

VINEETH BHAT

Github ◇ Google Scholar ◇ LinkedIn

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EDUCATION

IIIT Hyderabad

May 2025 (expected)

B.Tech. in Computer Science and Engineering

GPA: 9.79/10.0 (Dean's List I – top 5% of batch)

Related courses: *Software Engineering, Distributed Systems, Compilers, Computer Vision, Algorithms, Statistical Methods in AI, Responsible and Safe AI Systems*

EXPERIENCE

Summer Intern

May 2024 - June 2024

Front Office (R&D) Tech Department, India

D.E. Shaw and Co.

- Improved debugging efficiency by replicating remote high-throughput data nodes as locally mirrored clones, leveraging a graph-based model of data pipelines.
- Enhanced high-throughput data applications using Java, Kafka, and Python, doubling testing efficiency and accelerating integration into new trading systems.
- Developed a streamlined local deployment module, reducing remote debugging time from hours to minutes and enabling one-step initialization for three mission-critical applications.

Undergraduate Researcher

Aug 2023 - Present

Advisor: K Madhava Krishna

IIIT Hyderabad

- Developing visual navigation methods using topo-semantic graphs and object-relative heuristics to achieve state-of-the-art results, addressing large viewpoint variances overlooked in prior work.
- Co-first author of a paper [1] (Paper Link) on localization of “kidnapped” robots, achieving a 99.8% reduction in storage requirements compared to contemporary methods.
- Implemented vision models and robotic task architectures for [2], contributing to its development (GitHub Link).
- Previously worked on Visual Place Recognition (leveraging foundation models like DINOv2 and CLIP) and Video Object Detection (using Detectron2 and transformer-based approaches).

Research Mentee

Jun 2024 - Oct 2024

Mentor: Daniel Paleka

Supervised Program for Alignment Research

- Contributed to research on consistency metrics for LLM-based forecasting and their correlation with predictive accuracy beyond model training cutoffs [3].
- Designed a multi-stage, efficient LLM pipeline to generate and validate high-quality prediction questions from news articles using real-world data.

Teaching Assistant

Aug 2024 - Feb 2024, Jan 2025 - Present

Courses: *Operating Systems, Computer Graphics, Software Engineering*

IIIT Hyderabad

- Saliently, created the final course project for Operating Systems – “Creating an NFS from Scratch”.

SELECTED PROJECTS

Software Engineering Projects

Architecture, Design Patterns, OOP, Java

- Developed “ModelHub”, an ML application for model training, testing, and logging, comparing microservices and monolithic architectures. Applied IEEE 42010 standards for architectural decisions and incorporated rolling user feedback.

- Automated a workflow to periodically detect design smells, leverage LLMs for refactoring, and auto-generate pull requests.

Re-imagining the Google File System (GFS)

Distributed Systems, Go, Scalability

- Implemented GFS from scratch in Go with exactly-once record-append semantics, demonstrating near-linear throughput-latency scaling under high concurrency.
- Designed a primary-secondary replication model with dynamic recovery mechanisms, including re-replication, stale replica resolution, and automated garbage collection.

Flip-Flops in Neural Modeling (FFN)

Neural Networks, Cognitive Modeling, PyTorch

- Implemented a “Flip-Flop” inspired neural model to replicate cognitive tasks such as sequential decision processing and video frame generation, benchmarking against RNNs, LSTMs, and GRUs.
- Investigated novel tasks, including the effects of noisy interference and working memory capacity, drawing connections to probabilistic models of the brain.

Enhanced xv6 Operating System

C, Operating Systems, Performance Optimization

- Integrated and tested multiple *CPU scheduling algorithms*, including FCFS, PBS and Multilevel Feedback Queue (MLFQ), to optimize CPU utilization.
- Added copy-on-write (COW) to delay memory duplication, reducing overhead and improving process creation efficiency.

Greddiit

MongoDB, Docker, Nginx, Backend Development

- Developed *Greddiit*, a web application inspired by Reddit, focusing on backend functionalities like user authentication, post management, and moderator controls.
- Utilized MongoDB for scalable data storage, Docker for containerized deployment, and Nginx for efficient content delivery and reverse proxy handling.

PUBLICATIONS

- [1] P. Paul*, **V. Bhat***, T. Salian, M. Omama, *et al.*, “Sparseloc: Sparse open-set landmark-based global localization for autonomous navigation,” *arXiv:2503.23465*, 2025.
- [2] A. Chavan*, V. Agrawal†, **V. Bhat†**, S. Chittawar†, *Et al.*, “Towards global localization using multi-modal object-instance re-identification,” *arXiv 2409.12002*, 2024.
- [3] D. Paleka*, A. P. Sudhir*, A. Alvarez, **V. Bhat**, *et al.*, “Consistency checks for language model forecasters,” *International Conference on Learning Representations (ICLR)* - Oral, 2025.

ACHIEVEMENTS

Deans List I, awarded by IIIT Hyderabad coming within the top 5% of the batch *2022, 2023 & 2024*
 AIR 610 in JEE Main 2021, ranked 610th among 9,39,000 candidates (Top 0.05%) *2021*
 AIR 877 in JEE Advanced 2021, ranked 877th among 1,41,000 candidates (Top 0.6%) *2021*

MISCELLANEOUS

Tech Team Head, Headed the Tech Team of the entrepreneurship cell E-Cell *Sep 2023 - April 2024*
 Content Writing Head, for IIIT’s annual college fest Felicity *Nov 2023 - Feb 2024*
 Competitive Programming, as vineeth.bhat on CodeForces *Active until Dec 2023*

SKILLS

Languages	Python, Java, C/C++, SQL, Bash, Go
Technologies	PyTorch, Apache Kafka, Docker, Git, Unix/Linux, IntelliJ, gRPC, MPI, MongoDB