Talha Rehman

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PROFESSIONAL PROFILE

AI undergraduate specializing in RAG systems, computer vision, and full-stack AI applications. Co-authoring a peer-reviewed paper on multimodal RAG at Cradle Labs, Islamabad. Founded and led a 50+ member university AI community; OpenAI Ambassador and GDG Islamabad community member. Seeking AI engineering or research roles where I can ship production systems and continue applied research.

TECHNICAL SKILLS

Expert: Python, RAG Systems (LangChain, Pinecone), Computer Vision (OpenCV, medical imaging), Git/GitHub, SQL

Proficient: Machine Learning (scikit-learn, TF-IDF, clustering), Flask, FastAPI, Streamlit, MongoDB, C++

Familiar: NLP (semantic search, embeddings), TypeScript, HTML/CSS, Generative AI APIs

RESEARCH & PUBLICATIONS

Co-author — Multimodal Retrieval-Augmented Generation Systems Jun 2025 – Present

Cradle Labs, Islamabad | Under review

- Investigating multimodal document ingestion and cross-modal retrieval for LLM response grounding.
- Conducting literature review, experiment design, and empirical benchmarking.

Co-author — Device-Bound Stateless Password Derivation Scheme (DSPD) In Progress

With research supervisor Adil Khan | Under peer review — Major Revision stage, self-reported Elsevier venue

- Designing a device-bound, stateless password derivation scheme using Argon2id and HKDF-SHA256.
- Built an accompanying pip-installable Python package/CLI with cross-hardware benchmarks.

Co-author — Ransomware / Cybersecurity Survey In Progress

With research supervisor Adil Khan | In preparation, targeting a Q1 venue

- Preparing a survey paper on ransomware and cybersecurity, including literature review and figure/visualization work.
- Handled LaTeX preparation (TikZ/pgfplots figures), bibliography auditing, and formatting toward Q1-journal standards.

WORK EXPERIENCE

AI Research Intern 2025 – Present

FAST-NUCES, Islamabad, Pakistan

- Worked on NLP-oriented research involving large textual datasets, including a large-scale Brazilian energy-news dataset and associated preprocessing and analytical workflows.
- Contributed to data preprocessing, topic analysis, and translation workflows supporting energy/news data research.

AI Research Intern Sep 2024 – Nov 2024

Center of Excellence in Artificial Intelligence (CEAI), E-8 Islamabad, Pakistan

- Built computer vision pipelines for medical foot image diagnosis, processing 500+ annotated samples.
- Improved dataset quality through systematic annotation, directly supporting model training cycles.

Volunteer Research Assistant Jun 2025 – Sep 2025

Cradle Labs | Islamabad, Pakistan

- Co-authoring multimodal RAG research paper; responsible for experiment design and results analysis.
- Surveyed 30+ recent papers to establish the literature foundation for the study.

Social Media & Analytics Intern Aug 2024 – Nov 2024

U-Capacity | Rawalpindi, Pakistan

- Managed LinkedIn content strategy; applied analytics-driven posting schedule to improve engagement reach.

PROJECTS

Brazil Energy Market Forecasting — News-Driven PLD/CMO Deviation Model 2025 – Present

Data Insight Lab, FAST University | Python, NLLB, Gemini, FinBERT, RandomForest | with Kaiwan Shahid, supervised by Asim Gulzar

- Built an end-to-end pipeline over ~490K scraped Portuguese energy-news articles, filtered to ~30K relevant documents via MinHash/LSH deduplication and topical filtering.
- Translated documents with NLLB, topic-labeled with Gemini (multi-label classification), and scored sentiment with FinBERT.
- Merging NLP-derived features with PLD/CMO price data across Brazil's four CCEE submarkets to build a 45-day price-deviation forecasting model.
- Currently at the modeling and evaluation stage (RandomForest-based forecasting, ablation testing for news-signal contribution); predictive results are still in progress.

