

# Shaheer Ahmad

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## EDUCATION

**Lahore University of Management Sciences**

BS. Computer Science, *placed on Deans Honor List*

*Aug 2021— Jun 2025*

## WORK EXPERIENCE

**Foundational Engineer – Uplift AI (YC S25)**

*June 2025 — Present*

*Leading voice AI innovation for financial inclusion and agricultural accessibility across Pakistan in regional languages*

- **Architected Orator Voice AI suite (Urdu, Balochi, Sindhi)** supporting **50,000+ daily** users across Pakistan, delivering **60% higher** user preference vs. OpenAI/Microsoft at **1/60th the cost**; enabled Khan Academy to produce **500 educational videos in 1 week** (vs. 1-year traditional timeline), directly impacting literacy access for **142M+** low-literacy adults. Click [here](#) for Demo.
- **Led cross-functional team of 5 interns** to curate **400+** hours of multi-dialect audio datasets, designed end-to-end ML pipeline (data preprocessing, model training, API deployment, studio interface), and deployed production-grade TTS system serving Pakistan's top 3 languages with human-like emotional expression.
- **Built AI-powered WhatsApp assistant for Syngenta** serving **10,000+** Punjabi farmers with zero literacy requirements; implemented multimodal pipeline (voice note + image processing) achieving **97%** accuracy in crop disease detection (leaf folder, sheath blight), reducing field diagnosis time by **50%**.
- **Engineered custom Phoneme Generator** enabling dynamic vocabulary expansion; personally created **1,000+ phonemes** for commercial/chemical terms, improving Orator Urdu user rating from **3.0→4.3/5** and eliminating pronunciation gaps in agricultural/medical domains.
- **Engineered privacy-preserving "Sell Your Voice" pipeline** on AWS, enabling speaker identification without accessing message metadata, allowing users selective voice note monetization while maintaining end-to-end privacy guarantees.
- **Collaborated with Aga Khan University to develop Live Orator**, a real-time regional language **conversational bot for patient intake**, deployed across multiple healthcare facilities to serve low-literacy populations.

**Research Assistant – Center for Urban Informatics, Technology, and Policy (CITY), LUMS** *July 2022 — June 2025*

- **Developed and launched** a scalable spatio-temporal traffic prediction system (**Hyb-STEX**), boosting forecast accuracy by **15%**, directly enabling optimized traffic management and reduced operational costs
- **Applied** self-supervised and federated learning techniques on large-scale **CAREEM** datasets to boost cross-domain generalization and ensure robust performance in low-label, distributed environments.

**Research Assistant – Computer Vision and Graphics Lab (CVGL), LUMS**

*July 2024 — April 2025*

- **Curated** a specialized satellite imagery dataset for urban road extraction, enabling precise infrastructural mapping and automated analytics with **7%** improvement in precision
- **Built and fine-tuned** a Swin Transformer + XGCN pipeline, tailored for high-accuracy road extraction in dense urban environments while reducing inference time by **35%**.

**Teaching Assistant – Deep Learning (CS 437/EE 414)**

*January 2025 — May 2025*

- **Led instructional support** for a **200+** student course, overseeing assignments, exams, and technical content delivery for advanced deep learning topics
- Conducted **5+ technical workshops** on **generative models, LLMs, and sequence modeling**, with a cumulative attendance of **300+ students**, covering real-world applications like predictive text systems.
- **Mentored and managed 10+** student capstone projects to successful completion, including applied ML projects in **biomedical imaging, forest fire detection, and shopping recommendation systems**

## PUBLICATIONS

- Omer Abdul Jalil, **Shaheer Ahmad**, Muhammad Tahir, Zubair Khalid, Momin Uppal “A Hybrid Model for Spatio-Temporal Traffic Forecasting with Extreme Value Prediction”. Submitted to ACM TKDD.

## PROJECTS

### Distributed Retrieval-Augmented Generation (DRAG)

- **Designed and deployed** a production-grade, distributed RAG system on **AWS** using **SageMaker**, **Bedrock**, **Lambda**, and **API Gateway**, enabling scalable, real-time document retrieval and generation
- **Optimized for high throughput**, supporting **1M+ documents** and processing **120,000+ tokens per minute** with fault-tolerant, autoscaling infrastructure
- Tech stack: AWS (SageMaker, Bedrock, Lambda, API Gateway, S3), LangChain, Pinecone, Sentence-Transformers, CloudFormation, Redis.

### SADA-Say Less, Sparse Auto-encoder for Transformer Based Unsupervised Domain Adaptation

- Built a novel lightweight SAE + ViT + Reconstruction framework with IRM, boosting domain adaptation accuracy by 17%.
- Tech Stack: PyTorch, Vision Transformer (ViT), custom Sparse Autoencoder, Invariant Risk Minimization (IRM), Weights & Biases, Office-Home/VisDA datasets

### CYGNI-AI-Powered Academic Paper Simplifier

- Implemented “Explain Like I’m 15” depth control and auto-generated paper maps to reduce cognitive load—validated by 50+ beta users who reported 2.3× faster comprehension.
- Tech stack: Python, LangChain, LlamaIndex, FastAPI, React, Mathpix API, vector DB (e.g., Pinecone/Chroma).

## AWARDS & HONORS

- NASA AMES (NSS AMES) **Literary Merit First Prize** from 2000+ entries from 22 countries. Can be accessed at: [NSS Space Settlement Design Contest 2020 Results](#).
- **Pakistan Physics Team 2020** at International Youth Physics Talent Contest (IYPT).

## LEADERSHIP & EXTRACURRICULARS

**Director: Director, Assistant Director, Member**— *LUMS Media Arts Society (LMA)*      *July 2021 — June 2023*

- **Led the Events and Operations units**, managing end-to-end logistics for major initiatives including **FILUMS**, Asia’s largest student film festival, which hosted **300+ international teams**.

## SKILLS:

ML-OPS, LangChain, AWS, Terraform, REST APIs, GEO AI, QGIS, C++, JAVA, PyTest, Public Speaking, Sentry