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

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

How to Guide Your Flow: Few-Step Alignment via Flow Map Reward Guidance **[ICML 2026]**
Jerry Huang, Justin Lin, Sheel Shah, *Kartik Nair*, Nicholas Boffi

- A theoretically grounded framework for inference time reward guidance with flow maps, ranging from linear inverse problems to style and prompt alignment
- Follow up work introducing a new fine tuning objective and algorithm is in submission

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 graph matching/ editing scores, discovering and 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

INTERNSHIP EXPERIENCE

Jump Trading | Quantitative Researcher Intern — June 2026 - August 2026

- Researched and developed high frequency trading strategies, involving design, rigorous experimentation, and analysis for models for both returns prediction and execution in equities

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

- Experimented with and implemented a Markov chain-based fair price model for HF market making

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

KV Cache Quantization for Vision Language Reasoning Models — March 2026 - May 2026

- Combined modality specific quantization with query-aware KV-sparsity for long context VLRM tasks

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

ACHIEVEMENTS

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