

MEET BANTHIA

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Education

New York University - Courant Institute of Mathematical Sciences Aug 2025 – May 2027
Master of Science in Computer Science GPA : 4.0/4.0

National Institute of Technology Karnataka, Surathkal Dec 2021 – May 2025
Bachelor of Technology in Computer Science and Engineering CGPA: 8.51/10

Experience

NYU MLSys Lab - Research Assistant under Prof. Jinyang Li Dec 2025 – Present

- Currently, leading research in 3D gaussian tracing with focus on bounding boxes and methods to hide latency with independent computations. In general, my focus is on systems optimisation in this field. This also involves analysing various CUDA kernels and RT cores performance and how they are getting affected with different configuration of bounding boxes and workload characteristics.
- Previously, conducted an in-depth study of NeRFs and 3D Gaussian Splatting, analyzing state-of-the-art methods for real-time view synthesis through multiple research papers (**3DGS**, **TC-GS**, **CLM**). Profiled and analyzed Tensor-Core-based CUDA kernels for Gaussian Splatting, identifying pipeline bottlenecks.
- Reproduced and validated results of the CLM-GS framework, examined the **codebase** for correctness and consistency with reported results, and assisted contributors in preparing the open-source GitHub release.

Oracle - Server Technology Intern May 2024 – Jul 2024

- Designed and implemented a Continuous Integration/Continuous Deployment (CI/CD) pipeline serving as the quality gatekeeper for Cloud Platform Services. And, configured automated triggers for service releases from active branches.
- Integrated automated test execution on Preflight (Gamma stage) environments where services were deployed in real-time.
- Established a 95% minimum pass rate threshold for integrated tests before upstream promotion to Fusion Apps.

Healthcare Analytics and Language Engineering Lab - NLP Intern [GitHub] May 2023 – Aug 2023

- Developed a novel algorithm for acronym-to-expansion mapping, addressing ambiguity in Indian legal judgments.
- Built *dataset* of 70 legal judgments with 15,000+ annotated sentences, in collaboration with law students.
- Conducted evaluations with large language models (T5, LLaMA, Gemini) to benchmark summarization quality and compare performance.

Projects

ForkAndMove : Parallel Chess Engine [GitHub] Sept 2025 – Dec 2025

- Built a high-performance chess engine using bitmap-based board representation for fast move generation and evaluation.
- Implemented an optimized parallel Alpha-Beta search and integrated Principal Variation Search (PVS) to improve pruning efficiency. Developed efficient move generators and handled complex rules like castling and en-passant using pure bitwise operations.
- Analyzed performance improvements through advanced move ordering heuristics and algorithmic variations like multi-child PVS search.

Technical Skills

Languages: C/C++, Rust, Python, Standard ML, SQL

Developer Tools: Git, Jenkins, Postman, Docker

ML Toolkit : Scikit-learn, Pandas, NLTK, LexNLP, Keras, TensorFlow, PyTorch, NumPy, OpenCV

Relevant Coursework: Programming Parallel Algorithms, ML Systems, Honors Analysis of Algorithms, Computer Networks, Wireless Networks, Cloud Computing, Cloud Networking, Digital Image Processing, Operating Systems, Database Management System, Computer Architecture, Advanced Data Structures, Discrete Mathematics, Approximation Algorithms

Volunteering

IEEE NITK - Executive Member, CompSoc Group Nov 2022 – May 2025

- Organized and managed multiple technical events and hackathons including **Silicon Maze**, **Eureka**, **Praelium**

Web Enthusiasts' Club, NITK — Executive Member, Algorithm Group Nov 2022 – May 2025

- Organized and managed technical events and hackathons like **CPLLeague**

Achievements

- Secured **All India Rank 1117** in JEE MAINS among more than 1.2M+ candidates.
- Secured **All India Rank 2697** in JEE ADVANCE among 200K+ candidates
- Consecutively secured **Gold Medal** in INTER NIT Table Tennis tournaments 2022-23(NIT Silchar), 2023-24(NIT Jamshedpur). 2024-25(NIT Jalandhar)