Akshita Ramya Kamsali

West Lafayette, IN, USA (Open to Relocate) | +1 7655867034 | akamsali@purdue.edu

https://www.linkedin.com/in/akamsali/ | https://akamsali.github.io/

EDUCATION

PhD in Electrical and Computer Engineering   **3.76/4.0**

Purdue University, West Lafayette, USA. Advisor: Dr. Avinash Kak   Jan'21-Dec'26*

Courses: Computer Vision, Probabilistic Graphical Models, Deep Learning, Artificial Intelligence, Linear Algebra, Random Variables, Graph Theory and Algorithms, Machine Learning, Data Science.

B.Tech. in Engineering Science and Electrical Engineering with Minor in Biomedical   **9.07/10**

Indian Institute of Technology (IIT) Hyderabad, India   Aug'16-May'20

Courses: Convex Optimization, Statistical Inference, Topics in Information Theory and Coding, Digital Signal Processing, Neuro-physiological Signal Processing, Advanced VLSI Design in LT-Spice and Cadance, Graduate level Mathematics courses.

WORK EXPERIENCE

Research Intern, Data Science Institute of Lawrence Livermore National Lab (LLNL)   May'25-Aug'25

- **LLMs as Bayesian Optimizers for Experimental Design:** Designed an LLM-guided, policy-aware Bayesian Optimization framework that few-shot "reasons" for experimental sciences [Under Review] [Top Presenter].
- **LLM Security and Alignment for Robotics in Self-Driving Labs**: Integrated small (8B) LLMs with multi-modal data streams from various sensors to enable real-time robotic decision/control in Self-Driving lab environments [Poster@NeurIPS'2025].
- Designed and tested adversarial inputs to evaluate LLM robustness and safety in high-stakes lab automation scenarios [Poster@NeurIPS'2025].

Graduate Researcher, Robot Vision Lab at Purdue University   Jul'22 - Present

- Interpreting deep neural networks through mutual information-based probes to self-discover concepts.
- Designed and evaluated a text-to-graph pipeline for document-level change detection using Entity-Relationship (ER) graphs. Analyzed graph quality using ROUGE-based precision, recall, and F1 metrics. [Poster@NeurIPS'2024]

Graduate Teaching Assistant, Elmore Family School of Electrical and Computer Engineering   Jan'21- Present

- **Deep Learning:** Head TA for a graduate class of 120 students. Developed state-of-the-art programming and theory assignments to facilitate learning in deep learning applications for various modalities like Computer Vision (CV), Natural Language Processing (NLP) and Reinforcement Learning (RL).
- **Python for Data Science:** Head TA for a 400-student graduate course; designed state-of-the-art Python assignments and migrated evaluation from GitHub Classroom to Gradescope with custom autograders. Led exam design to embed rigorous theory into assessment, measuring deep conceptual understanding alongside coding proficiency.

Research Exchange Student, University of Tokyo   Aug 2018

- JASSO scholar. Data Analytics and entrepreneurial work for Healthcare in Japan in juxtaposition to India
- Field work in India and Japan to collect maternal healthcare and presented results in Tokyo.

SKILLS

Technical: Python, git, C++, C, MATLAB, LATEX, Linux, Docker, SLURM, bash, Excel, R, Perl, Microsoft Suite

ML/Data Science: PyTorch, OpenCV, PyTorch Lightning, torch geometric, networkx, JAX, TRL, scikit-learn, Pandas, Tensorflow, WandB, Polars, Ray

LLM Tools: Ollama, HuggingFace, Pydantic, Langchain, Instructor

PUBLICATIONS

- Gyroids by Guidance: LLM-Augmented Bayesian Experiment Selection for Architected Materials [Under Review], **Akshita Ramya Kamsali,** Aldair Gongora.
- From Sensing to Reasoning: Multi-Modal Large Language Models Guiding Robotic Intelligence in Autonomous Labs**, NeurIPS 2025 WiML Workshop, Akshita Ramya Kamsali,** Aldair Gongora.
- Speak, Start, See, Sense: How NLP, Robotics, and Computer Vision can Improve Automated Experimentation in Self-driving Labs, **NeurIPS 2025 WiML Workshop,** Kristen Hallas, Tarun Allaparti, **Akshita Ramya Kamsali**, Aldair Gongora.
- Graph-based Change Detection for Natural Language, **NeurIPS 2024 WiML workshop, Akshita Ramya Kamsali**.

SERVICES

Logistics Chair, WiML@NeurIPS 2025: Lead for venue, catering and logistics for Workshop and Reception.

Reviewer, WiML@NeurIPS 2024, 2025

President, ECE Graduate Student Association: Led a team of 7 board members to successfully organize and oversee a series of professional development and social activities, benefiting over 600 ECE graduate students.