Ahmed Abdullah

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Employment

- **Progyny Inc.** New York, US (Remote)
  Data Analytics Engineer *Jul 2025 – Present*
  - Built machine learning data pipelines using Python and SQL processing over 500M+ healthcare records.
  - Integrated 10+ structured and unstructured data sources into a unified analytics layer.
  - Reduced end-to-end pipeline latency from 60+ seconds to 3 seconds, a 95% reduction.
  - Contributed to 5+ company's internal machine libraries helping data migration from CareConnect (on-premises) to Ludicrous (AWS).

- **School of Computing, FAST-NU** Lahore, PK
  Research Assistant, Remote Sensing *Jul 2025 – Aug 2025*
  - Conducted super resolution research on self collected satellite imagery datasets from Pakistan.
  - Implemented super resolution models to improve spatial resolution of low quality inputs.
  - Processed 20GB single image tiles using pyramid resolution techniques to handle 200x scale differences.

- **School of Computing, FAST-NU** Lahore, PK
  Research Intern, NLP and Large Language Models *Jun 2025 – Jul 2025*
  - Developed Urdu language model datasets for safety and robustness evaluation.
  - Generated thousands of synthetic Urdu samples for red teaming benchmarks.
  - Evaluated model behavior under adversarial prompt distributions.

- **MacroMed (Pvt. Ltd.)** Lahore, PK
  Machine Learning Engineer *Feb 2025 – Jun 2025*
  - Designed a production conversational AI system serving healthcare related user queries.
  - Built real time recommendation pipelines with sub 2 second end to end response latency.
  - Achieved 0.5 second average recommendation retrieval using optimized database indexing.
  - Deployed services supporting thousands of daily user interactions in production.

- **Multimedia Mining and Search Group, Johannes Kepler University** Linz, AT (Remote)
  Research Assistant, Multimodal Learning *Aug 2024 – Feb 2025*
  - Developed face and voice association models under missing modality conditions.
  - Improved VoxCeleb benchmark accuracy by 12% through architectural changes.
  - Trained audio visual models using WavLM, ECAPA, and VGGVox on large scale datasets.
  - Reduced experiment setup time by 70% through modular training pipelines.

- **Machine Intelligence Group (MInG), FAST-NU** Lahore, PK
  Research Assistant, Medical AI *Aug 2024 – Nov 2024*
  - Built stroke outcome prediction models using MRI scans and clinical tabular data.
  - Improved classification accuracy from 44% to 57% through augmentation improvements using FastGANs.
  - Evaluated models across multiple augmentation and feature fusion settings.

- **UrduX Lab** Islamabad, PK
  Research Intern, Generative AI *Jul 2024 – Aug 2024*
  - Analyzed gender bias in text to image generation systems using controlled prompts.

- Built a level two conversational system for university admission queries.
- Deployed the system reaching 100,000+ user impressions.

- **Contract.pk** Lahore, PK
  Software Engineer Intern, Frontend Systems *Aug 2022 – Sep 2022*
  - Built frontend components using React and Next.js across multiple landing pages.
  - Delivered features used in lead generation flows for active clients.
  - Supported CI workflows for automated builds and deployments.

Education

- **National University of Computer and Emerging Sciences** Lahore, Pakistan
  BSc. Data Science; Computer Vision Minor *Aug 2022 – May 2026*
  - **GPA**: 3.6/4.0
  - Undergraduate Thesis Title: Plug and Play Explainable Specialist Models for Radiology
  - Thesis Collaboration: Mayo Hospital
  - Research Areas: Computer Vision, Multimodal Learning, Natural Language Processing, Medical AI
  - Subjects: Deep Learning for Perception, Natural Language Processing, Computer Networks, Web Programming, Big Data Engineering, Data Analysis and Visualization, Operating Systems, Artificial Intelligence, Data Science, Advanced Statistics and Probability
  - Undergraduate Papers: 5 total, 2 A*, 2 B, 1 under review
  - Dean's List: 5 times
  - Best Undergraduate Thesis: 2 times
  - Teaching: Teaching Assistant for COAL and OOP, 200+ students

Publications (* = presenting author)

Accepted

1. M. Moscati, **A. Abdullah**, M.S. Saeed, S. Nawaz, R.K. Das, M.Z. Zaheer, J. Mir, M.H. Yousaf, K.M. Malik, M. Schedl, "Linking Faces and Voices Across Languages: Insights from the FAME 2026 Challenge," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, accepted, 2026. Available at: arXiv:2512.20376.

2. M. Moscati, **A. Abdullah**, M.S. Saeed, S. Nawaz, R.K. Das, M.Z. Zaheer, J. Mir, M.H. Yousaf, K. Malik, M. Schedl, "Face-Voice Association in Multilingual Environments (FAME) 2026 Challenge Evaluation Plan," *IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP)*, accepted, 2026. Available at: arXiv:2508.04592.

3. **A. Abdullah***, S. Fatima, H. Mahmood, "GHaLIB: A Multilingual Framework for Hope Speech Detection in Low-Resource Languages," *International Arab Conference on Information Technology (ACIT)*, accepted, 2025. Available at: arXiv:2512.22705.

