
# Arindam Paul

PG (II Year I Semester)
M.Tech. Applied Mathematics and Scientific Computing
Contact No: 9564654994
Email: arindam_p@amsc.iitr.ac.in
Registration No: 23572005/2025


Indian Institute of Technology Roorkee

VERIFIED

## Area of Interest

AI, ML, Gen AI,LLMs, Statistics

## Education

| Year | Degree/Examination | Institution/Board | CGPA/ Percentage |
|---|---|---|---|
| 2024 | M.Tech. 1st Year | Indian Institute of Technology, Roorkee | 8.850 |
| 2022 | Graduate (UG) | WBUTTEPA | 8.930 |
| 2020 | Postgraduate (PG) | Ramakrishna Mission Vidyamandira, Calcutta university | 6.740 |
| 2018 | Graduate (UG) | Midnapore college (Autonomous), Vidyasagar University | 77.60 % |
| 2015 | Intermediate (Class XII) | WBCHSE | 83.00 % |
| 2013 | Matriculate (Class X) | WBBSE | 85.28 % |

## Projects

**Development of Advanced Retrieval Augmentation Generation Techniques to improve performance of Large Language Models** | IIT Roorkee August 2024 - Present

- **Explored** diverse **RAG architectures** by optimizing **retrieval and data integration** , boosting **LLM performance.**
- **Developed** a **chatbot** using **RAG** with **Llama 3.1** , integrating **uploaded PDFs** for **accurate external data processing.**

**NLP Based Movie Recommender System** | IIT Roorkee June 2024

- **Designed** an **NLP-based movie recommender system** , analyzing 5000 movies using features like genres, keywords, cast, and crew.
- **Implemented TF-IDF** and **cosine similarity** to identify thematic and narrative similarities, enhancing **user experience** with **personalized recommendations.**

**Brain Tumor Classification from MRI Scans Using CNN** | IIT Roorkee April 2024

- **Developed** a **CNN-based model** for MRI brain scan classification, achieving **92% accuracy** in detecting Glioma, Meningioma, Pituitary Tumor, or No Tumor.
- **Optimized** with **ReLU activation** , **MaxPooling** , **Dropout layers (30%)** , and **softmax activation** for precise **multi-class tumor categorization** , enhancing **diagnostic efficiency.**

**Predicting Health Insurance Costs with Linear Regression, SVM, Random Forest, and Gradient Boosting** | IIT Roorkee January 2024

- **Built** predictive models such as **Linear Regression** , **SVM** , **Random Forest** , and **Gradient Boosting** to estimate health insurance costs from **6 key features** like age, BMI, and smoking status.
- **Achieved** highest performance with **Gradient Boosting** ( **R2 score = 0.8780** ), enhancing **insurance premium accuracy** for insurers and individuals.

## Awards / Scholarships / Academic Achievements

- Qualified GATE exam in 2023 in Mathematics AIR 288

## Skills

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|---|---|
| Computer languages | Python |
| Software Packages | MySQL, Latex, numpy, pandas, Matplotlib, Seaborn, scikit-learn, TensorFlow, Keras |
| Additional Courses | Institute Course: Ethics in AI and Data Science, Applied Operation Research, Data structures and algorithms, Numerical linear algebra. |
| Minor/Honors Courses | Google advanced Data Analytics. |
| Languages Known | English, Bengali, Hindi |

## Positions of Responsibility & Extra Curriculars

**Subject matter expert** | CHEGG INDIA PRIVATE LIMITED September 2019 - Present

- The company operates direct-to-student learning platform that supports students on their journey from high school to college and into their career with tools designed.

## References

**Dr. Millie Pant**
Professor
IIT Roorkee
pant.milli@as.iitr.ac.in
1322714356

**Dr. Ravinder Ahuja**
Manager Data Science
Evalueserve
Ravinder.Ahuja@evalueserve.com