

# ANEESH KOMANDURI

🌐 [akomand.github.io/](https://akomand.github.io/)  
in [linkedin.com/in/akomand/](https://linkedin.com/in/akomand/)  
🐙 [github.com/akomand](https://github.com/akomand)

## EDUCATION

**University of Arkansas** Fayetteville, Arkansas  
**Doctor of Philosophy (Ph.D.)**, Computer Science **Aug 2021 - May 2026**

- **Advisor:** Dr. Xintao Wu

**Master of Science (M.S.)**, Computer Science, GPA: 4.0 **2021 - 2024**  
**Bachelor of Science (B.S.)**, Computer Science & Mathematics **2017 - 2021**

## SKILLS

- **Programming Languages:** Python, C/C++, Java, Javascript, SQL
- **ML Frameworks:** PyTorch, Tensorflow, scikit-learn, Pyro
- **ML Concepts:** Large (Vision) Language Models (LLM/VLM), Diffusion Models, Parameter-efficient Fine-tuning (e.g., LoRA), LLM Agents, Retrieval Augmented Generation (RAG), Variational Autoencoders, Flow-based Models, Causal Machine Learning, Graph Neural Networks
- **Research Expertise:** Generative Modeling, Representation Learning, Causal Modeling, Machine Unlearning, Large Vision-Language Models, Trustworthy Artificial Intelligence
- **Technologies:** LangChain, MCP, A2A, Flask, Django, AWS, Databricks, Postgres
- **Applications:** L<sup>A</sup>T<sub>E</sub>X, Jupyter Notebook, VSCode, PyCharm, Git, RStudio, MATLAB

## INDUSTRY EXPERIENCE

**NEC Laboratories America, Inc.** Princeton, New Jersey  
*Research Intern, Data Science & System Security* **May 2025 - Aug 2025**

- Developed core components of an in-house LLM-based AI chatbot system for multi-aspect IT Ticket service requests data
- Designed a hybrid concept and embedding refinement framework for historical ticket data to achieve efficient retrieval augmented generation (RAG) for new user requests
- Implemented a post-hoc weakly-supervised solution-aware contrastive learning algorithm to learn context-rich refined semantic embeddings for improved RAG performance compared to baselines

**Phillips 66** Bartlesville, Oklahoma  
*Digital Security and Cloud Engineering Intern* **May 2020 - Aug 2020**

- Developed infrastructure as code templates with Terraform and built CI/CD pipelines for the creation of resources such as SQL Servers, Blob Storages, Key Vaults, and Firewall rules for Azure Data Factory in a production environment
- Automated the process of keeping inventory on cloud instance security group rules for accounts throughout the company by creating a Python script to pull data using the Dome9 REST API

## RESEARCH EXPERIENCE

**Social Awareness & Intelligent Learning Lab (SAIL)** Fayetteville, Arkansas  
*Graduate Research Assistant* **Oct 2021 - Present**

- Proposed theory and learning frameworks toward identifiable causal representation learning, high-fidelity counterfactual generation, and causal reasoning from visual input
- Currently investigating causal reasoning in large vision-language models, interpretability in large-scale generative models, and applications of causal generative modeling in healthcare
- Published research papers at several top-tier conferences and journals such as IJCAI, ECAI, AAAI, EMNLP, and TMLR<sup>1</sup>

## PUBLICATIONS

Karuna Bhaila, **Aneesh Komanduri**, Minh-Hao Van, and Xintao Wu. Cross-Modal Attention Guided Unlearning in Large Vision-Language Models. ***Lock-LLM Workshop@NeurIPS***. 2025.

<sup>1</sup>See my Google Scholar for a full list of publications: [scholar.google.com/citations?user=IMtCc1QAAAAJ&hl=en](https://scholar.google.com/citations?user=IMtCc1QAAAAJ&hl=en)

**Aneesh Komanduri**, Karuna Bhaila, and Xintao Wu. CausalVLBench: Benchmarking Visual Causal Reasoning in Large Vision-Language Models. *Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP Main)*. 2025.

**Aneesh Komanduri**. Toward Causal Generative Modeling: From Representation to Generation. *Proceedings of AAAI Conference on Artificial Intelligence (AAAI)*. 2025.

**Aneesh Komanduri**, Chen Zhao, Feng Chen, and Xintao Wu. Causal Diffusion Autoencoders: Toward Counterfactual Generation via Diffusion Probabilistic Models. *Proceedings of 27th European Conference on Artificial Intelligence (ECAI)*. 2024.

