

# Mohsin Imam

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## EDUCATION

### Erasmus Mundus – Image Processing & Computer Vision (IPCvai)

↔ Pázmány Péter Catholic University | **GPA: 4.8/5**

↔ Universidad Autónoma de Madrid (Ongoing)

↔ Université de Bordeaux

Sep 2025 - Jun 2027 (exp.)

Budapest, Hungary

Madrid, Spain

Bordeaux, France

### University of Delhi – ARSD College

B.Sc. (Hons.) Computer Science (Minors: Mathematics) | **GPA: 8.65/10**

Jul 2020 - Jun 2023

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. (Accepted)

↔ Pankaj Rajdeo, ..., **Mohsin Imam**, VB Surya Prasath, “**Applications of Multimodal Deep Learning in Medicine**”, *Springer Handbook (SHB) on Medical Biotechnology*, 2024. (Under Review)

↔ **Mohsin Imam**, Salehah Hamzah, Shalini Aggarwal, Soumyabrata Dev, V.B Surya Prasath, “**On Utilizing Deep Learning Models for Preventing Harmful Response in LLMs**”, *Neural Networks*, Elsevier, 2024. (Revising)

↔ **Mohsin Imam**, Sufiyan Adam, Neetu Agarwal, Suyash Kumar, Anjana Gosain, “**An Ensemble Method for Categorizing Cardiovascular Disease**”, *International Conference on Advances in IoT and Security with AI*, 2023. [\[link\]](#)

↔ **Mohsin Imam**, Mohd Anas Wajid, Aasim Zafar, Mohammad Saif Wajid, Neeraj Baishwar, Sameer Awasthi, “**Adversarial Learning of Security Risk in Cobots Driven Industry**”, Book Chapter in *Intersection of Machine Learning and Computational Social Sciences*, CRC Press, 2025. [\[link\]](#)

↔ **Mohsin Imam**, Mohd Anas Wajid, Bharat Bhushan, Alaa Ali Hameed, Akhtar Jamil, “**Cyber Threat Analysis and Mitigation in Emerging Information Technology (IT) Trends**”, *International Conference on Emerging Trends and Applications in Artificial Intelligence*, 2023. [\[link\]](#)

↔ **Mohsin Imam**, Gaurav Gupta, “**Precision Location Keyword Detection Using Offline Speech Recognition Technique**”, *Preprints.org*, 2023. [\[link\]](#)

↔ **Mohsin Imam**, Sufiyan Adam, Soumyabrata Dev, Nashreen Nesa, “**Air Quality Monitoring Using Statistical Learning Models for Sustainable Environment**”, *Intelligent Systems with Applications*, Elsevier, 2024. [\[link\]](#)

## WORK EXPERIENCE

### Vionix Biosciences

GenAI Engineer (Contract) | Mentor: *Dr. Jagadish Venkataraman*

Apr 2025 - Aug 2025

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; extended contract and offered **permanent** role.

### SoftTechNation

Data Scientist (Part-time)

Sep 2024 – Dec 2024

Remote

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

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

### UrbanLyfe

Analyst (Part-time)

Nov 2023 – Mar 2024

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

Research Intern | Supervisor: *Dr. Soumyabrata Dev*

Jul 2023 – Mar 2024

(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

Project Trainee | Supervisor: *Sci. Gaurav Gupta*

Jun 2023 – Aug 2023

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

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

↔ Developing **CMAB** for CLIP with **attention rollout + K-sigma filtering** for **multimodal interpretability**.

↔ Designing **multimodal XAI framework** benchmarking grounding & robustness across 0/n-shot & captioning tasks.

**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 **>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

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

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

↔ **Tools/Utilities:** VSCode, PowerBI, Git, Spyder, RStudio,  $\LaTeX$ , Excel

## ACHIEVEMENTS

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↔ 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 Fair Prediction*. **2022**

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

## VOLUNTEERING

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↔ **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*