

Akshay Raman

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Education

- **New York University, Courant Institute** New York, United States
Master of Science in Computer Science *Sept. 2023 - May. 2025 (Expected)*
 - GPA: 4.0/4.0
 - Relevant Coursework: Computer Vision, Deep Reinforcement Learning, NLP with Representation Learning
- **Vellore Institute of Technology** Vellore, India
Bachelor of Technology in Computer Science and Engineering *Jul. 2019 - Jul. 2023*
 - GPA: 9.28/10.00
 - Relevant Coursework: Data Structure and Algorithms, Image Processing, Natural Language Processing

Technical Skills

Programming Languages: Python, C/C++, R, Java, SQL, L^AT_EX

Machine Learning Workflows: PyTorch, Tensorflow, scikit-learn, Gymnasium, HuggingFace

Tools and Libraries: NumPy, SciPy, OpenCV, OpenMP, MPI, CUDA, Git/GitHub, Linux

Research Experience

- **DICE Lab, New York University with Prof. Chinmay Hegde** New York, United States
Machine Learning Researcher *Sept. 2024 - Present*
 - Pursuing research in multimodality and data-centric ML advised by Prof. Chinmay Hegde at NYU Tandon School of Engineering.
 - Currently focused on improving data curation strategies and benchmarking them on representation learning tasks.
- **AI4Science Group, University of Ottawa with Prof. Augusto Gerolin** Ontario, Canada
Mitacs Globalink Research Intern *Jun. 2022 - Sept. 2022*
 - Worked on transportation theory and its applications in Density Functional Theory (DFT) under the guidance of Prof. Augusto Gerolin.
 - Developed deep learning methods that solve high-dimensional optimal transport to simulate the disassociation of atoms efficiently. [Code](#)
 - Conducted seminars to introduce machine learning fundamentals to students with non-technical backgrounds.

Projects

1. **Hierarchical CLIP-based Image Geolocation Prediction** [Link](#)
 - Trained a multimodal geolocation model using contrastive learning that predicts the precise location of an image taken anywhere on earth.
 - Designed a 100x more efficient inference technique that utilizes hierarchical feature clustering for efficient searching.

2. Continual Learning with Policy Gradient Methods

[Link](#)

- Designed novel incremental learning algorithms to train reinforcement learning agents on a variety of real-world environments (Ex. MuJoCo, Atari).
- Modified policy gradient methods with eligibility traces to achieve efficient performance on long-horizon tasks.

3. Multi-lingual Question Answering System

[Link](#)

- Built a multi-lingual question answering system using the HuggingFace API on syntactic rules from multiple languages.
- Finetuned BERT on the SQUAD dataset augmented with multiple question variants using back translation.

Publications

- [1] Khan, R. et al. (including Raman, A.) ”Use of artificial intelligence algorithms to predict systemic diseases from retinal images” - *WIREs Data Mining and Knowledge Discovery*, Vol. 13, No. 5 (2023)

Teaching Experience

NYU CSCI-UA.0480 Parallel Computing <i>Grading Assistant</i>	Fall 2023
NYU CSCI-GA.3033 Multicore Processors <i>Grading Assistant</i>	Spring 2024
NYU CSCI-GA.3033 Graphical Processing Units (GPUs) <i>Grading Assistant</i>	Fall 2024
NYU CSCI-UA.0202 Operating Systems <i>Course Assistant</i>	Spring 2025