataset for deepfake detection, comprising 60,650 audios, to address the threat of misinformation through audio deepfakes on social media platforms, utilizing Python, deep learning and advanced Text-to-Speech models (Vits TTS and Tacatron).
- Employed statistical methods to create a phonetically rich text corpus, culminating in a dataset that demonstrated a remarkable 1 in 3 audios being indistinguishable from authentic speech, highlighting the pivotal role of such datasets
- Culminated in a paper submission to the Association for Computational Linguistics (ACL) Rolling Review
- Recruited and managed 33 research students - 7 projects - 40+ interns
- Coded the lab website, organized talks and streamlined communication with 180+ students

Machine Learning 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.

Flutter Engineer Apr. 2023 - Aug. 2023
WeOverI Lahore

- Developed a crochet-specific marketplace app using Flutter, addressing the absence of dedicated platforms. Implemented specialized features like yarn and hook size, providing a tailored solution for crochet enthusiasts.

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

- Collaborated with 15 international interns, channeling efforts into hackathon projects with diverse tech stacks. This leadership played a pivotal role in fostering an environment conducive to learning and innovation.

- Contributed significantly to the open-source project 'HowDoI', specializing in CLI-based coding queries. Implemented crucial technical enhancements, setting up unit testing and search engine failure backup mechanisms in Python, resulting in the project becoming a widely utilized resource.

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 (Scikit Learn, Keras, Pandas, NumPy, Matplotlib, Pytorch), C++, SQL, JavaScript, HTML/CSS
Frameworks: MATLAB, React, Node.js, Django, Flask, Material-UI, Flutter, Electronic Medical Records (EMR)
Developer Tools: Git, AWS, VS Code, Visual Studio, PyCharm, Google Colab

Research Project Experience

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

- Spearheaded the creation of an Urdu speech training dataset for deepfake detection, comprising 60,650 audios, to address the rising threat of misinformation through audio deepfakes on social media platforms, utilizing Python, deep learning and advanced Text-to-Speech models (Vits TTS and Tacatron).
- Led a team of 40+ students, strategically employing statistical methods and a phonetically rich corpus, culminating in a dataset that demonstrated a remarkable 1 in 3 audios being indistinguishable from authentic speech, highlighting the pivotal role of such datasets in advancing deepfake detection algorithms.

Market Analysis - Effect of Current Events on Economy Sep. 2023 - Dec. 2023
U of M School of Information - Course Project SI 618 Ann Arbor, MI, USA

- Conducted data analysis on daily commodities datasets using Python (pandas, numpy, matplotlib) to uncover strong correlations among economic indicators providing insights for decision-making in economic forecasting.
- Implemented Natural Language Processing (NLP) on news articles dataset, incorporating Spearman rank order correlations and regression analysis to grasp connections between real-world events and their influence on the global economic landscape for a comprehensive understanding of market trends.

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.

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

- 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.

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

Project Showcase LUMS
Project-Aarzu got featured in LUMS Collaborative Project Showcase '23 - Best Project Fall '22

International Chemistry Olympiad: 51st IChO IChO
National Contest Winner - Represented Pakistan - Honorable mention out of 80 countries -2019 IChO

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

- 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.

Basketball - Team Captain Aug. 2017 – May. 2019

- Led the high school basketball team in regional competitions and organized daily practices