Rupam Roy

West Bengal, India | iamrupamroyy@gmail.com | 8159911225
LinkedIn: linkedin.com/in/iamrupamroyy | Portfolio: iamrupamroyy.github.io

Professional Summary

Motivated M.Tech CSE student at IIT Bhilai, specialising in Software Engineering, Machine Learning (ML), and *Graph Neural Networks (GNN)*. Known for strong communication skills and ability to explain complex concepts. Highly curious and skilled in developing scalable solutions and tuning performance using Python, CUDA. Proven ability to implement data-driven solutions with GPU acceleration and deliver reproducible machine learning models for real-world applications.

Education

Indian Institute of Technology – Bhilai — **Chhattisgarh, India**
M.Tech, Computer Science & Engineering — **CGPA: 8.25** — July 2024 – Present

Maulana Abul Kalam Azad University of Technology (MAKAUT) — **West Bengal, India**
B.Tech, Computer Science & Engineering — **CGPA: 9.18** — July 2018 – June 2022

Experience

Teaching Assistant, Department of Computer Science, **IIT Bhilai** — 2024 – Present
- Deliver tutorials and labs for Programming with C, *Data Structures & Algorithms (DSA)*, and *Computer Organization & Architecture (COA)*, improving student understanding of complex concepts.

Academic Projects

Efficient Neighbor Grouping for Scalable GNN Training — *May 2025*
Dr. Vishwesh Jatala, Assistant Professor
- Designed *Degree Binning* algorithm using Python to optimize neighbor sampling for *Graph Neural Networks (GNN)*, **improving sampling throughput 5%**.
- Utilized CUDA-based parallel processing to accelerate GNN training on large-scale graphs, maintaining model accuracy.
- Evaluated on benchmark datasets (Cora, PubMed), **reducing runtime by 10%** while achieving consistent performance.

Music-Artist Collaboration Network Analysis — *April 2025*
Dr. Rishi Ranjan Singh, Associate Professor
- Developed a GNN-based model using PyTorch to predict artist collaborations, **achieving 93.87% accuracy** on held-out data.
- Built a recommendation system for music collaborations, integrating SQL database queries for real-time data processing.
- Optimized graph preprocessing pipeline with software engineering principles, **reducing computation time by 12%**.

Voice-Activated Personal Assistant — *July 2022*
Dr. Krishna Kumar Jha, Associate Professor
- Engineered a real-time desktop voice assistant using Python, integrating *speech recognition* and *NLP* libraries for command processing.
- **Achieved 92.5% command recognition accuracy** through machine learning-based mapping, **tested on 500+ user inputs**.
- Deployed on Windows, optimizing performance with multithreading for real-time responses.

College Management System — *March 2020*
Dr. Sourav Chandra, Associate Professor
- Engineered a reliable web-based system using PHP, HTML, CSS, and MySQL; implemented role-based access with attention to detail for both students and admin user integrity.
- Employed problem-solving to design and implement a secure admin dashboard, ensuring reliable management of over **1000+ student profiles**.

Certifications

- **GATE (Computer Science and Engineering)**, 2024 — 98.8658 Percentile
- **GATE (Computer Science and Engineering)**, 2023 — 97.3930 Percentile

Technical Skills

Programming Languages: Python, Java, C, C++, PHP, JavaScript, CUDA (*GPU Parallel Programming*)
Frameworks & Tools: SQL, Git, Docker, Visual Studio Code, Jupyter Notebook, command-line tools, Google Cloud, APIs.
Technical Expertise: Machine Learning (ML), *Deep Learning*, *Graph Neural Networks (GNN)*, *Data Structures & Algorithms (DSA)*, *Database Management Systems (DBMS)*, *Computer Networking*, *Software Engineering*
Operating Systems: Windows, Linux

Leadership Activities

- **Google Developer Groups (GDG)** — Mentor
- **Placement Coordinator** — CSE, **IIT Bhilai**
- **Department Postgraduate Committee (DPGC) Member** — CSE, **IIT Bhilai**