Preprints

1. **A. Abdullah**, B. Ahmed, I. Ali, et al., "Research Decline and Retraction Surge in Pakistan: A Critical Examination," Authorea, Dec 2024. DOI: 10.22541/au.173376050.09968490/v2.

Submitted

1. **A. Abdullah**, I. Ali, B. Ahmed, T. Khan, S. Fatima, U. Ammarah, "LumbarNetPlus: Lumbar Spine Degeneration Classification Using Pseudo Multimodal Learning," Submitted to Medical Image Understanding and Analysis (MIUA), 2026.

2. **A. Abdullah**, S. Fatima, "ProFastNet: A Progressive-Fast GAN Enhanced Network for Thoracic Disease Recognition," Submitted to the International Conference on IT and Industrial Technologies, 2026.

3. **A. Abdullah**, I. Zia, M. Kashif, "MExPhish: A Multilingual Explainable Framework for Phishing Site Detection using RoBERTa," Submitted to the International Conference on IT and Industrial Technologies, 2026.

Teaching

- **Object Oriented Programming (CS1002)** — FAST-NU – School of Computing
  Laboratory Assistant — *Spring 2025*
- **Computer Organization and Assembly Language (EE2003)** — FAST-NU – School of Computing
  Teaching Assistant — *Spring 2025; Summer 2025; Fall 2025*

Research / Projects

- **Undergraduate Thesis** — Lahore, Pakistan
  Project Lead — *Aug 2025 – Jun 2026*
  - *"Plug and Play Explainable Specialist Models for Radiology."*
  - Developed explainable medical imaging models in collaboration with King Edward Medical University and Mayo Hospital, Lahore.
  - Conducted clinical evaluation with the Department of Radiology on real world diagnostic workflows.
  - Achieved state of the art performance in model explainability and automated report generation for radiological imaging.
- **Medical Imaging Research** — Lahore, Pakistan
  Student Researcher — *Aug 2024 – Dec 2025*
  - Studied data efficient learning for medical imaging under limited and imbalanced datasets.
  - Developed ProFastGAN, a generative augmentation pipeline evaluated on the Kaggle Grand X-Ray Slam Division B challenge.
  - Trained EfficientNetV2-S using 30,000 real chest X-rays, achieving a macro AUC of 0.91 compared to 0.96 with full data.
  - Developed lumbar spine degeneration classification models evaluated on the RSNA 2024 Lumbar Spine Challenge with 92.24% accuracy.
  - Built 3D skin lesion segmentation models evaluated on the ISIC 2024 Challenge, ranking 35th out of 8000+ teams.
  - Developed stroke outcome prediction models evaluated as part of the ISLES 2024 Challenge.
- **Multimodal and Vision Systems** — Lahore, Pakistan
  Project Lead — *Jan 2024 – Apr 2025*
  - Designed panoptic nuclei segmentation pipelines using SAMv2 and YOLO based models for histopathology imagery.
  - Developed a computer vision based LBW decision review system for cricket using object detection and tracking.
  - Built a multimodal search engine using ImageBind and CLIP for cross modal retrieval.
- **Natural Language Processing Research** — Lahore, Pakistan
  Student Researcher — *Jan 2024 – Mar 2025*
  - Developed multilingual hope speech detection models evaluated in the PolyHope-M 2025 Challenge.
  - Built transformer based NLP systems for low resource language understanding.
  - Led experimentation contributing to an accepted peer reviewed conference publication.
- **Scalable Data Systems and Analytics** — Lahore, Pakistan
  Student Researcher — *Jan 2024*

- Designed distributed sentiment analysis pipelines using PySpark and HDFS for large scale social media data.
- Studied system scalability and model behavior under increasing data volume and class imbalance.
- Built batch processing workflows for real world data analytics tasks.

Community Engagements

2026	**Organizer**, ICASSP FAME Challenge	*IEEE*
2023	**Co-ordinator**, Google AIFest, FAST-NU	*Lahore, PK*
2023	**Community Lead**, Google Developer Student Clubs	*Lahore, PK*

Honors and Awards

2025	**1st Place, R3 Thesis Competition**	*Riphah Intl. Univ.*
2025	**1st Place, Speridian OneAI Competition**	*Speridian Tech.*
2025	**Top 25 Undergraduate Theses, LUMS Exhibition**	*LUMS*
2025	**1st Place, Medical Category, LUMS Thesis Competition**	*LUMS*
2023–2025	**Dean's List**	*FAST-NU*
2024	**Batch Position Holder**	*FAST-NU*
2023	**Batch Position Holder**	*FAST-NU*

Programming Skills

- **Languages:** Python, SQL, C++
- **Technologies:** PyTorch, TensorFlow, Hugging Face Transformers
- **Computer Vision:** OpenCV, MONAI
- **ML Libraries:** Scikit-learn
- **Data Platforms:** Snowflake, PostgreSQL
- **Workflow Tools:** Apache Airflow, Docker
- **LLM Tooling:** LangChain
- **Vector Databases:** FAISS
- **Experiment Tracking:** MLflow