

## Rohan V Kashyap

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Carnegie Mellon University  
Computer Science Department

### EDUCATION

#### Carnegie Mellon University

Master of Science in Machine Learning | GPA: 4/4

**Coursework:** Deep Learning Systems, Deep RL, Probabilistic Graphical Models, Convex Optimization

Pittsburgh, PA

Dec 2025

#### Bangalore Institute of Technology

Bachelor of Science in Electronics and Communication Engineering | GPA: 8.8/10.0

Bangalore, India

Aug 2020

- **Best Research Thesis Award** among 1k+ submissions: *Gaussian Process and Neural Networks using limit theorems*.
- **First student** in the VTU University to secure **100/100** in Signals and Systems (Fall '18).

### KEY PUBLICATIONS

1. **Neural discovery of permutation subgroups**; Pavan S\*, Rohan Kashyap\*, Prathosh A P [AISTATS '23](#)
2. **A Unified Framework for Discovering Discrete Symmetries**; Pavan S\*, Rohan Kashyap\*, Prathosh A P, Aditya Gopalan [AISTATS '24](#)
3. **Automatic Discovery of One Parameter Subgroups**; Pavan S\*, Rohan Kashyap\*, Prathosh A P [NeurIPS '25](#) (strong reviews: 5, 4, 4)
4. **Multi-Resolution Learning for Resolution Invariance in PDEs**; Rohan Kashyap\*, Tanya Marwah, Andrej Risteski [ICLR '26](#) (under review)
5. **Learning Equivariant Functions via Quadratic Forms**; Pavan S\*, Rohan Kashyap\*, Prathosh A P [NeurIPS '25](#) (under review)

### EXPERIENCE

#### Ayo Electronics | Machine Learning Intern

Boston | May '25 – Aug '25

- Implemented novel **convolution-based** neural architecture for PDE learning using optimized FFT algorithms and hardware-aware optimization techniques for distributed model training on photonic ML accelerators.

#### Carnegie Mellon University | Research Fellow, Advisor: [Prof. Andrej Risteski](#)

Pittsburgh | Aug '24 - Present

- Developing resolution-invariant neural operator architectures through adaptive multi-resolution training and frequency truncation techniques using FFNO and **S4-based** architectures for scalable PDE solving ([ICLR '26](#); under review).
- Designed **conditional flow models** with optimal transport (OT-CFM) for learning diffeomorphic transformations of 2D mesh distributions, achieving simulation-free training for **transformer-based** PDE solvers on complex geometries.

#### Indian Institute of Science | Research Assistant, Advisor: [Prof. Prathosh A P](#)

Bangalore | Jan '22 - Jul '24

- Proposed a unified architecture for incorporating **geometric symmetries** into neural networks using **multi-armed bandits** for arithmetic and image-based tasks with gains of 12% over SOTA; **2 papers accepted** at AISTATS '23, '24.
- Devised a novel framework for learning Lie group **rotational symmetries** with rigorous theoretical analysis for physics-based simulation and **molecular discovery** tasks achieving 33% ↓ in sample complexity ([NeurIPS '25](#); reviews: 5, 4, 4 / 6).
- Implemented **StyleGAN** and **SDXL** for cross-domain image translation using inference-time optimization techniques.

#### Gupshup | Machine Learning Engineer

Bangalore | Jan '21 - Dec '21

- Deployed personalized text-to-image diffusion models using **LoRA** and **DreamBooth**, delivering 2x inference speedup while serving 50k+ daily user queries for recommendation pipelines.
- Implemented **GraphSAGE** GNNs using the **Deep Graph Library** (DGL) for handling prompt queries and aggregating relevant semantic parsers from web crawls, achieving recall @3 of 0.223 and 11% improvement over baseline.

### KEY PROJECTS

#### Generalized Flow Matching for Image Generation, [Prof. Prathosh A P](#) [\[Report\]](#)

Jan '24 - Jun '24

- Conducted research using rectified flows and **diffusion-SDE** models to design geometric guided probability paths on manifolds.
- Utilized **classifier-free guidance** and CLIP-based embeddings to achieve faster sampling for image generation; 1.3↓ in FID.

#### Constrained Decoding for Multilingual Translation, [Prof. Prathosh A P](#) [\[Report\]](#)

Aug '23 - Dec '23

- Designed encoder-decoder architecture using speculative decoding techniques with lexical constraints for Sanskrit translation.
- Enhanced accuracy by conducting extensive fine-tuning experiments using LLMs (BART, T5, GPT2) and **mixture-of-experts**.

### SKILLS

- **Languages/Tools:** Python, C/C++, HTML, Git, Linux, SQL, AWS
- **Libraries:** PyTorch, JAX, Diffusers, OpenCV, TensorFlow, PyTorch Geometric, Flax, TVM

### LEADERSHIP

- **Teaching Experience:** **Carnegie Mellon:** Machine Learning in Practice (Fall '25). **Indian Institute of Science:** Advanced Deep Representation Learning (Fall '22, Fall '23); Pattern Recognition and Neural Networks (Spring '23).
- **Reviewer:** AISTATS (Fall '24), ACM Transactions (Spring '25).