DAKSHA LADIA

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RESEARCH

MODELLOG: From Token Probabilities to Semantic Constraints | EMNLP 2026 Accepted | link to the paper

• Co-developed a novel probabilistic framework that evaluates the quality of next token predictions for LLMs. Received 'Outstanding Paper award'.

Enhanced Information Retrieval via Query Synthesis

• Developed a retrieval pipeline using document segmentation, pseudo query generation, semantic matching, and embedding search; improved precision 4% over a BM25 baseline demonstrating data-centric approaches to evaluation-driven improvement.

Virtual Community: An Open World for Humans, Robots, and Society | ICLR 2026 Accepted | link to the paper

• Built an open world embodied AI simulation platform; generated benchmarks across agents, scenes, speed, and resolution.

Robotics Tactile Data Synchronization & Visualization | physicalaidata.co/dashboard

• Built a multimodal robotics data platform for collecting, synchronizing, and visualizing RGB, tactile, force/torque, joint state, and action signals from physical robot interaction.

• Developed time synchronization and data alignment pipelines to transform asynchronous sensor streams into temporally coherent datasets for robot learning.

Training Robot Arms to Play Musical Instruments | github.com/dakshaladia/vla-training-robot

• Fine-tuned the MolmoAct2 VLA model on teleoperated demonstrations; deployed on an SO-101 robot arm to execute xylophone playing tasks. Won First Prize at Mission Robotics Hackathon for best visualization.

WORK EXPERIENCE

Member of Technical Staff · Luma AI · Redwood City, CA — July 2026 – Present

• Develop systems for generative media products, working across image layering agents, inference pipelines, evaluation, and production infrastructure.

Research Extern · Allen Institute for AI (AI2) — Jan 2026 – May 2026

• Investigated contrastive and self-supervised pretraining signals as alternative training signals; designed experiments evaluating their effect on alignment and generalization, contributing to an EMNLP 2026 publication on probabilistic semantic evaluation.

Machine Learning Engineer Intern · System1 — May 2025 – Aug 2025

• Designed evaluation and regression pipelines to distinguish real model improvements from noise across prompt and model changes, identifying failure modes that informed training decisions; reduced manual validation effort significantly.

• Built a multi-agent Text-to-SQL system over enterprise data using RAG and execution-based reward feedback for validation, achieving 98% query execution success; containerized experiments with Docker for reproducible iteration.

Software Engineer · Microsoft · — June 2020 – July 2024

• Built a regression testing framework for parallel feature branch evaluation, enabling systematic model comparisons across 2TB/day of production data, reducing manual validation effort ~90% and surfacing behavioral regressions invisible to aggregate metrics.

• Improved large-scale offline ad simulation and ranking evaluation, reducing compute cost 9% and runtime 15% through sampling and evaluation optimizations.

TECHNICAL SKILLS

Python, SQL, Java, C#, LLMs, RLHF/Reward Modeling, Post-Training, Contrastive Learning, RAG, Information Retrieval, Evaluation, PyTorch, Hugging Face, FAISS, Scikit-learn, LangChain, NumPy, Pandas, AWS, Docker

EDUCATION

M.S. in Computer Science · University of Massachusetts Amherst — May 2026

B.Tech. in Computer Science and Engineering · Manipal Institute of Technology — June 2020