ROHAN V KASHYAP

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EDUCATION

Carnegie Mellon University — **Pittsburgh, PA**
Master of Science in Machine Learning | **GPA: 3.78/4** — Dec 2025
Courses: Advanced Machine Learning, Probabilistic Graphical Models, Convex Optimization

Bangalore Institute of Technology — **Bangalore, India**
Bachelor of Science (Distinction) in Electronics and Communication Engineering | **GPA: 8.81/10.0** — Aug 2020
Advisor: Dr. Narendra C.P. *Research Thesis:* Gaussian Process and Neural Networks using limit theorems.

SELECTED PUBLICATIONS

- Pavan S.K.*, **Rohan V Kashyap***, Prathosh A.P. | Neural discovery of permutation subgroups | Artificial Intelligence and Statistics (AISTATS) 2023. [Paper]
- Pavan S.K.*, **Rohan V Kashyap***, Aditya Gopalan, Prathosh A.P | A Unified Framework for Discovering Discrete Symmetries | Artificial Intelligence and Statistics (AISTATS) 2024. [Paper]
- Pavan S.K.*, **Rohan V Kashyap***, Vivek V Kashyap, Prathosh A.P. | Subgroup Discovery using One-Parameter Subgroups | International Conference on Machine Learning (ICML 2025) (*under review*). [Paper]
- Pavan S.K.*, **Rohan V Kashyap***, Vivek V Kashyap, Prathosh A.P. | EMLP for Solvable Groups: A Theoretical Perspective | International Conference on Machine Learning (ICML 2025) (*under review*). [Paper]
- Pavan S.K.*, **Rohan V Kashyap***, Vivek V Kashyap, Prathosh A.P. | Learning Equivariant Functions using Quadratic Forms | Computer Vision and Pattern Recognition (CVPR 2025) (*under review*). [Paper]
- **Rohan V Kashyap***, Vivek V Kashyap, Narendra C.P | GPT–Neo for Commonsense Reasoning - a Theoretical and Practical lens | ACM Transactions on Audio, Speech and Language Processing (*under review*). [Paper]

EXPERIENCE

Carnegie Mellon University | Research Fellow, Advisor: Andrej Risteski — **Pittsburgh, PA**| Aug 2024 - Present
- Implemented flow-based models using optimal transport to construct diffeomorphic flows of arbitrary 2D shapes for learning Neural PDEs using neural operators for Darcy flow equations.
- Working on investigating model resolution invariance in Neural PDEs using Memory Neural Operators and SSM architectures.

Indian Institute of Science | Research Assistant, Advisor: Dr. Prathosh A.P. — **Bangalore, India** | Jan 2022 - Jul 2024
- Designed and implemented novel methodologies to incorporate invariance symmetries into neural networks. We demonstrated strong theoretical results for discrete permutation groups using linear maps; **published** at AISTATS 2023.
- Proposed a unified architecture for automatic symmetry discovery of discrete groups using tensor-valued functions in a multi-armed bandit setting. We devised a theoretical framework to handle invariance symmetries for a generic class of permutation subgroups with 98% accuracy on polynomial regression tasks; **published** at AISTATS 2024.
- Worked on single-step dataset condensation methods using diffusion and flow-based models. We demonstrated high-resolution sample generation using probability-flow ODE trajectories and consistency distillation objective on ImageNet and CIFAR-10 dataset.

Gupshup| Machine Learning Engineer — **Bangalore, India** | Jan 2021 - Dec 2021
- Migrated workflows to AWS SageMaker Studio for Transformer-based models (BERT, GPT-2) using large-scale EC2 servers for data processing, model training, batch predictions on GPU's and deployed model endpoints using AWS lambda.
- Implemented GraphSAGE graph neural networks (GNN) using the Deep Graph Library (DGL) and PyTorch for handling prompt queries and aggregating relevant semantic parsers from web crawls with a recall @3 (R@3) of 0.223.

Needl.AI | Research Intern — **Bangalore, India** | Mar 2020 – Nov 2020
- Worked on BERT model optimization for reduced latency and accelerated inference on GPU's using adaptive model pruning and knowledge distillation to obtain a 5x smaller model size for numerous NLP tasks with 94% accuracy.
- Investigated meta-learning and unsupervised domain adaptation of language models (LMs) using a plug-and-play cross- lingual decoder model for efficient feature-transfer using custom financial dataset on downstream tasks.

PROJECTS

Flow-based Model for Neural PDE's | *Advisor: Dr. Andrej Risteski*| *[Report]* — Aug 2024 – Dec 2024
- Implemented a neural operator architecture for handling arbitrary geometries and mesh discretizations using Continuous Normalizing Flows. Demonstrated efficient learning of PDEs on numerous irregular 2D grids and shapes using optimal transport.

Generalized Flow-based models | *Advisor: Dr. Prathosh A.P.* | *[Report]* — Jan 2024 - Jun 2024
- Investigated the probability path trajectories of conditional flow-matching for continuous-normalizing flows (CNF's) and diffusion-SDE models using a mini-batch optimal transport map and achieved an FID score of 6.72 on ImageNet dataset.

SKILLS

- **Languages:** Python, C
- **Libraries:** PyTorch, HuggingFace, JAX
- **ML Skills:** Generative Models, Diffusion Models, Flow-based Models, Transformers, Large Language Models, Neural PDEs

ACHIEVEMENTS

- First student in the VTU University to secure 100/100 in Signals and Systems (Fourth Semester).
- Selected for Google's TensorFlow Dev Summit at Sunnyvale, California (2020).
- Selected for AI Summer School Workshop at IIT Madras Research Park (2019).
- Served as a sub-reviewer for NeurIPS 2023 and AISTATS 2024 conferences under Prof. Prathosh A.P.
- Served as a ***Teaching Assistant*** for 3 consecutive semesters under Dr. Prathosh A.P.: **Advanced Deep Representation Learning** (Fall 2022, Fall 2023) and **Pattern Recognition and Neural Networks** (Spring 2023). Provided office hours, designed and graded quizzes.