*\*Also appeared in non-archival Generative Models for Computer Vision Workshop at CVPR 2024*

**Aneesh Komanduri**, Yongkai Wu, Feng Chen, and Xintao Wu. Learning Causally Disentangled Representations via the Principle of Independent Causal Mechanisms. *Proceedings of the 33rd International Joint Conference on Artificial Intelligence (IJCAI)*, 2024.

*\*Also appeared in non-archival Causal Representation Learning Workshop at NeurIPS 2023*

**Aneesh Komanduri**, Xintao Wu, Yongkai Wu, and Feng Chen. From Identifiable Causal Representations to Controllable Counterfactual Generation: A Survey on Causal Generative Modeling. *Transactions on Machine Learning Research (TMLR)*. 2024.

**Aneesh Komanduri**, Yongkai Wu, Wen Huang, Feng Chen, and Xintao Wu. SCM-VAE: Learning Identifiable Causal Representations via Structural Knowledge. *IEEE International Conference on Big Data (BigData)*, 2022.

**Aneesh Komanduri** and Justin Zhan, Neighborhood Random Walk Graph Sampling for Regularized Bayesian Graph Convolutional Neural Networks. *IEEE International Conference on Machine Learning and Applications (ICMLA)*, 2021.

## HONORS AND AWARDS

1st Place Graduate Student Poster @ NSF 2024 DART Conference (\$1,500) Sep. 2024  
Awarded by Arkansas Economic Development Commission (AEDC)

Doctoral Academy Fellowship (\$48,000) 2021-2025  
*University of Arkansas Graduate School and International Education*

Congressional Letter for STEM Outreach July 2021  
*U.S. House of Representatives*

Lawrence Jessor Toll, Jr. Endowed Scholarship (\$1,000) 2020-2021  
*University of Arkansas Department of Mathematical Sciences*

Silas Hunt Distinguished Scholarship (\$32,000) 2017-2021  
*University of Arkansas*

## SERVICE

### Conference Reviewer

- AAAI Conference on Artificial Intelligence (AAAI'26)
- European Conference on Artificial Intelligence (ECAI'25)
- ACM SIGKDD Conference on Knowledge Discovery and Data Mining (KDD'25)
- Pacific-Asia Conference on Knowledge Discovery and Data Mining (PAKDD'25)
- International Joint Conference on Artificial Intelligence (IJCAI'25)
- International Conference on Machine Learning (ICML'25)
- International Conference on Learning Representations (ICLR'25)

- Conference on Neural Information Processing Systems (NeurIPS'24)
- Learning on Graphs Conference (LoG'24)
- IEEE International Conference on Machine Learning and Applications (ICMLA'24)

#### Journal Reviewer

- Transactions on Machine Learning Research (TMLR)
- International Journal of Data Science and Analytics (IJDSA)
- Pattern Recognition Journal
- IEEE Access

#### Workshop Reviewer

- Causality and Large Models Workshop (CaLM@NeurIPS'24)
- Structured Probabilistic Inference and Generative Modeling Workshop (SPIGM@ICML'24)

#### TEACHING & MENTORSHIP EXPERIENCE

#### UNITE, Army Educational Outreach Program (AEOP)

Fayetteville, Arkansas

*Lead Research Mentor* ([https://github.com/akomand/AEOP\\_Research\\_2021](https://github.com/akomand/AEOP_Research_2021))

**2020, 2021**

- Guided High School students from underrepresented communities with research in data science
- Created lesson plans to teach data/text preprocessing, classification/regression, word embeddings, entity extraction, topic modeling, language models, transformers, implementations in Python, deep learning pipeline in PyTorch, and applications in question answering
- Assisted students in the development of a machine learning research paper and helped students present research to be evaluated by the Department of Defense education initiative

#### University of Arkansas

Fayetteville, Arkansas

*Teaching Assistant*

**Jan 2020 - Dec 2020**

- **Courses:** CSCE 2004 (Programming Foundations I) and CSCE 3193 (Programming Paradigms)
- Taught two lab sections weekly for a total of over 45 computer science & engineering students and held office hours for over 200 students
- Created, debugged, graded, and provided feedback on object-oriented and functional programming assignments (C++/Java/Python) and exams and held office hours for 200+ students