# Sheza Munir

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## EDUCATION

**Lahore University of Management Sciences (LUMS)**  — Lahore, Pakistan

*Bachelor of Science in Computer Science, Minor in Psychology*  — Aug. 2019 – May 2023

- **CGPA: 3.97** - Dean's Honor List - Rank 2/242

## RESEARCH PROJECTS

**Aarzu: Physical Therapy Application for disabled patients** | *HCI, Telehealth*  — Aug 2021 – Dec 2021
Supervisor: Dr. Suleman Shahid (Ph.D. University of Tilberg)

- Collaboration: Pakistan Society for Rehabilitation of the Disabled (PSRD)
- User Research: Interviews (n=20) and contextual inquiry at the hospital
- Designed and implemented an application for physiotherapy in the context of low-income, low-literate end users

**Action items**: Report, High-fidelity Prototype, Presentation
**Tools**: Figma, Photoshop, React, Node.js
**Best Project Fall 2021, Featured in LLI Collaboration Showcase 2022**

**Migraine Prediction System** | *Machine Learning, HCI, Health*  — Jan 2022 – Present
**Supervisor**: Dr Basma Ali (MIT), Dr. Agha Ali Raza (Ph.D. CMU)

- Conducted user research with migraine patients and neurologists (n=15)
- Using longitudinal data of heart rate, EDA, stress, from wearables and digital diaries to find a prediction model
- Applying a random forest model to find relevant features

**Action items**: Report - ongoing project
**Tools**: Python, Scikit Learn

**Deepfake Detection** | *Machine Learning, Speech Processing*  — Jan 2022 – Present
**Supervisor**: Dr. Agha Ali Raza (Ph.D. CMU)

- Created the Urdu speech dataset for deepfake detection - 60,650 audios
- Generated deepfake audios using Text-to-Speech models
- Led a team of **40+** students working on the project

**Tools**: Python, TTS models: **Vits TTS and Tacatron**

**Portable Accessibility Ramp for Public Transport** | *HCI, Accessibility*  — Dec 2019 – March 2020
**Supervisor**: Dr Suleman Shahid (Ph.D. University of Tilberg)

- Conducted user research with disabled students, and admin at PSRD school (n=10)
- Designed a low cost, portable accessibility ramp for public transport

**Tools**: Unity, Solidworks
**Action items**: Report, Solidworks design

**BAANG: Social Media for the Visually Impaired**  — Aug. 2021 – Dec. 2021
**Supervisor**: Dr. Agha Ali Raza (Ph.D. CMU)

- Performed sentiment analysis and emotional tagging of the content shared by the users
- Researched the need and implementation of a female safe space on the platform.

## TECHNICAL SKILLS

**Languages**: Python, C/C++, SQL, JavaScript, HTML/CSS, MATLAB
**Frameworks**: React, Node.js, Django, Flask, Material-UI, Flutter
**Developer Tools**: Git, AWS, VS Code, Visual Studio, PyCharm, Google Colab
**Libraries**: Scikit Learn, Keras, Pandas, NumPy, Matplotlib, Pytorch

## EXPERIENCE

### ML Undergraduate Research Assistant - Lab Head                    Aug. 2021 – Present
*Centre for Speech and Learning Technologies-CSALT*                    *LUMS*
- Using text-to-speech models to create novel dataset for deepfake audio detection in Urdu, a low-resource language
- Manage the lab resources, recruited and manage **33 research students - 7 projects - 40+ interns**

### Student as Co-Researcher (ScR Grant 2022)                    Jan. 2022 – Sep. 2022
*Computer-Human Interaction Lab - CHISEL*                    *LUMS*
- User research for a wearable-based migraine management system for Pakistani patients
- Designing a prediction model that uses EDA, Heart Rate and stress patterns of patients to predict migraines

### HCI Research Intern                    Aug 2020 – Aug. 2022
*Computer-Human Interaction Lab - CHISEL*                    *LUMS*
- Project lead for assistive tech 3 projects
- Mentoring 15 students on health-tech projects

### Teaching Assistant - Human Computer Interaction                    Aug. 2022 – Dec. 2022
*CS-466*                    *LUMS*
- Structured the course and reviewed graded components such as quizzes and class activities of 100+ students

### Google Developer Student Club Lead                    Aug. 2021 – Jun. 2022
*GDSC*                    *LUMS*
- Held tech talks, tech camps, data science projects, teach workshops for the students, collaborate with other DSCs.

### Vice President - Innovation and Design Society at LUMS                    Aug. 2021 – Jun. 2022
- Held Design Sittings, talks, workshops and competitions centred around UI/UX, accessible tech and visual design

## 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 Mangement 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

### Neural Network for Image Classification | *Deep Learning*
CNN that classifies images in animals dataset
**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
Annual Award - Topped the Dean's Honor List - 2019, 2020, 2021                    LUMS

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

### Project Showcase
HCI Project-Aarzu got featured in LUMS Inaugral Collaborative Project Showcase - 2022                    LUMS

### Best Presentation Award
Awarded out of 100 participants - Experimental Physics Lab-2019                    LUMS

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