Kaleem Ahmad

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Education

BS   **The University of Agriculture**, Computer Science   Peshawar, Pakistan
Oct 2020 – Sep 2024

- **CGPA:** 3.29/4.00. ↗
- **Thesis Title:** Prompt-Driven Image Analysis; See Projects & Publications.

Research Interests

- Computer Vision, Medical Imaging, and Self-/Semi-Supervised Learning
- Deep Learning, Generative AI, and Large Multimodal Models (Vision–Language, Cross-Modal, Edge)
- Explainable and Trustworthy AI for Healthcare and Critical Systems
- Data Science, Predictive Analytics, and Big Data
- Natural Language Processing, Text Mining, and Conversational AI

Projects & Research Experience

SIAS – SegFormer-based Intracranial Artery Segmentation   Learn More ↗
Mar 2025 – May 2025

- Achieved 66% mIoU and 70% Dice on CT angiography by fine-tuning SegFormer-B0, enabling robust neurovascular segmentation from limited data with a lightweight transformer architecture.

Prompt-Driven Image Analysis   Learn More ↗
Feb 2024 – Aug 2024

- Developed a multimodal NLP–vision system for semantic image analysis and editing, integrating GroundingDINO, SAM, and Stable Diffusion for language-driven detection, segmentation, and inpainting.
- Published as an *arXiv Preprint* (arXiv:2509.08489) & featured by Valoris Research ↗ as a high-potential venture.

Real-Time 3D Facial Reconstruction from Images   Learn More ↗
Dec 2023 – Feb 2024

- Built a CNN–PCA pipeline using AFLW2000-3D and 3DDFA for real-time 3D face reconstruction, streamed via WebGL Studio & optimized for single-image inference.

Automated Nystagmus Detection from Video   Learn More ↗
Oct 2023 – Dec 2023

- Built a real-time vision and signal-processing pipeline for eye-movement tracking and oscillation analysis, offering explainable subtype classification (pendular, jerk, gaze-evoked) for early neurological and vestibular disorder screening.

Early Ocular Pathology Detection via Scleral Analysis   Learn More ↗
Aug 2023 – Sep 2023

- Applied SAM for scleral segmentation and quantitative redness metrics (RAP, MRL), enabling non-invasive early screening of ocular hypertension and inflammation.

Interactive Digital Authoring Platform for E-Learning   Learn More ↗
Jul 2022 – Feb 2023

- Built a modular in-browser editor with real-time collaboration and auto-save, integrating multimedia (text, images, audio, video, PDFs) through a decoupled Core + Sandbox architecture for educators.

Publications

Published / Preprints

[P1] *Kaleem Ahmad* (2025). **Prompt-Driven Image Analysis with Multimodal Generative AI: Detection, Segmentation, Inpainting, and Interpretation**. *arXiv Preprint*, arXiv:2509.08489 DOI: 10.48550/arXiv.2509.08489 ↗

Submitted / Under Peer Review

[S1] Jamil Ahmad, Khalid Malik, Farman Ullah, *Kaleem Ahmad*, Mustaqeem Khan, Ghaus Malik (2025). **Context-Aware Detection and Grading of Intracranial Aneurysms in DSA Images**. Manuscript submitted to ComComAp 2025 (International Conference on Communications and Computing Applications) ↗.

Professional Experience

Data Scientist, Demolytics Ltd ↗

Ilkley, England (Remote)
Dec 2024 – Present

- Train transformer-based GANs and VAEs for synthetic data generation (20M+ records), ensuring GDPR compliance and 97% statistical accuracy validated by professional accountants.
- Lead Xero API integration to set up a synthetic demo organization with realistic transactions for client demos, training, and system testing.

Teaching Assistant, University of Bradford ↗

Bradford, England (Remote)
May 2023 – Aug 2025

- Delivered online labs in Python, data visualization, statistical modeling, and machine learning (OIM7508, OIM7507); reviewed materials for accuracy and clarity.
- Mentored students through orientation, one-on-one guidance, and project discussions using scikit-learn, TensorFlow, and PyTorch.

Associate Data Analyst, Data Dive Ltd ↗

Ilkley, England (Remote)
Dec 2023 – Nov 2024

- Built Python and Spark pipelines to collect, clean, and process multi-source data; applied ML models for sales forecasting and anomaly detection (90%+ accuracy).
- Created interactive dashboards with Streamlit, Dash, Power BI, and Tableau, enabling data-driven decision-making for non-technical users.