AutismLens — Multimodal AI System for Autism Screening Interpretation 2026

Final Year Project | Python, FastAPI, LangChain, Sentence-BERT, ChromaDB, OpenCV, Next.js | with Abdul Rehman, supervised by Dr. Faryal Nosheen

- Designing a multimodal intake system (form, PDF, or photo) that extracts item-level scores from screening assessment sheets via OCR and OpenCV-based mark detection.
- Building a RAG pipeline (Sentence-BERT + ChromaDB) over a digitized scoring manual to ground LLM-generated interpretive reports in cited manual passages, reducing hallucination risk.
- Currently at the FYP-I proposal stage; system architecture, milestone schedule, and risk mitigation plan submitted.

RAG Pipeline with LangChain & Pinecone

Python, LangChain, Vector DB | github.com/yourgithub/rag-pipeline

- Built end-to-end retrieval-augmented generation system: document ingestion, chunking, embedding, and semantic search over 1,000+ document chunks.
- Achieved sub-300ms average query latency; deployed via FastAPI with a Streamlit frontend for live testing.

SmartNews Analytics

Python, NLP, scikit-learn | github.com/yourgithub/smartnews

- Unsupervised news clustering pipeline using TF-IDF + dimensionality reduction (UMAP) over 5,000+ articles.
- Achieved silhouette score of 0.61; clusters showed clear topical separation validated via manual review.

EduHire — German Course Finder

Flask, SQL, HTML/CSS

- Full-stack web platform for filtering German university programs; includes authentication, admin panel, and advanced filtering across 200+ programs.

EducationGate 360° (Edu360)

Sentence-BERT, ChromaDB, FastAPI, Next.js/TypeScript

- Semantic talent/opportunity-matching platform surfacing scholarships, career guidance, and study-abroad opportunities for students.
- Built a Sentence-BERT + ChromaDB matching backend on FastAPI and the full Next.js/TypeScript frontend, integrating third-party scholarship APIs; produced a full PRD and pitch deck.

LEADERSHIP & COMMUNITY

Lead & Founder — Tech Fusion / AI Club 2025 – Present

Bahria University Islamabad

- Founded campus technology event brand and led a team of 50+ volunteers across workshops and events.
- Organized events hosting 350+ participants; secured external sponsorships for two consecutive events.
- Ran AI workshops covering machine learning fundamentals and hands-on project sessions for students.

Organizer — "The Two AI" Interdisciplinary Panel 2024

Bahria University Islamabad

- Organized panel linking AI and philosophy; coordinated with international speakers and managed full logistics.

EDUCATION

Bahria University Islamabad, Pakistan

Bachelor of Science in Artificial Intelligence | Sep 2023 – Expected Jul 2027

- CGPA: 3.09 / 4.0
- Relevant coursework: Machine Learning, Computer Vision, NLP, Databases, Statistics, OOP, Data Structures.

CERTIFICATIONS

AI Fluency: Framework & Foundations — Anthropic | Google AI Essentials — Coursera (2024) | Generative AI — LinkedIn Learning (2024) | Object-Oriented Design — LinkedIn Learning (2024) | Effortless Automation (Power Automate) — MLSA (2024)

VOLUNTEER EXPERIENCE

- Management, Artificial Intelligence Club — Islamabad (2023 – Present)
- Outreach Team Lead, Shaheen-e-Iqbal — Islamabad (Jun 2024 – Present)
- Content Writing, BU Media Club — Islamabad (Sep 2023 – Present)
- Researcher and Host, Dot World Media — Islamabad (Jan 2024 – Jun 2024)
- Volunteer, Bahria University Islamabad Breast Cancer Awareness Campaign (2023)
- President, Inventor Club — ICB G-6/3, Islamabad (2019 – 2020)

ADDITIONAL

Languages: Urdu (Native), English (Professional, B2)

Availability: GitHub repositories, research preprint, and project documentation available on request.