

Akanksha Singh

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Education

Indian Institute of Science Education and Research, Bhopal

Aug 2019 - July 2024

BS-MS in *Electrical Engineering and Computer Science* | CPI : 8.36/10

- Minor: Data Science and Engineering
- Relevant Courses: Computer Vision, Deep Learning, Intelligent Robotics, Machine Learning, Natural Language Processing, Network Science

Experience

Centre for Responsible AI (CeRAI), IIT Madras

Aug 2024 - Current

Post-Baccalaureate Fellow | Supervisor: *Prof. Balaraman Ravindran*

- Leading the research and development of an explainable ensemble-based audio deepfake detection tool tailored to the Indian context, aimed at supporting fact-checkers, media organisations, and public-interest platforms.
- Chapter author of the "Grounding Responsible AI in Agriculture", a project in collaboration with Meta OpenLoop. The work explores the current applications and associated risks of AI in agriculture, identifies key gaps in its development and deployment, and examines relevant policies, regulations, and legal frameworks. The paper emphasised the importance of responsible AI through actionable technical and policy recommendations, grounded in expert interviews and comprehensive research.

Image Analysis and Biometrics Lab, Department of CSE, IIT Jodhpur

May 2023 - Apr 2024

External Master's Thesis Student | Supervisor: *Prof. Mayank Vatsa & Prof. Richa Singh*

- Created and curated a large (approx 1.3M samples) and diverse (26 generation techniques across 4 sets) bias-free benchmark multimodal multilingual deepfake dataset comprising identity-aware swaps and synthetic media.
- Performed qualitative experiments such as BRISQUE score for visual quality and FAD for audio quality. And benchmarked existing state-of-the-art unimodal (visual and audio) and multimodal deepfake detection models.

Publications

Conference *ILLUSION: Unveiling Truth with a Comprehensive Multi-Modal, Multi-Lingual Deepfake Dataset.*
Kartik Thakral*, Rishabh Ranjan*, **Akanksha Singh**, Akshat Jain, Mayank Vatsa, Richa Singh
International Conference on Learning Representations (ICLR) 2025
* = equal contribution

Academic Projects

Interpretable Deep Learning for Text Classification

- Implemented an existing novel interpretability framework for text CNNs from scratch to linguistically motivated features. The proposed features are borrowed from existing work on text classification of shorter texts between fiction and non-fiction genres (Brown Corpus).
- The exit criteria are to corroborate our interpretability results with the baseline results obtained from the existing work using logistic regression.

Consumer Complaints: Text Classification Problem

- Statistical and deep learning models were used to solve a multi-class nominal label classification problem.
- A vectorization and feature selection pipeline was used for statistical architecture, and hyperparameters were fed to a cross-validation grid search on 5 supervised learning models. Logistic regression gave the best results, accuracy of 85.9%.
- For DL architecture, FFN, bi-directional LSTM, RNN, and transformers were used. Bi-directional LSTM gave the best results, with an accuracy of 86.5%.

Skills

Languages Python, C/C++
Frameworks PyTorch, HuggingFace, Docker, LaTeX, Git, Bash, Slurm

Achievements

2024 Women Post Baccalaureate Fellow, Research Fellowship, CeRAI, IIT Madras

2023 Qualified for Assistant Professor, Subject: CSA, University Grants Commission-National Eligibility Test

Personal Interests

Sports Served as the first female Secretary for the Sports Society (2021-22). Participated in Inter IISER Sports Meet in the sports basketball, football, and athletics; and won Silver (2019) and Gold (2022 and 2023) in Basketball. Served as Basketball Coordinator (2020-21).

Trekking Completed high-altitude (upto 15000ft) treks (2025).

Quiz Served as the Publicity and PR Coordinator for the IBQC-Quizzing Society (2019-2022).

Volunteer Volunteered as a Peer (Student) Counsellor to the Institute Counselling Cell (2019-2022).

Dance Served as the Committee Member of the Mayuraa-Dance Society (2020-21).

Arts Served as the Vice-Secretary of the FALC-Fine Arts and Literary Society (2020-21).