



Aviral Gupta

B.E. Computer Science

Birla Institute of Technology and Science, Pilani

Personal Website

f20220097@pilani.bits-pilani.ac.in

GitHub Profile

LinkedIn Profile

EDUCATION

•Birla Institute of Technology and Science, Pilani

2022 - Present

B.E. Computer Science

CGPA: **9.22**

Courses: Data Structures and Algorithms, Graph Machine Learning, Deep Learning, LLM Engineering, Generative AI

Teaching Assistant: Introduction to Computer Programming, Deep Learning (sole undergraduate TA)

EXPERIENCE

•ML Quant Research Intern

May 2025 - Jul 2025

– Developing statistical arbitrage-based mid-frequency algorithmic trading signals (alphas) for market-neutral portfolios.

Trexquant

– Leveraged transcript data for generating trading signals for equity markets.

•Research Intern @ Vision and AI Lab, IISc

Jun 2024 - Present

Research Intern at the Vision and AI Lab (VAL) with Prof. Venkatesh Babu (Chair, CDS Department, IISc)

IISc Bangalore

– Working on ML fairness, bias mitigation, and domain generalization using synthetic data methods.

– Working on unsupervised debiasing of models by generating synthetic counterfactual datasets using diffusion models, developing novel methods and effective bias mitigation strategies; developed state-of-the-art methods beating benchmarks

– Work published and under review at top tier venues.

•Study Oriented Project/Student Researcher

Jan 2024 - May 2024

Student Researcher with Prof. Pratik Narang

BITS Pilani

– Working on tailored super-resolution methods for maintaining emotion and facial attributes across resolutions.

– Working on semi-supervised methods for learning emotion, age using data-upscaling approaches.

•Student Researcher @ APPCAIR Lab

June 2023 - Dec 2023

APPCAIR is a cross-campus research lab established to conduct high-quality, focused research in AI

BITS Pilani

– Worked with Prof. Poonam Goyal in collaboration with Adobe on advanced multi-modal methods for complex advertisement analysis

– Developed and implemented innovative methods, and engineered robust evaluation frameworks for performance metrics and benchmarking

•IEEE BITS Pilani Student Chapter

Dec 2022-Present

Member of AI/ML SIG

BITS Pilani

– Participated in a reading group concerned with Graph Machine Learning where I read, reviewed and presented papers at weekly meetings.

PUBLICATIONS

Aviral Gupta*, Armaan Sethi*, and Ameesh Sethi. No training wheels: Steering vectors for bias correction at inference time, 2025. arXiv link **Actionable Interpretability Workshop, ICML 2025**

Abhipsa Basu*, **Aviral Gupta***, Abhijnya Bhatt, and R. Venkatesh Babu. Harnessing diffusion-generated synthetic images for fair image classification. 2025. PDF link **Synthetic Data for Computer Vision Workshop, CVPR 2025**

Aviral Gupta*, Utkarsh Tiwari*, and Michael Hahn. Emergent stack representations in modeling counter languages using transformers, 2025. arXiv link **World Models Workshop, ICLR 2025 and NAACL SRW 2025**

PERSONAL PROJECTS

•Neural Radiance Fields from Scratch (NeRF) (link)

Implemented Neural Radiance Fields from scratch from the paper by Mildenhall et al. and created novel views from 2d images.

•Hex (link)

Implemented the Hex board game with a GUI and an autonomous RL agent using Monte Carlo Tree Search.

•Panoramas using Image Stitching (link)

Implemented a pipeline to match and then stitch together sets of images captured from different viewing points to create a panorama.

RESEARCH INTERESTS

Multimodal Model Interpretability, Mechanistic Interpretability, Interpretability for solving bias, Synthetic Data, Large Language Models

ACHIEVEMENTS

- First Place at Eightfold.ai Hackathon**

Project TeamSynth: Ideal team gen based on intelligent personality matching using company texts. *Oct 2023*

- Kishore Vaigyanik Protsahan Yojana (KVPY) SX Scholar**

Issued by Department of Science and Technology, Government of India

Jun 2022

- Kishore Vaigyanik Protsahan Yojana (KVPY) SA Scholar**

Issued by Department of Science and Technology, Government of India

Mar 2021

- JSTSE Scholar, 2018-19**

Issued by Directorate of Education, Delhi

Mar 2019

TEST SCORES

- BITSAT** Score: 343/390

- JEE Advanced** All India Rank **2970** out of 2,00,000 candidates

- JEE Mains** All India Rank **2281** (99.75th percentile)