

EDUCATION

Lahore University of Management Sciences (LUMS)

BSc in Computer Science

Second Semester Dean's Honor List

Study Abroad: Gwangju Institute of Science and Technology (GIST)

Lahore, Pakistan

Aug 2022 - Jun 2026

Gwangju, South Korea
February 2025 – June 2025

PROJECTS

GenAI Blockchain Project : AI Wellness Assistant | GIST

- Multi-Agent System built using Google's A2A protocol using JSON-RPC.
- Aimed to help users better understand their basic symptoms and improve daily lifestyle, all through decentralized AI communication
- User submits input through a web CLI interface. Main components include a Coordinator Agent, Symptom Checker agent and a Lifestyle Recommender Agent.

Reinforcement Learning Project : Benchmarking RL for Continuous Control | GIST

- Implemented and benchmarked Reinforcement Learning (A2C, SAC) and Imitation Learning algorithms in MuJoCo, demonstrating the superior sample efficiency of the off-policy SAC method over on-policy and imitation-based approaches for complex continuous control tasks.
- [Benchmarking Reinforcement Learning Algorithms for Continuous Control](#)

Computer Vision Course Projects : 3D Scene Reconstruction | GIST

- Developed computer vision pipelines to reconstruct 3D geometry from 2D images.
- Built a Structure from Motion system using SIFT and a RANSAC 5-point algorithm, and a Robust Photometric Stereo model using RPCA and ALM to recover sparse point clouds and dense surface normals.
- Designed and optimized a U-Net for dense depth prediction, creating a custom differentiable depth-to-normal module to enable end-to-end training with a geometric consistency loss.

Data Science Course Project : GPA Prediction using Mental Health/Lifestyle Factors

- Developed a machine learning model to predict student academic success based on mental health and lifestyle factors, achieving 87% accuracy.
- Identified key performance predictors by applying feature selection techniques (ANOVA, correlation analysis) and benchmarking multiple classifiers, including Random Forest and SVM.
- [The Stress Equation: How Mental Health Shapes Academic Success](#)

Machine Learning Course Project : Urdu Text Categorization using ML Models

- Developed and compared Naive Bayes, Logistic Regression, and Neural Network models for multi-class categorization of Urdu news articles.
- Engineered a full data pipeline including web scraping, custom preprocessing for a low-resource language, and TF-IDF for feature extraction.
- Implemented a three-layer Neural Network in PyTorch, leveraging Adam optimizer and hyperparameter tuning to enhance performance.
- [Optimizing Urdu Text Categorization: A Model Evaluation](#)

NetCen Course Projects : Networking and Distributed Systems

- Programmed various networking applications in Python, including a multi-threaded chat server with real-time messaging and file transfer, a reliable UDP transport protocol with sliding window, routing protocol simulations (Link-State and Distance-Vector), and a Distributed Hash Table for fault-tolerant file sharing.

EXPERIENCE

Senior Year Project – Culturally Adapted ADHD Screening Tool

June 2025 - Present

- Project started with a literature review on global screening methods and interventions for ADHD.
- Currently conducting primary research on the diagnosis methods of ADHD in children in Pakistan by interviewing clinical psychologists, psychiatrists, parents and children with ADHD.
- Aiming to develop a cost-effective, school-based, easily accessible screening tool to help flag students at risk of ADHD.

Research Intern | Machine Learning and Computer Vision Lab | GIST

February 2025 – June 2025

- Refined and validated a large-scale, multi-camera dataset (~8,000 images) by correcting auto-generated bounding boxes and person IDs for over 88,000 object instances using CVAT.
- Performed quality control to ensure high-precision annotations and data integrity, significantly improving ground-truth data quality for training person tracking and re-identification models.
- Generated novel ground-truth annotations for over 100 images for a proprietary computer vision research project.

AI Intern | Masterworks | Riyadh, Saudi Arabia

July 2024 – August 2024

- Explored modern neural network architectures like YOLOv for object detection and standard models for image classification and segmentation using PyTorch.
- Developed an understanding of computer vision techniques including OpenCV, including pre-processing (resizing, thresholding), feature extraction (face detection), and image manipulation (masking, transformations).

Teaching Assistant | LUMS

- Introduction to Programming: Designed and graded programming labs and quizzes and led tutorial and office hour sessions providing debugging support.
- Discrete Mathematics: Evaluated student assignments and formal proofs on topics including logic, graph theory, and combinatorics; provided targeted academic support by leading office hours and tutorials.

CO-CURRICULARS

Orientation & Logistics Coordinator | LUMS Orientation Week

August 2023

- Coordinated event logistics, managing operational tasks including resource distribution and activity setup to ensure a seamless onboarding experience. Recognized with the 'Best Deputy' award for outstanding performance and proactive engagement.

Curriculum and Digital Media Team | Children of Islam, Kuwait

2020-2023

- Managed the development of educational content, including designing animated presentations and creating interactive learning modules. Produced digital media by writing scripts and recording voiceovers for educational video content.