Mohsin Imam

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Education

Erasmus Mundus – Image Processing & Computer Vision *(IPCVai)* — *Sep 2025 - Jun 2027 (exp.)*
EU Full Scholarship: Selected among **19 awardees** from **1,700+ global applicants** (∼**1.1% acceptance rate**).
↪ Pázmány Péter Catholic University — *Budapest, Hungary*
↪ Universidad Autónoma de Madrid — *Madrid, Spain*
↪ Université de Bordeaux *(Ongoing)* — *Bordeaux, France*

University of Delhi – ARSD College — *Jul 2020 - Jun 2023*
B.Sc. (Hons.) Computer Science (Minors: Mathematics) — *New Delhi, India*

Research Interests

↪ Explainable & Trustworthy AI, Multimodal Representation Learning, Continual AI

Publications

↪ **Mohsin Imam**, Utathya Aich, Ram Sarkar, **"DAMM: Dynamic Modality Aware Weighted Embeddings Fusion for Multimodal Meme Detection"**, *Knowledge-Based Systems*, Elsevier, 2026. [link]

↪ **Mohsin Imam**, ..., Nashreen Nesa, **"Air Quality Monitoring Using Statistical Learning Models for Sustainable Environment"**, *Intelligent Systems with Applications*, Elsevier, 2024. [link]

↪ **Mohsin Imam**, Aymen Bennabi, Eduardo Cermeño, **"Do Vision–Language Models Trust Incorrect Anomaly Regions? A Counterfactual Reliability Study for Industrial Inspection"**, *ACM AI Letters*, 2026. *(Submitted)*

Work Experience

Vaelsys — *Jun 2026 - Aug 2026*
Computer Vision Intern | Supervisor: Dr. Eduardo Cermeño — *Madrid, Spain*

↪ Built an edge **video threat-detection pipeline** for the **Vaelsys–Intel POC**; benchmarked **5+ VLMs** (Qwen3-VL, InternVL, etc.) for embedding generation on **Intel's Core Ultra chips** & classification with ML models (**SVM, XGBoost**, etc.), gaining up to **95% theft recall**.

↪ Benchmarked **Qwen3-VL-8B** inference on **Intel's iGPU** via **OpenVINO Model Server & gRPC** with temporal windowing, embedding pooling, classifier inference, & concurrent camera scheduling, with **8–12 camera** parallel streams.

↪ Stress-tested an **NPU–GPU two-stage edge-AI architecture**, combining **D-FINE/DLStreamer/GStreamer** Phase-1 detection on **Intel NPU** with triggered **Qwen VLM inference** and ML classification on **Intel iGPU**.

↪ Proposed & led a **VLM reliability study** on counterfactual anomaly-region grounding for industrial inspection, executing **13k+ evaluations** across 6 VLM configurations.

Vionix Biosciences — *Apr 2025 - Aug 2025*
GenAI Engineer (Contract) | Mentor: Dr. Jagadish Venkataraman — *USA (Remote)*

↪ Led **RAG pipelines** for **spectroscopy Q&A**, integrating embeddings, Milvus DB, and automated cloud indexing.

↪ Built async **APIs** & **NL2SQL pipelines** enabling automated metadata/file retrieval and secure cloud access.

↪ Recognized by **executive leadership** for high-impact delivery; was offered **permanent** role.

SoftTechNation — *Sep 2024 – Dec 2024*
Data Scientist (Part-time) — *Remote*

↪ Developed a **RAG web-app** with **AstraDB** & **Groq**, leveraging Llama embeddings for efficient data loading, chunking, & storage.

↪ Underwent **MLOps** & **ETL** with **Docker**, **PySpark**, **Airflow**, **dbt** to streamline ML workflows.

UrbanLyfe — *Nov 2023 – Mar 2024*
Analyst (Part-time) — *Gujarat, India (Remote)*

↪ Built **Botpress chatbot** for automated product queries; explored **LLM fine-tuning** for improved responses.

↪ Explored applied **ML & BI** techniques to integrate retail stores and optimize logistics sustainably.

University College Dublin & University of Cincinnati — *Jul 2023 – Mar 2024*
Research Intern | Supervisor: Dr. Soumyabrata Dev — *(Remote)*

↪ Developed fusion **encoder-decoder** model for emotion-enriched image captions with pretrained deep learning features.

