

Rohan Surana

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University of California, San Diego
Halıcıoğlu Data Science Institute
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).