Aniruddh Pramod

Junior Undergraduate
Mathematics and Scientific Computing

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Academic Qualifications

Year	Degree/Certificate	Institute	CPI/%
2021 - 2025	BS	Indian Institute of Technology Kanpur	**9.0**/10
2021	XII(CBSE)	Presidency School Bangalore South, Bangalore	**97**%
2019	X(CBSE)	Presidency School Bangalore South, Bangalore	**96.6**%

Scholastic Achievements

- **Silver Medal** - InterIIT Tech Meet 11.0, representing IIT Kanpur among 22 other prestigious IITs *2023*
- **Academic Excellence Award** - IIT Kanpur, awarded in recognition of outstanding academic performance *2022*
- **AIR 944 - JEE Advanced 2021** from among 1.4 lakh shortlisted candidates *2021*
- **AIR 2318 - JEE Mains 2021** from among 9 lakh candidates *2021*
- **AIR 474 - KVPY** exam, conducted by Indian Institute of Science, Bangalore *2020*
- **NTSE Scholar - NTSE** exam, conducted by NCERT, from over 1 lakh qualifying candidates *2019*

Key Projects

Peer-Reviewer Recommendation System | Mentor:*Dr. Titipat Achakulvisut* , Mahidol Uni, Thailand | (*May'23- Present*)

- Created a recommendation system for the **NBDT Journal** that simplifies the selection of peer-reviewers for a submitted paper
- Utilised **Contrastive Learning** techniques to train transformer models to capture and encode information from paper abstracts
- Tested various implementations of vector database management such as **Pinecone** and **ChromaDB** to store embeddings
- Surveyed many semantic similarity search algorithms like **FAISS**, **ElasticSearch** and **Annoy** to find abstracts similar to a query
- Investigated the usage of LLMs like **Vicuna** and **Koala** for recommendation quality checking and suggestion reasoning

Analysing Experiential Value Neglect | BSE662 Course Project | *Dr. Arjun Ramakrishnan*, IITK | (*Jan'23-Apr'23*)

- Conducted experiments to observe the under-weighing of experiential options in decision making - **Experiential Value Neglect**
- Employed **PsychoPy** to design behavioural experiments for humans for neuroscience studies using Python-based scripting
- Investigated possible loopholes and confounds in the claims made by the paper, and designed extensions to test the same

Introductory Computational Neuroscience | Project Mentor | Brain and Cognitive Society | (*May'23-Present*)

- Trained a team of **12** mentees on foundational topics in Computational Neuroscience and their applications to real-world studies
- Understanding the fundamental principles of **Modelling** and **Dynamical Systems** to formulate verifiable scientific inquiries.
- Demonstrated the usage of **Machine Learning** and **Stochastic Processes** to rigorously test hypotheses in data-driven analysis.
- Conducting a study to investigate the inticrate structure of **mouse social behaviour** through a resident-intruder assay

Desktopography | Electronics Club | (*May'22-Jul'22*)

- Implemented a **touch-feature for any projected display** using a depth-map generated by the **Intel RealSense D435i**
- Leveraged **MediaPipe** (a lightweight pre-trained ML model) to extract **real-time hand coordinates** from an RGB feed
- Automated computer interaction by utilizing **PyAutoGUI** library to click at mapped positions based on **finger proximity**

Major Competition: InterIIT Tech Meet 11.0 | DevRev - Expert Answers in a Flash *(Silver Medal)*

Objective	To build an end-to-end pipeline for **answering queries from a knowledge base** under sustainability constraints
Approach	• Surveyed various implementations of **sentence embeddings**, context selection, and **answer-generation** • Optimized and quantized the model with **ONNX Runtime** to reduce size and enable faster inference times • Utilised **synthetic data generation** for data augmentation to improve results on themes with limited data
Results	• Best Model |**MPNet** + **Electra** |*Para. Accuracy*: 0.918 |*F1 Score* : **0.8975** |*Avg. Inference Time* : 0.821 s • Light Model |**GUSE** + **MiniLM** |*Para. Accuracy*: 0.801 |*F1 Score*: 0.7723 |*Avg. Inference Time* : **0.134** s

Technical Skills

Programming Languages: Python, C, C++	**Other Tools:** Git, Github, Bash, PsychoPy, Canva, Markdown, LaTeX
Libraries: Numpy, Pandas, Scikit-Learn, Matplotlib, Seaborn, Transformers, PyTorch, NetworkX, Langchain, OpenCV	

Positions of Responsibility

Coordinator | Stamatics Society, IITK (*Oct'22-Present*)

- Orchestrated a highly engaging **Integration Bee**, attracting more than **200** participants from diverse batches within the institute
- Conducted the pan-India treasure hunt competition '**Mathemania**' with participation from **600**+ students across the nation
- Managed a portfolio of **20**+ summer projects for over **1200**+ mentees spanning various disciplines of math and computer science

Leader | Brain and Cognitive Society, IITK (*May'23-Present*)

- Managing a budget of **INR 40,000** allocated to the club for activities, workshops and projects to be conducted in the tenure
- Assessed and recruited a team of **25** secretaries across multiple verticals to execute club activities for the upcoming tenure

Relevant Courses

*:Excellent Performance | **:Outstanding Performance | †: Ongoing

Data Structures and Algorithms†	A First Course in Linear Algebra*	Probability and Statistics
Fundamentals of Computing**	Analysis-I*	Decision Making and the Brain*
Introduction to Machine Learning*	Abstract Algebra	Principles of Biotechnology
Neural Networks and Deep Learning (Coursera)	Complex Analysis†	Set Theory and Logic