Kintan Saha
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RESEARCH INTEREST

I am broadly interested in **Machine Learning**, specifically on the topics of Preference-based Reinforcement Learning, Auto-Formalization and Quantum Machine Learning. I am also interested in AI for music technology, in the form of stem separation and audio reconstruction. I am also interested in the applications of Generative AI research on Computer Science Education.

EDUCATION

Indian Institute of Science (IISc), Bengaluru, India — Aug '23 – Present

I am pursuing a Bachelors of Technology in Mathematics and Computing. The medium of instruction is English.

- ✓ GPA: 9.6/10.0 (till 3rd semester)
- ✓ First in a batch of 65

Delhi Public School, Ruby Park Kolkata, India — Apr '09 – Jul '23

Completed secondary (95%) and senior-secondary (97.8%) education under CBSE.
Some other examinations that I took during high school are -

- ✓ Joint Entrance Examination: Main (All India Rank 87)
- ✓ Joint Entrance Examination: Advanced (All India Rank 338)
- ✓ West Bengal Joint Entrance Exam (All India Rank 7)

I was also selected within National Top 1% in National Standard Examination in Physics (NSEP), National Standard Examination in Chemistry (NSEC), National Standard Examination in Astronomy (NSEA)

RESEARCH EXPERIENCE

REINFORCEMENT LEARNING

Reliable Critics
I am currently working with Professors Aditya Gopalan and Gugan Thoppe, IISc on improving the state-of-the-art in Reinforcement Learning, specifically Proximal Policy Optimization**.**

Uncertainty-aware RLHF
I have worked with Prof. Aditya Gopalan (IISc) on mitigating randomness in the reward models used in Reinforcement Learning through Human Feedback (RLHF). This work builds upon Towards Reliable Alignment: Uncertainty-aware RLHF. This work has been submitted to NeurIPS 2025.

COMPUTER VISION

Diffusion with forward models using 3DGS

I am currently working under Prof. Venkatesh Babu (IISc) at Vision and AI Lab, IISc on a project titled: Diffusion with forward models using 3D gaussian splatting. In this project we will attempt to train diffusion model for 3DGS scenes without the access to the actual 3DGS representation. 3DGS have gained wide spread recognition for high quality representation as well as fast rendering speed. In this project we will attempt to propose a method for training 3DGS for particular category of scene with no access to actual data but their projection (thus forward models) making it an inverse problem.

AUTOFORMALIZATION

Symbolic solving of high school physics problems

I am actively working with Prof Siddharth Gadgil (IISc) and ARC-Net on symbolically solving high school physics problems via auto-formalization. This project entails a conversion of a natural language specification of a physics problem to a formal language such as Lean. The next step is running a feedback loop to generate possible solutions to the formal specification of the problem which are then checked using the Lean framework.

COMPUTER SCIENCE EDUCATION

HinglishEval: Evaluating the Effectiveness of Code-generation Models on Hinglish

This paper (Project Repo) has been presented at ACM COMPUTE 2024. The paper was co-authored with 3 of my batchmates under the supervision of Prof. Viraj Kumar (IISc). We benchmarked multiple LLMs on their code generation abilities when prompted in Hinglish (a mixture of Hindi and English). The data obtained was then analyzed using techniques such as IRT (item response theory).

AGReE : Automatically Generating Refute Exercises

We are developing a tool for automatically generating refute exercises (programs which have very minute logical errors thus making it very hard to detect) to be used in CS1 courses. This project is in collaboration with my batchmates and is being conducted under the supervision of Prof. Viraj Kumar (IISc).

TECHNICAL SKILLS

Programming Languages	Python, C++, Lean, CUDA
Libraries	PyTorch, OpenCV, NumPy, Pandas, MatplotLib, NetworkX, Langchain, Qiskit, Scenic, Carla
LLM	Huggingface, OpenAI
Machine Learning Service	AWS Sagemaker
Version Control System	Git
Operating System	Linux, Shell Scripting

TALKS AND PRESENTATION

Delivered a presentation on Spectral Clustering (Databased Algorithm Festival)

Delivered a session on Variational Inference (Databased)

Delivered a session on Graph Representation Learning (Databased)

Delivered a session on ML for Compilers (Databased)

Co-conducted a hackathon for the incoming batch of 2024. The event was marked by keynote talks by DRDO scientists and Prof Pandurangan (IISc)

CO-CURRICULAR ACTIVITIES

I am a senior core committee member of Databased, the IISc UG computer science club. We have organized regular sessions on competitive programming, talks on various fields of computer science, hackathons and more. We have also recently organized an Algorithm Festival where we presented landmark algorithms in various fields of computer science such as quant finance, quantum computing, cryptography, machine learning and more.

I am a co-convener of Rhythmica – the IISc music club. We have organized various concerts for the members of the institute where the members of Rhythmica performed songs from a variety of genres. These concerts were very well received and had an average footfall of 800. We have also conducted various open mics and arranged classes for members of the campus community willing to learn music. I have also been playing guitar for the past 10 years. During this period, I have successfully given various music examinations.