Sherin Muckatira

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EDUCATION

University of Massachusetts — Lowell, Massachusetts
Ph.D. in Computer Science; GPA 4.00 — September 2021–Present
Advisor: Prof. Anna Rumshisky

Arizona State University — Tempe, Arizona
Master of Science in Electrical Engineering; GPA 3.79 — August 2011–May 2013

Sir M Visvesvaraya Institute of Technology — Bangalore, India
Bachelor of Engineering in Electronics and Communication; GPA:4.00 — September 2007–July 2011

PUBLICATIONS

[1] S. Muckatira, V. Deshpande, V. Lialin, and A. Rumshisky, "Emergent abilities in reduced-scale generative language models", in *Findings of the Association for Computational Linguistics: NAACL*, 2024.

[2] V. Lialin, S. Muckatira, N. Shivagunde, and A. Rumshisky, "Relora: High-rank training through low-rank updates", in *The Twelfth International Conference on Learning Representations*, 2023.

[3] N. Shivagunde, V. Lialin, S. Muckatira, and A. Rumshisky, "Deconstructing in-context learning: Understanding prompts via corruption", in *Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024)*, 2024, pp. 4509–4529.

[4] S. Pan, V. Lialin, S. Muckatira, and A. Rumshisky, "Let's reinforce step by step", in *NeurIPS 2023 Workshop on Instruction Tuning and Instruction Following*, 2023.

[5] S. Muckatira, "Properties of winning tickets on skin lesion classification", *ECCV WiCV Workshop*, 2020.

[6] Q. Sun, S. Muckatira, L. Yuan, S. Ji, S. Newfeld, S. Kumar, and J. Ye, "Image-level and group-level models for drosophila gene expression pattern annotation", *BMC bioinformatics*, vol. 14, pp. 1–13, 2013.

RESERACH EXPERIENCE

University of Massachussetts — Lowell, MA
Research Assistant, PI: Prof. Anna Rumshisky — May 2023–Present

- Researching ways to improve the generalization, interpretability, and efficiency of language models.
- Studying training dynamics and representation learning to better understand the emergence of complex behaviors.
- Developing and testing efficient pre-training methods that reduce computational cost without sacrificing performance.
- Working toward making LLM training more transparent and practical for both academic and applied settings.

Amazon — Boston, MA
Applied Scientist Intern, PI: Dr. Rinat Khaziev — May 2025–August 2025

- Researched and developed multilingual evaluation methods for large language models, focusing on improving performance beyond English.
- Built and trained judge models for multi-turn conversation evaluation across multiple languages.

Amazon — Remote
Applied Scientist Intern, PI: Ikkei Itoku — May 2024–August 2024

- Built a synthetic data generation pipeline to address challenges of data scarcity, privacy in HR analytics.

- Developed datasets of career-related documents with structured annotations.
- Fine-tuned Mistral-7B-Instruct model with this synthetic data, enabling it to identify specific guidelines demonstrated by employees.

Arizona State University Tempe, AZ
Research Aide, PI: Prof. Jieping Ye July 2012–May 2013

- Implemented Gene expression pattern annotation using SIFT feature extraction on images in the Berkeley Drosophila Genome Project (BDGP).
- Constructed Codebooks using Bag of Words and Sparse Coding Approach.

OTHER INDUSTRY EXPERIENCE

Qualcomm Boxborough, MA
Senior Software Engineer October 2016–December 2021

- Developed firmware for the physical layer of Wireless LAN chips using the Wifi 802.11 protocol.
- Designed and implemented features such as Spectral Scan and Radar Detection.

NXP Chandler, AZ
Applications Software Engineer June 2013–October 2016

- Developed signal processing applications for radio communication, focusing on transmit and receive chains on a Vector Signal Processor for Power Amplifier characterization.
- Implemented communication interfaces between host processors and co-processors to enhance functionality in Power Amplifier characterization applications.

TEACHING EXPERIENCE

Deep Learning for NLP; Spring 2025 - Led lectures on transformers, pre-training, post-training and graded exams
Computing 1 Lab; Fall 2022, Spring 2023 - Led lab sessions on C programming and provided student mentorship

SKILLS

Python, Pytorch, sklearn, Machine Learning, Deep Learning, NLP, Huggingface Transformers, generative AI, pre-training, fine-tuning, prompting, zero-shot/few-shot evaluation, Synthetic Data Generation, LLM-as-Judge, Parameter Efficient Fine Tuning, Large Language Models, C, C++, Perforce, Git, Matlab, Embedded Systems, Signal Processing, Data Analysis, Software development