Vishak K Bhat

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Education

IIT(ISM) Dhanbad Expected May 2026
Integrated Master of Technology in Mathematics and Computing (GPA: 8.85 / 10.00, 5th Rank) *Dhanbad, Jharkhand*

- **Relevant Coursework:** Data Structures and Algorithms (C++), Object Oriented Programming , Data Base Management System , Data-Mining , Prob & Stats , Linear Algebra , Differential equations, Computational Finance, Optimization Techniques, Numerical Methods, Numerical Optimization

Experience

Microsoft Research – Research Intern (Mentor: Dr. Amit Sharma) November - present
- Improving the efficiency of large reasoning language models (LRMs) via early-stopping mechanisms (ICML-targeted)
- Designing and open-sourcing **interwhen**, a modular framework for test-time scaling in LLMs that unifies monitor-guided reasoning and improves accuracy–compute trade-offs across reasoning tasks.

Sony Research India – Research Intern June –November
- Improving upon **CausalOrder** and **LLM_CD** by developing a novel LLM-driven causal discovery framework.
- Enhancing causal discovery through parallel use of **Partial Ancestral Graphs (PAG)** with LLM-guided search, benchmarked on standard datasets including Asia, Cancer, Earthquake, Child, and Survey.

Swiggy – Data Scientist Intern Aug – May 2025
- Optimized Surge Values: Solved the **Multi-Armed Bandit (MAB)** problem by training a model using Policy Grad increasing the show up rate by 5% with no increase in expense.
- Designed an algorithm to rezone the existing zones to minimize cross-zone orders by 6%.

Google Summer of Code – ML4SCI - CERN (GSoC'24) April – Sept 2024
- Implemented two GNN architectures that outperformed transformer models in predicting the momentum of Muon particles. One model improved inference speed by 27%, while the other reduced mean squared error by 14%.
- Performed 3 methods to convert the data into graphs and then created a custom Message Passing Layer

NyunAI –Research Intern May – June 2024
- Developed Nyun-Llama3-62B, a model with 12% fewer parameters than Llama-3-70B, achieving comparable or superior performance across MMLU, Winogrande, BoolQ, Hellaswag, Arc Challenge, and GSM8K benchmarks.

Bosch Global Software Technologies – Computer Vision Research Intern Jan – May 2024
- Used Maskformer, Mask2former models to obtain Semantic Segmentation of the dataset achieving F1 score of 0.89
- Performed object detection using groundingDINO to get the masks of objects. Utilized Stable Diffusion inpainting to modify real world obstacle images, generating a diverse dataset of 10,000 synthetic images for model fine-tuning.

UiT, The Arctic University of Norway - Bio-AI Labs – Research Intern Oct – Dec 2023
- Designed a model to process variable-size images by converting them into graphs, enabling further analysis for benchmarking tasks. Achieved an F1 score of 0.92 on the Bengali text dataset by graph classification

Projects

Vesuvius Challenge - Ink Detection - Kaggle Bronze Medal | *Computer Vision, Image Processing, PyTorch*
- Segmented ink in papyrus fragments, achieving an F-beta score of 0.74.

Personally Identifiable Information (PII) classification | *NLP, Attention, HuggingFace, Transformers, Finetuning*
- Finetuned BERT to identify PII by masked LM, then finetuned it to classify the type of PII achieving F1 score of 0.92

Technical Skills

Languages: C++, C, Python **Technologies**: Pytorch, Matplotlib, OpenCV, Scikit-Learn, Transformers
Concepts: Machine Learning, Deep Learning, Computer Vision, Natural Language Processing, LLM reasoning, Diffusion models, Reinforement Learning, Multimodals, VLMs, Data Structures and Algorithms, Time series, Model pruning

Achievements and Awards

- Kaggle Competition Expert – Top 0.1% (185K+ users), 3× Bronze Medalist
- Won 1st Prize at the AMD-organized AI Premier League Hackathon held at IISc Bangalore
- Winner, AgenticAI Hackathon: Secured 1'st place in a Microsoft-organized hackathon
- 1st Place, Winter of Code (WOC): Ranked 1st out of 1000+ participants in a highly competitive hackathon.