Junior AI Engineer, BritAnalytics ↗

Halifax, England (Remote)
Sep 2022 – Dec 2023

- Developed ML models predicting sales trends and customer behavior (89% accuracy), helping SMEs optimize inventory, pricing, and revenue forecasting.
- Automated ETL workflows and built dashboards, reducing data cleanup by 45% and delivering actionable insights across teams.

Awards & Achievements

- **Runner-Up – University of Porto Research Studentship Award (2025)** – Ranked **2nd** among international candidates for the competitive **Research Studentship (BI)** under the EU-funded project *"PROD-AI: New Predictive AI/ML Solution Applied to Procurement and Production Management" (COMPETE2030-FEDER-01474600)* at the Faculty of Economics, University of Porto, Portugal. Official Project Page ↗ | Official Results Letter ↗
- **National Laptop Award Recipient (2023)** – Selected purely on merit under the **Prime Minister's Youth Laptop Scheme 2023**, organized by the Higher Education Commission (HEC), Pakistan ↗. Honored among the top 100,000 students nationwide and ranked in the **Top 20%** of the 2020–2024 Computer Science cohort (~7000+ students) at The University of Agriculture, Peshawar.

Trainings & Certifications

Selected Certifications & Professional Development

- **Machine Learning Specialization**, Stanford University (DeepLearning.AI) ↗ — Apr 2023
  - Built ML pipelines for regression, classification, clustering, recommender systems, and reinforcement learning, focusing on model selection, cross-validation, hyperparameter tuning, and reproducibility.
- **Generative AI for Data Scientists**, IBM ↗ — Jan 2024
  - Applied generative models for text, image, audio, and video tasks; projects included synthetic data generation, prompt engineering, and workflow integration.
- **Data Analyst Associate**, DataCamp ↗ — Apr 2023
  - Completed a Python data analysis and SQL certification with case study, focusing on data wrangling, exploratory analysis, and reproducible workflow design.
- **Cybersecurity Specialization**, University of Maryland ↗ — Nov 2020
  - Conducted labs in cryptography, threat modeling, and secure system design, applied to safe ML pipelines and sensitive data management.

Additional Training & MOOCs

- **IT Support Professional**, Google ↗ — Jan 2022
- **Certificate in IT (Web–Android Development)**, NAVTTC (Government of Pakistan) ↗ — Mar 2021
- **Machine Learning Specialization**, University of Washington ↗ — Sep 2020
- **Introduction to Programming & IoT Specialization**, University of California ↗ — Aug 2020

Skills

AI & Machine Learning: PyTorch, TensorFlow, Keras; Generative Models (GANs, VAEs, Diffusion, Transformers); Computer Vision, NLP; Reinforcement Learning, Predictive Modeling, Time Series Analysis; Statistical Modeling.

Data Science, Engineering & Visualization: NumPy, Pandas, Spark, Hadoop, ETL, Data Warehousing; SQL, NoSQL, PostgreSQL, MongoDB; Plotly, Seaborn, Matplotlib, Tableau, Power BI, Streamlit, Shiny.

Programming & Development: Python, R, Java, C++, JavaScript/TypeScript, LaTeX; Web/Mobile Development: Node.js.

Cloud & DevOps: AWS, Azure, GCP; Docker, Kubernetes; CI/CD with Jenkins, Ansible; Git, GitHub.

Specialized Domains: Digital Image Processing; AI in Robotics (Sensor Data Processing, Autonomous Navigation, Real-Time CV); Cybersecurity (Encryption, Secure Coding, Network Defense); UX Design (Figma, Wireframing, Prototyping).

Collaboration & Management: Agile/Scrum, Jira, Client Communication, Team Leadership, Remote Collaboration.

Languages

English

- **Level**: Proficient (IELTS Academic Overall Band Score: 7.0, **CEFR Level**: C1)
- **Listening**: 6.5   **Reading**: 7.5   **Writing**: 6.5   **Speaking**: 7.0
- **TRF Number**: 24PK508385AHMK015A
- **Verify at**: ielts.org/verify ↗

Urdu: Native Speaker.

Pashto: Native Speaker.

References

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