Alankrit Singh

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Education

Birla Institute of Technology and Science **October 2022 – May 2026**
Bachelor of Engineering in Computer Science *Goa, India*

Ongoing Research

ADAPT: Adaptive Driver Behaviour Modelling **October 2024 – Present**
Supervised by: Prof. Snehanshu Saha and Prof. Santonu Sarkar at APPCAIR *Goa, India*

- Proposed and leading development of an autonomous driving agent architecture using the NavSim framework.
- Designing a transformer-based architecture that fuses multi-modal inputs including kinematic and camera data using hierarchical attention mechanisms to detect and quantify anomalous driving in an explainable way.
- Creating a novel dataset to benchmark anomaly detection models in the CARLA simulator.

nDNA: A Geometric Framework for Tracing the Latent Genome of AI **July 2025 – Present**
Supervised by: Dr. Amitava Das at Pragya.ai *Goa, India*

- Analyzing the latent geometry of AI models(LLMs, VLMs, Diffusion Models etc.) through Neural Genomics, a paradigm that treats them as semantic organisms with traceable inner cognition instead of black-box tools.
- Applying Neural DNA (nDNA), a novel diagnostic framework that integrates Riemannian geometry and statistical thermodynamics to quantify a model's internal belief structures and epistemic traits.

Experience

Digital India Bhashini Division **May 2024 – July 2024**
Data Engineer Intern *Delhi, India*

- Contributed to the Intelligent Data Pipeline project for scalable GenAI-ready NLP data processing.
- Migrated pipeline infrastructure from Google Cloud to Azure, enabling dataset curation for LLM training.

Projects

LLMExam: AI-Driven Question Paper Generation **Spring 2025**

- Developed a multimodal system using a local VLM (Qwen2.5-VL) to automatically extract textual questions, diagrams, and graphs from PDFs.
- Employed vector search for topic-based retrieval and designed an LLM-driven topic tagging mechanism for precise question classification. Project resources: GitHub | Report

Zero-Shot Learning using RoBERTa **Fall 2024**

- Enhanced classification accuracy by iteratively optimizing label prompts using generative language models (Gemma2-9B, Qwen2.5-32B, and Nemotron-70B).
- Improved performance metrics, achieving a significant increase in accuracy from 48.5% to 82.13% with Nemotron-70B.
- Project resources: GitHub | Report

MonetAI: Generating Artistic Images using GANs **Fall 2024**

- Developed a generative model replicating Claude Monet's artistic style using CycleGANs.
- Project resources: GitHub

Activities

BITS Pilani, Goa, India **January 2024 – Present**
Teaching Assistant, CS F425 Deep Learning

- Designed and conducted tutorials and homework assignments on deep learning concepts for undergraduate and graduate students and evaluated student submissions.

IndoML 2024 **December 2024**
Undergraduate Volunteer *Goa, India*

- Co-organized the AI symposium, ensuring the seamless execution of lectures and Q&A sessions.
- Oversaw logistical arrangements for guest accommodations and overall event coordination.

Relevant Coursework

- Reinforcement Learning
- Generative AI*
- Natural Language Processing*
- Machine Learning
- Computer Programming
- Logic in CS
- Theory of Computation*
- Object-Oriented Programming

**Received an excellent grade of A or A-*

Technical Skills

Programming: Python, LaTeX, PyTorch, TensorFlow, Hugging Face Transformers, Scikit-Learn, LangChain, FAISS
Specialized Skills: Computer Vision, NLP, Multimodal AI, Vector Databases, Retrieval Augmented Generation