↪ **Fine-tuned transformer** models (**BERT**, **RoBERTa**) for adversarial prompt detection, preventing LLM jail-breaking.

↪ Briefly performed **sentiment analysis** on **TikTok users'** reviews to infer psychological behavior.

Defense Research and Development Organization — *Jun 2023 – Aug 2023*
Project Trainee | Supervisor: Sci. Gaurav Gupta — *New Delhi, India*

↪ Developed offline speech detection system with **OpenAI Whisper**, achieving **91%** accuracy & **4.2%** WER.

↪ Implemented **SpeechRecognition2AudioSegmentation** conversion followed by .wav conversion for uninterrupted audio input.

Projects

QueriSight — **Multimodal Video Retrieval (RAG)** *(IPCV Final Project)* | *Supervisor: Fabien Baldacci* — *Sep 2026 – Present*

↪ Designing a **multimodal video retrieval pipeline** that transforms videos into **searchable, timestamped segments** using **scene-aware segmentation**, **keyframe extraction**, **SigLIP visual embeddings**, and **Qwen-generated descriptions**.

↪ Developing the AI backend in **Python/FastAPI**, defining **Milvus vector schemas** and metadata relationships, and implementing **asynchronous video processing** with failure handling and **Docker-based infrastructure**.

Cross Modal Attention Bridge *(TRDP Project)* | *Supervisor: Dr. Marcos Escudero-Viñolo* ***Nov 2025 - Present***

↪ Investigating **CLIP interpretability** through attention rollout, token filtering, and perturbation-based XAI methods **(LIME, SHAP, RISE)**.

↪ Benchmarking explanation **faithfulness and localization** under mean, blur, and inpainting perturbations; identified **masking-dependent evaluation bias** that can reverse explainer rankings.

Individual HRV Response to Music via PPG | *Supervisor: Dr. Márton Áron Goda* ***Sep 2025 - Dec 2025***

↪ Designed within-subjects **PPG HRV study** (n=10) on music-induced autonomic modulation; built full signal processing pipeline (**Butterworth filter**, IBI extraction, **FFT-PSD**).

↪ Performed advanced statistical analysis (Friedman, Wilcoxon); introduced $\geq 10\%$ **responsiveness** metric, demonstrating 100% **individual autonomic reactivity** (SDNN, RMSSD).

Weighted Embeddings Fusion for Hate Detection | *Supervisor: Dr. Ram Sarkar* ***Sep 2024 - Jan 2025***

↪ Designed **SE-based multimodal fusion model** (CLIP, TweetEval, EfficientNetB3) for meme classification, achieving SOTA (F1 92.5%) on **MultiOFF** & **MAMI** datasets.

Skills

↪ **Languages:** Python, C/C++, JavaScript, Java, SQL, PostgreSQL, Solidity

↪ **Frameworks/Libraries:** TensorFlow, PyTorch, OpenCV, HuggingFace, Scikit-Learn, DVC, AWS

↪ **Tools/Utilities:** VSCode, PowerBI, Git, Spyder, RStudio, LaTeX, Excel

Achievements

↪ Awarded **8+** fully and partially funded graduate admissions offers including **EMJMD**($\times 3$), **MBZUAI**, & etc. *2024-25*

↪ **Secured** a spot in Innomatics Research Lab Traineeship – **top 5%** of **20K+ applicants** *2024*

↪ **Selected** among **few** from Delhi University for **ISSA**, **DRDO** Traineeship *2023*

↪ **Secured winning position** at Kerala Blockchain Academy's research writing event. *2022*

↪ **Among top 15 (out of $\approx$ 380)** @ Its Data Time, Organized by IIITNR; *Challenge: Taxi Fare Prediction*. *2022*

↪ **Ranked second** in Mathematical Writing Competition, Gargi College, Delhi University *2022*

Volunteering

↪ **Co-Head & Executive Member** @ *Tech-a-thon – Computer Science Society, ARSDC, DU* *Aug '22 – Mar '23*

↪ **Research Contributor** @ *Enactus ARSDC* *Feb '23 – Jun '23*

↪ **Core Member & R&D Dept. Co-Lead** @ *Entrepreneurship Cell, ARSDC, DU* *2021 – 2022*

↪ **Member** @ *Finance & Investment Cell, ARSDC, DU* *2021 – 2022*

**References available upon request*

Last updated: October 2026