

# MRIGANK RAMAN

Machine Learning Department, Carnegie Mellon University ◊ Pittsburgh, PA  
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## EDUCATION

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### Carnegie Mellon University

Master of Science in Machine Learning (MSML) | Overall GPA: 4.28/4

Adviser: Dr. Zachary Lipton

Research Topic: Adversarial and OOD Robustness, Large Language Models

*Pittsburgh, PA*

*December 2023*

### Indian Institute of Technology, Delhi

B.Tech in Mathematics & Computing | Overall GPA: 9.68/10 (Rank 1)

*New Delhi, India*

*May 2021*

## PUBLICATIONS

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1. [For Distillation, Tokens Are Not All You Need](#)

**Mrigank Raman**, Pranav Mani, Davis Liang, Zachary Lipton

*Conference on Neural Information Processing Systems, 2023, Instruction Workshop (NeurIPS 2023)*

2. [Turn Down the Noise: Leveraging Diffusion Models for Test-time Adaptation via Pseudo-label Ensembling](#)

**Mrigank Raman**, Rohan Shah, Akash Kannan, Pranit Chawla

*Conference on Neural Information Processing Systems, 2023, DistShift Workshop (NeurIPS 2023)*

3. [Model-tuning Via Prompts Makes NLP Models Adversarially Robust](#)

**Mrigank Raman\***, Pratyush Maini\*, Zico Kolter, Zachary Lipton, Danish Pruthi

*The 2023 Conference on Empirical Methods in Natural Language Processing (EMNLP 2023)*

*International Conference on Machine Learning, 2023 AdvML Frontiers Workshop (ICML 2023)*

4. [Domain Generalization via Inference-time Label-Preserving Target Projections \(Oral\)](#)

Prashant Pandey, **Mrigank Raman**, Sumanth Varambally, Prathosh AP

*Conference on Computer Vision and Pattern Recognition, 2021 (CVPR 2021)*

5. [Learning to Deceive Knowledge Graph Augmented Models via Targeted Perturbation](#)

**Mrigank Raman**, Hansen Wang, PeiFeng Wang, Siddhant Agarwal, Sungchul Kim, Ryan Rossi, Handong Zhao, Nedim Lipka, Xiang Ren

*International Conference on Learning Representations, 2021 (ICLR 2021)*

*Conference on Neural Information Processing Systems, 2020 KR2ML Workshop (Best paper runner-up)*

6. [Learning Contextualized Knowledge Structures for Commonsense Reasoning](#)

Jun Yan, **Mrigank Raman**, Aaron Chan, Tianyu Zhang, Ryan A. Rossi, Handong Zhao, Sungchul Kim, Nedim Lipka, Xiang Ren

*The 59th Annual Meeting of the Association for Computational Linguistics, 2021 (ACL 2021)*

*Conference on Neural Information Processing Systems, 2020 KR2ML Workshop (NeurIPS 2020)*

7. [Centralized Active Tracking of a Markov Chain with Unknown Dynamics](#)

**Mrigank Raman**, Ojal Kumar, Arpan Chattopadhyay

*IEEE International Conference on Mobile Ad-Hoc and Smart Systems, 2020 (MASS 2020)*

## SELECTED AWARDS AND HONORS

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- Won 2nd prize in the 4090 track, 3rd prize in the A100 track and the best student submission award in both tracks in the **NeurIPS LLM Efficiency Challenge**
- Recipient of the **Institute Silver Medal** for securing the highest GPA in the class
- Awarded with the Institute Merit award for being amongst **Top 7%** students for 6 out of 8 semesters.

- Awarded with the **IUSSTF-Viterbi India 2020 scholarship** for a funded internship at USC
- Secured an All India Rank of **183** in the Joint Entrance Examination amongst 1.2 million candidates
- Selected to join the first **AI Summer School** hosted by Google Research India in 2020
- Awarded the prestigious KVPY Fellowship in 2016 with an All India Rank of **222**

## WORK EXPERIENCE

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### **Abridge Inc**

Pittsburgh, PA | May 2023 - August 2023

#### *Research Intern*

- Worked on the improvement and efficient deployment of LLaMA-13B for medical summarization on a 24GB GPU generating at a speed of 200 tokens/sec
- Investigated effective methods for distilling the knowledge of LLM's (30B-70B parameters) into consumer-grade LMs (7B-13B parameters).
- Worked on the curation of a novel form of dataset for effective and efficient instruction tuning of LLMs.

### **FedML Inc**

Los Angeles, CA | May 2022 - August 2022

#### *Research Intern*

- Implemented the [FedNLP](#) open source and MLOps application supporting a variety of NLP tasks
- Worked on lightweight tuning methods for training Language models on resource constrained devices

### **Quadeye**

Gurugram, India | June 2021 - May 2022

#### *Quantitative Researcher*

- Devised a new profitable strategy for index options and improved existing currency option strategy
- Implemented different alphas for improving existing stock option strategy and reduce losses

## TEACHING

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- Teaching Assistant for UG course on Algebra; responsible for taking doubt sessions and make question papers
- Teaching Assistant for UG course on Real Analysis; responsible for taking doubt sessions and make question papers

## TECHNICAL STRENGTHS

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### **Computer Languages**

C/C++, Java, Python, MATLAB

### **Frameworks**

Pytorch, Tensorflow

## RELEVANT COURSES

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**Mathematics :** Probability and Stochastic Processes, Statistical Methods, Functional Analysis, Linear Algebra and Applications, Numerical Methods, Abstract Algebra, Real and Complex Analysis, Differential Equations, Discrete Mathematics, Calculus, Number Theory, Convex Optimization

**Computer Science :** Machine Learning, Data Structures and Algorithms, Theory of Computation, Analysis and Design of Algorithms, Computer Architecture, Digital Logic, Introduction to Programming, Signals and Systems, Operating Systems, Data Mining

**Graduate Level :** Advanced Machine Learning, Special Topics in Database Management Systems, Natural Language Processing, Cryptography and Computer Security, Digital Image Analysis, Information Retrieval, Graph Theory, Multivariate Statistical Methods, Fractal Geometry, Visual Learning and Recognition, Probabilistic Graphical Models, Multimodal Machine Learning