

# Rohan Surana

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University of California, San Diego  
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San Diego, CA

## Research interests

LLM Alignment and  
Post-training,  
Conversational  
Recommendation  
Systems, AI Agents,  
Multi-modal Learning

My research spans preference optimization, information retrieval, and multimodal learning. I develop methods that help LLMs learn from sparse, structured feedback: pairwise preferences, ranked lists, and in-context signals. Recent work includes multi-negative DPO (MASS-DPO) with principled selection strategies, in-context ranking objectives for retrieval and recommendation (IRPO), and multimodal extensions that reduce hallucinations (MISP-DPO). I also build practical systems like active dialogue synthesis for low-resource domains (From review to dialogues) and benchmarks for audio-centric recommendation (MusiCRS).

## Education

- 2024 – 2026 **University of California, San Diego (UCSD)** – San Diego, CA  
M.S. in Data Science, Expected June 2026  
Advisor: Prof. Julian McAuley. *GPA: 3.88/4.00.*
- 2019 – 2022 **San Jose State University** – San Jose, CA  
B.S. in Software Engineering, May 2022  
*GPA: 3.87/4.00 (Summa cum laude).*

## Publications

- [1] **In-context Ranking Preference Optimization (IRPO)**  
J. Wu\*, **Rohan Surana\***, Z. Xie, Y. Shen, Y. Xia, T. Yu, R. Rossi, P. Ammanabrolu, J. McAuley.  
*Second Conference on Language Modeling (COLM 2025).*
- [2] **MASS-DPO: Multi-Negative Active Sample Selection for Direct Policy Optimization**  
**Rohan Surana\***, J. Wu\*, X. Li, Y. Shen, C. Wang, T. Yu, P. Ammanabrolu, J. Shang, J. McAuley.  
*Under review at ICLR (Avg. 5.5).*
- [3] **Traceable and Explainable Multimodal Large Language Models: An Information-Theoretic View**  
Z. Huang, J. Wu, **Rohan Surana**, R. Jain, T. Yu, R. Addanki, D. Arbour, S. Kim, J. McAuley.  
*Second Conference on Language Modeling (COLM 2025).*
- [4] **Image Difference Captioning via Adversarial Preference Optimization**  
Z. Huang, J. Wu, **Rohan Surana**, T. Yu, D. Arbour, R. Sinha, J. McAuley.  
*Proceedings of the 2025 Conference on Empirical Methods in Natural Language Processing (EMNLP 2025).*
- [5] **From Reviews to Dialogues: Active Synthesis for Zero-Shot LLM-based Conversational Recommender System**  
**Rohan Surana\***, J. Wu\*, Z. Xie\*, Y. Xia, H. Steck, D. Liang, N. Kallus, J. McAuley.  
*Preprint.*
- [6] **MusiCRS: Benchmarking Audio-Centric Conversational Recommendation**  
**Rohan Surana\***, A. Namburi\*, G. Mundada\*, A. Lal\*, Z. Novack, J. McAuley, J. Wu.  
*Submitted.*

- [7] **AMPS: Adaptive Modality Preference Steering via Functional Entropy**  
Z. Huang, X. Li, J. Wu, **Rohan Surana**, T. Yu, R. Wang, J. McAuley, J. Shang.  
*Under review at ICLR (Avg. 5.33).*
- [8] **Importance Sampling for Multi-Negative Multimodal Direct Preference Optimization (MISP-DPO)**  
X. Li, C. Wang, J. Wu, **Rohan Surana**, T. Yu, J. McAuley, J. Shang.  
*Under review at ICLR (Avg. 5.0).*
- [9] **WS-GRPO: Weakly-Supervised Group-Relative Policy Optimization**  
G. Mundada\*, **Rohan Surana\***, J. Y. Zhang, X. Li, T. Yu, L. Yao, J. Shang, J. McAuley, J. Wu.  
*Under review at ICLR.*
- [10] **From Verifiable Rewards to Policy Learning: A Survey of Reinforcement Learning from Verifiable Rewards**  
G. Mundada\*, **Rohan Surana\***, et al.  
*Under review at ACL.*

## Research experience

2024 – Present **Graduate Student Researcher, McAuley Lab**

University of California, San Diego.

Research on preference optimization methods, multi-modal learning, and conversational AI systems. Published/submitted 10 papers to top-tier venues including COLM, EMNLP, ICLR (under review), and ACL (under review). Focus on conversational recommendation systems and LLM alignment. Led collaborative research projects with **Adobe** and **Netflix**.

## Industry experience

Jun 2025 – Sep 2025 **Dell Technologies (AI Research Intern)** – Hopkinton, MA

Built multi-agent LLM system with LangGraph/LangChain + vLLM, reducing p95 latency by 40%. Designed scalable RAG pipelines and agent-based monitoring.

Mar 2024 – Aug 2024 **Dell Technologies (Software Engineer II)** – Santa Clara, CA

Architected TOSCA-based framework, reducing provisioning time 30%. Built real-time infrastructure digital twin with predictive analytics.

Jul 2022 – Mar 2024 **Dell Technologies (Software Engineer I)** – Santa Clara, CA

Accelerated cluster time-to-ready by 20% through automated Kubernetes operators. Enhanced system observability with OpenTelemetry.

May 2020 – Aug 2020 **Confluxsys LLC (Software Developer Intern)** – Folsom, CA

Built modules using Spark, Scala, & GNNs improving pipeline throughput 25% for healthcare and finance clients.

## Teaching experience

Sept 2025 – Present **Teaching Assistant, University of California, San Diego**

CSE 258 (Web Mining & Recommender Systems).

Mar 2025 – Sept 2025 **Teaching Assistant, University of California, San Diego**

CSE 153 (Machine Learning for Music).

Jan 2020 – May 2022 **Teaching Assistant, Computer Science Department, San Jose State University**

CS46B (Data Structures), CS149 (Operating Systems).

Jan 2020 – Aug 2021 **Math Workshop Facilitator, Mathematics Department, San Jose State University**

Pre-calculus, Calculus I, II, III, and Discrete Math.

Jan 2022 – May 2022 **Peer Connections Tutor and Mentor, San Jose State University**

Provided tutoring and mentorship support for undergraduate students.

## Honors and awards

- 2022 Summa Cum Laude (San Jose State University)  
*Awarded for GPA above 3.85.*
- 2021 SDHacks2021: Best Sustainability Hack, Best Hardware Hack  
*Plus 2 additional sponsor prizes.*
- 2019, 2021 President's Scholar (San Jose State University)  
*Awarded for GPA of 4.0.*
- 2019 – 2022 Dean's Scholar (San Jose State University)  
*Fall 2019, Fall 2020, Fall 2021, Spring 2022 (GPA above 3.65).*