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Debodeep94

Debodeep Banerjee

Research Profile

PhD researcher in Artificial Intelligence at the University of Pisa and the University of Trento. My research focuses on hybrid human–machine learning, decision-making under uncertainty, and the integration of vision–language models into human-centered AI systems. I am particularly interested in designing learning frameworks that incorporate human feedback, interpretability, and statistical guarantees.

Research Interests

Human-in-the-loop learning
Hybrid decision-making systems
Natural language processing
Large language models
Vision–language models

Education

2022–Present **PhD in Artificial Intelligence**, *University of Pisa & University of Trento*
2022 **Master in Data Science**, *Sapienza University of Rome*
2018 **M.Sc. in Statistics**, *University of Madras*
2016 **B.Sc. in Statistics (Hons)**, *Asutosh College, University of Calcutta*

Work Experience

Jun–Oct 2022 **Data Science Intern**, *Project Consulting SRL*, Trento
Jul 2021–Jan 2022 **AI Intern**, *Baker Hughes*, Italy
May–Aug 2018 **Subject Matter Expert**, *SPI Global*, India
May–Jun 2017 **Research Intern**, *Indian Statistical Institute*, India

Publications

Conference and Workshop Papers

2025 **Banerjee, D. et al. "MedGellan: LLM-Generated Medical Guidance to Support Physicians."**, HLDM Workshop at ECML-PKDD 2025
2026 **Banerjee, D. et al. "Hybrid Decision Making via Conformal VLM-generated Guidance."**, HW&HAI at HHAI 2026.
2026 **Banerjee, D. et al. "Learning to Guide Human Decision Makers with Vision–Language Models."**, (International conference of Discovery Science, 2026)

To be submitted

2026 **Banerjee, D. et al. "TradeVerse: A Longitudinal Benchmark of Political Negotiation in International Trade"**

Presentations

2018	International Conference on Theory and Application of Statistics and Information Science – Bayesian analysis of 1×j contingency table
2018	National Conference at Marian College – CSR and Sustainable Development in India

Research Projects

Master in Data Science	**Title:** Nonparametric Modal Regression for Directional Responses **Supervisor:** Prof. Pierpaolo Brutti Developed EM-based modal regression algorithm for directional predictors and linear responses.
M.Sc. Statistics	**Title:** A Study on Classical Inference on Single Binomial Proportion **Supervisor:** Dr. Subbiah M. Focused on evaluating confidence intervals using coverage probability and expected run length.

Technical Report

2017–2018	**Title:** Comparative Analysis of Two 1×j Contingency Table under Bayesian Perspective **Authors:** Debodeep Banerjee, Trina Sahoo, Dr. Subbiah M., Dr. M.R. Srinivasan Published in University of Madras Library, used R and Monte Carlo simulation techniques.

Technical Expertise

Programming	Python, R, SQL
Machine Learning	PyTorch, scikit-learn, NLP, Vision–Language Models
Gen-AI Frameworks	RAG, Ollama, Langgraph, vLLM, prompt engineering, agentic-AI
Systems & MLOps	multi-GPU / SLURM HPC workloads, reproducible pipelines, Docker
Statistics	Inference, conformal prediction, regression modelling
Tools	LaTeX, Git
Visualization	matplotlib, plotly, QGIS – *creator of a data-visualisation initiative communicating Indian social statistics to a public audience through visual storytelling. (*DesiData*)*

Achievements

1	First place in Inter-Departmental Quiz, University of Madras
2	First place in Inter-Collegiate Quiz, Madras Christian College

Languages

Fluent	Bengali, Hindi, English
Basic	Italian