Kartik S. Nair

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EDUCATION

Carnegie Mellon University — Pittsburgh, PA
Master of Science in Machine Learning — Dec 2026
GPA: 4.17*/4.33 | Selected Coursework: Deep Reinforcement Learning, ML Systems* — *ongoing

Indian Institute of Technology Bombay — Mumbai, India
Bachelor of Technology in Computer Science & Engineering, Minor in Applied Statistics — May 2025
GPA: 9.79/10 , graduated with Honors

SELECTED PUBLICATIONS

Exchangeability of GNN Representation with Applications to Graph Retrieval [Oral, ICLR 2026]
Kartik Nair, Indradyumna Roy, Soumen Chakrabarti, Anirban Dasgupta, Abir De

- Developed a framework for Locality Sensitive Hashing for multi-vector graph embeddings on graph matching/ editing scores, leveraging probabilistic symmetries for its algorithmic guarantee

A Dense Subset Index for Collective Query Coverage [ICLR 2026]
Kartik Nair, Pritish Chakraborty, Atharva Tambat, et al.

- Designed and implemented an indexing and retrieval algorithm with a submodular coverage-based scoring objective for bag-of-words embeddings, using the retriever for approximating marginal gain

CURRENT RESEARCH

Guidance and Finetuning for Flow Maps — Oct 2025 - Present

- Working with Prof. Nicholas Boffi on improving few-step generation through reward guidance for flow maps at inference time (under review at ICML 2026) and a novel fine-tuning objective for flow maps

INTERNSHIP EXPERIENCE

NK Securities Research | Quantitative Researcher — May 2024 - July 2024

- Experimented with and implemented a Markov chain-based fair price model for market making on in-house backtesting engine in C++, leveraging order book features and co-integrated assets

Technical University of Braunschweig | Summer Research Intern — May 2023 - July 2023

- Trained models on radiomic and pre-trained features for detecting breast cancer from multiview thermal (IR) images, achieving mean F1 score of 0.982 and AUC of 0.992

OTHER PROJECTS

Curiosity-Driven Finetuning for LLMs | CMU, Deep Reinforcement Learning — Nov 2025- Dec 2025

- Used semantic novelty with Random Network Distillation as a curiosity-based signal added to verifier rewards to finetune GPT-OSS with GRPO on math reasoning tasks

Chatbot for Financial Question Answering | Inter-IIT Tech Meet — Nov 2024 - Dec 2024

- Presented a multi-agent chatbot with tool calling and RAG, dynamic routing, research mode, persona-based analysis, hallucination mitigation, and a high degree of model agnostic performance
- Placed first out of 23 university teams on the basis of concept and execution

SKILLS

Programming: C++, Python, SQL, Java, Bash
Libraries / Software: Torch, numpy, pandas, polars, Scikit Learn, MATLAB, git, LaTeX

ACHIEVEMENTS

Awarded the Thomas Dooie, Class of 1974 Award for undergraduate thesis (2025)
Placed 7th nationally in the Joint Entrance Exam for the IITs (2021)
Selected for National Olympiad Camps for Physics (2020, 2021), Chemistry (2021)
KVPY Fellow (National Ranks 4, 6 - 2020, 2021)