Het Darshan Mehta

Otto-von-Guericke University• Leibniz Institute for Educational Media | Georg Eckert Institute
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Education

Otto-von-Guericke University *Magdeburg, Germany*
PhD Student(Multi-group/Multi-Class fairness for Knowledge Aware Recommender Systems) *Feb* 2026 – *Present*

Otto-von-Guericke University *Magdeburg, Germany*
Master of Science in Digital Engineering *Oct* 2023 – *Jan* 2026

University of Bari Aldo Moro *Bari, Italy*
Erasmus +, Computer Science *May* 2025 – *Oct* 2025

Dharmsinh Desai University *Nadiad, India*
Bachelor of Engineering in Electronics and Communication 2019 – 2023

Experience

Leibniz Institute for Educational Media | Georg Eckert Institute *Braunschweig, Germany*
Scientific Researcher *(Full-time)* *Feb* 2026 – *Present*

- Measuring and evaluating algorithmic fairness in GNNs.
- Development of fairness aware model for bias detection for educational textbooks.

Otto-von-Guericke University *Magdeburg, Germany*
Tutor – Human-Centered Natural Language Processing(HCNLP) *Oct* 2025 – *Jan* 2026
Tutor – Human-Centered Approaches and Technology(HCAT) *Oct* 2025 – *Jan* 2026
Tutor – Human-Centered Artificial Intelligence(HCAI) *Apr* 2025 – *Sept* 2025
Tutor – Human-Centered Natural Language Processing(HCNLP) *Nov* 2024 – *May* 2025
Tutor – Human-Centered Approaches and Technology(HCAT) *Oct* 2024 – *Feb* 2025

Leibniz Institute for Neurobiology *Magdeburg, Germany*
Research Student *May* 2024 – *Jan* 2025

- Measuring and processing real-time brain signals at the Brain-Machine Interface AG.
- Supported the development of Neurofeedback software for mobile EEG device.

Siemens Energy and Performance *Mumbai, India*
Graduate Intern *Dec* 2022 – *Aug* 2023

- Worked with designing Digital Twins for optimization of pasteurization system at AMUL.
- Contributed to factory digitization project at Hindustan Unilever, Pune.

In-House Internship, DDU *Nadiad, India*
Intern *Jun* 2022 – *Aug* 2022

- Worked on CNN-based image classification for object recognition.

Publications

A Comprehensive Strategy to Bias and Mitigation in HR Decision Systems
5th Italian Workshop on Explainable Artificial Intelligence | co-located with AIxIA 2024, Hosted at The 23rd International Conference of the Italian Association for Artificial Intelligence, Bolzano, Italy, November 25-28, 2024.
Authors: Silvia D'Amicantonio, Mishal Kizhakkam Kulangara, **Het Darshan Mehta**, Shalini Pal, Marco Levantesi, Marco Polignano, Erasmo Purificato and Ernesto William De Luca.

Large language model enhanced embeddingsfor knowledge aware recommender systems
Discover Artificial Intelligence Journal - Springer Nature.
Authors: **Het Darshan Mehta**, Marco Polignano, Giovanni Semeraro and Ernesto William De Luca.

When Multimodal Features Do Not Improve Fairness in Learning Systems
MAAI4AIED - Multimodal Affect in AI for Education Design, Application, and Ethical Implications Festival of Learning 2026 – L@S | AIED | EDM (June 27 2026.)
Authors: **Het Darshan Mehta** and Ernesto William De Luca.

A Comprehensive Evaluation Framework for Multi-Level Bias Analysis in Graph-Based Personalization Systems
8th International Workshop on Explainable User Modeling and Personalised Systems at The 34th ACM Conference on User Modeling, Adaptation and Personalization, 8th-11th June, 2026, Gothenburg, Sweden.
Authors: Hrushikesh Ahire, Gavin Rony Correia, Pinky Sherwani, **Het Darshan Mehta**, Marco Polignano, Giovanni Semeraro and Ernesto William De Luca.

Projects

Master Thesis : EUI LLM-KARS : Enhancing User and Item Embeddings using LLMs for Knowledge Aware Recommender System
- Successfully extracted KG using various LLMs and evaluated using the ground truth.
- Then used the KG's to propose a novel architecture for a knowledge aware recommender system which outperforms 15 baselines.

Fairness Analysis with $\varepsilon - BE$
- Implemented a fairness Analysis using $\varepsilon - BE$ as a mitigating strategy.
- Successfully mitigated the bias in the adult graph dataset.

Deep Reinforcement Learning (Smart Traffic Light System)
- Implemented Advantage Actor Critic (A2C) Algorithm on a custom model to optimize the traffic control in a simulation.
- Currently working on implementing an Asynchronous Advantage Actor Critic(A3C) Algorithm.

OttoBot – Transformer-based Chatbot
- University information chatbot using NLP.
- Deployed prototype and proposed campus-wide integration.

Algorithmic Fairness in GNNs
- Evaluated fairness in GNNs(GIN, GAT, and GCN) using an adult graph dataset.
- Implemented four mitigation techniques to address bias. Currently working on modifications to advance this project further.

Real-time Sign Language Translator
- Used webcam + CNNs to recognize hand gestures, converted to speech-enabled text.

AnyLogic Traffic Simulation
- Collaborated with City of Magdeburg to improve intersection safety through agent-based modeling.

Technical Skills

Language Skills :
Python, C/C++, MySQL, HTML/CSS.
Machine Learning & Deep Learning :
Pytorch, Tensorflow, Advantage Actor Critic(A2C), Multi-Agent Advantage Actor Critic(A3C), Graph Neural Networks(GNNs).
Knowledge Graphs & Reasoning :
Prompt Engineering, Chain-of-Thoughts (CoT), Knowledge Graph-of-Thoughts (KGoT), Tree-of-Thoughts(ToT).
Natural Language Processing :
Retrieval-Augmented Generation(RAG), Recommender Systems, Sentence-BERT, Fairness Metrics, Bias Mitigation.

Frameworks & Developer Tools :
Docker, Langchain, Neo4j, Ollama, Coppeliasim, Graph Contrastive Learning.
Libraries & APIs :
Sentence-Transformers, Transformers(HuggingFace), scikit-learn, pandas, NumPy, Matplotlib, Seaborn, OpenAI API, TogetherAI APIs.

Language Skills :
German (A2 - Actively Improving), Italian (A1 - Actively Improving) English (C1 - Fluent), Hindi (C2 - Fluent), Gujarati (C2 - Native)