

Mohit Kulkarni

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EDUCATION

ETH Zurich and University of Zurich

2023 – 2025

M.Sc, Neural Systems and Computation

Indian Institute of Technology, Kanpur

2019 – 2023

B.S, Mathematics and Scientific Computing. Minor in Machine Learning

PUBLICATIONS

Kulkarni, M.*, Chaudhry, H.*, Pehlevan, C. “From Recall to Reasoning: Understanding the Role of Associative Memory in Hybrid Architectures” **Submitted to ICLR 2026**.

Chaudhry, H.*, **Kulkarni, M.***, Pehlevan, C. “Test-time scaling meets associative memory: Challenges in subquadratic models.” **ICLR workshop on New Foundations in Associative Memory**, 2025.

Daie, K., . . . , **Kulkarni, M.**, Botvinick, M.M., Svoboda, K. “Optical brain computer interface for measuring circuit plasticity during learning.”, **In preparation**.

EXPERIENCE

Incoming Research Intern, Cohere

Dec 2025 – May 2026

Research Assistant, Emerge Lab, New York University

Aug 2025 – Present

Prof. Eugene Vinitsky

- Investigating meta-RL methods for k-shot adaptation to enable agents to rapidly align with cooperative partners.
- Developed a high-performance **welfare-diplomacy** simulator in **pufferlib** to study emergent cooperation and welfare in multi-agent reinforcement learning.

Research Fellow, SEAS, Harvard University

Sep 2024 – Aug 2025

Prof. Cengiz Pehlevan

- Explored efficiency versus reasoning trade-offs in linear attention and hybrid architectures. Pre-trained and scaled inference for hybrid models of size 150M-1.3B to understand mathematical reasoning capabilities.
- Designed and implemented an experimental framework for pretraining and fine-tuning hybrid architectures combining **flash-linear-attention** and **OLMo**.

Research Assistant, Allen Institute for Neural Dynamics

Sep 2020 – May 2023

Dr. Karel Svoboda, Dr. Kayvon Daie

- Built a scalable and efficient data analysis pipeline on GCP using **DataJoint**. Developed RNN models to understand learning in biological and artificial networks, comparing model predictions with experimental 2-Photon recordings.

SELECTED PROJECTS

GPU-accelerated Terminal Emulator | Personal Project

[GITHUB](#) ↗

- Developed a C++/OpenGL based terminal emulator with support for colors, advanced text rendering (**ANSI X3.64**) and ligatures; now integrating LLM function calling for seamless in-terminal AI capabilities.

Spiking Neural Network Benchmark | SNUFA Workshop

[WEBSITE](#) ↗

- Created SNUFA100 and SNUFA100_sentence datasets for evaluating Spiking Neural Networks; implemented baseline with surrogate gradient descent.

HONORS AND AWARDS

AI Startup School Travel Grant | Y Combinator

2025

Heyning-Roelli Foundation Scholarship | For Masters Thesis at Harvard

2024

Brain Computation and Learning Workshop Travel Grant | IISc Bangalore

2023

Cosyne 2022, Undergraduate Travel Grant | Lisbon, Portugal

2022

INSPIRE Scholarship | Awarded throughout Bachelors

2019 – 2023

All India Rank 637 | JEE Advanced

2019