REZA SHIRKAVAND

Department of Computer Science, University of Maryland, College Park, MD, USA
Email, Website, Google Scholar, Github

RESEARCH INTERESTS

Efficient GenAI, Machine Learning

EDUCATION

Sharif University of Technology *2020*
B.Sc in Computer Engineering

University of Maryland *2022 - Present*
Ph.D. in Computer Science
Research Focus: Efficient GenAI, Mixture of Experts

SELECTED PUBLICATIONS

Catalog-Native LLM: Speaking Item-ID Dialect with Less Entanglement for Recommendation
R. Shirkavand*, X.Wei, C. Wang, Z. Hui, H. Huang, M. Gong*
ICLR 2026

Cost-Aware Contrastive Routing for LLMs
R. Shirkavand*, S. Gao, P. Yu, H. Huang*
NeurIPS 2025 (Spotlight)

Bilevel ZOFO: Bridging Parameter-Efficient and Zeroth-Order Techniques for Efficient LLM Fine-Tuning and Meta-Training
R. Shirkavand*, P. Yu, Q. He, H. Huang*
NeurIPS 2025

Efficient Fine-Tuning and Concept Suppression for Pruned Diffusion Models
R. Shirkavand*, P. Yu, S. Gao, G. Somepalli, T. Goldstein, H. Huang*
CVPR 2025

Not All Prompts Are Made Equal: Prompt-based Pruning of Text-to-Image Diffusion Models
R. Shirkavand*, A. Ganjdanesh*, S. Gao, H. Huang*
ICLR 2025

ARGUS: Hallucination and Omission Evaluation in Video-LLMs
R. Rawal, ***R. Shirkavand****, H. Huang, G. Somepalli, T. Goldstein*
ICCV 2025

ToMoE: Converting Dense Large Language Models to Mixture-of-Experts through Dynamic Structural Pruning
S. Gao, T. Hua, ***R. Shirkavand****, C. Lin, et. al*
TMLR 2025

From Pixels to Prose: A Large Dataset of Dense Image Captions
V. Singla, K.Yue, ***R. Shirkavand****, S. Paul, et al.*
Preprint

WORK EXPERIENCE

PhD Research Intern Jun 2025 - Dec 2025
Roblox

Working on Mixture of Experts for Recommendation and Generation.

TEACHING EXPERIENCE

Co-Instructor, Advanced Machine Learning Topics *Spring 2024*
Presented an overview of the transformer architecture and its applications.

Teaching Assistant, Systems & Projects Engineering *Summer 2022*
Taught essential topics in systems engineering and project management.

Teaching Assistant, Algorithmic Thinking *Spring 2022*
Delivered lectures and supported students in developing the theoretical and practical skills necessary for designing algorithms.

Teaching Assistant, Machine Learning *Fall 2019*
Supported students in gaining theoretical and practical knowledge in machine learning and statistical pattern recognition.

Teaching Assistant, Computer Networks *Spring 2019*
Facilitated the design and development of network applications and the implementation of conventional network management and routing protocols for students.

Teaching Assistant, Operating Systems *Fall 2018*
Guided and supported students in understanding and implementing the central concepts of operating systems through the development of a real, working, and simple kernel.

HONORS AND AWARDS

Nationwide University Entrance Exam - Mathematics *2015*
Ranked 14th among 181000 participants

Nationwide University Entrance Exam - Foreign Languages *2015*
Ranked 15th among 7000 participants

SKILLS

Programming Languages Python, Java, C++, Matlab

Libraries Pytorch, Tensorflow