Jaspreet Ranjit

4TH YEAR CS PhD CANDIDATE · UNIVERSITY OF SOUTHERN CALIFORNIA

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Research Statement

My research advances human-AI collaboration by evaluating when language models meaningfully augment expert judgment, where they fail, and how to design safety and alignment mechanisms, such as abstention and expert-guided knowledge extraction, that keep model behavior accountable to human values. I focus on domains like homelessness services and suicide prevention, where reliable collaboration and expert oversight are essential. Drawing on techniques from HCI, I translate stakeholder requirements into open-source tools that convert unstructured text into structured insights for decision augmentation for community organizations in Los Angeles, and D.C. My work has been recognized with the **Outstanding Paper Award at EMNLP 2024**, the **WiSE Merit Award for 2025**, and has received a **$50K Min Family Challenge Grand Prize**.

Education

University of Southern California (USC)
Los Angeles, CA

PH.D. IN COMPUTER SCIENCE — NATURAL LANGUAGE PROCESSING
Expected 2027

Advisor: Swabha Swayamdipta, DILL Lab
Research Interests: NLP for social impact, Human-AI Collaboration, Responsible AI
Leadership: Student leader of Center for AI in Society, Secretary of Women in Science and Engineering

University of Virginia (UVA)
Charlottesville, VA

MASTER OF SCIENCE IN COMPUTER SCIENCE
Dec 2021

Advisor: Vicente Ordóñez
Thesis: *Analyzing Gender Biases in Visual Recognition Models*

University of Virginia (UVA)
Charlottesville, VA

BACHELOR OF SCIENCE IN COMPUTER SCIENCE
May 2021

Advisor: Madhur Behl
Thesis: *Scenario2Vector: scenario description language based embeddings for traffic situations.*
Rodman Scholar (Top 5% of Engineering Class)

Research Experience

Data, Interpretability, Language and Learning Lab (DILL), USC
Los Angeles, CA

GRADUATE RESEARCH ASSISTANT
Fall 2022 – Present

Advisor: Prof. Swabha Swayamdipta
My research focuses on human-centered AI alignment, with an emphasis on how AI systems can adapt to domain-specific tasks in high-impact societal applications. I study how domain experts and AI can be effective partners in knowledge extraction and, more broadly, in applications for social good. To this end, I develop new methods and human-grounded evaluations designed to enable outcomes with real societal impact in social services, and healthcare by collaborating closely with community partners and stakeholders.

Vision, Language, and Learning Lab, UVA
Charlottesville, VA

MACHINE LEARNING RESEARCH ASSISTANT
Nov 2020 – July 2022

Advisor: Prof. Vicente Ordóñez
Analyzed how pretraining data, model architecture, and training setup affect gender biases in visual recognition systems. In collaboration with Columbia University (Prof. Baishakhi Ray). Thesis

Link Lab, UVA
Charlottesville, VA

MACHINE LEARNING RESEARCH ASSISTANT
Aug 2019 – Nov 2020

Advisor: Prof. Madhur Behl
Built and analyzed the Traffic Scenario Similarity (TSS) dataset containing human similarity judgments over driving scenarios. Experimented with multimodal transformer models in PyTorch to label traffic videos and understand scenario similarity. Project Site

Aerospace Engineering Research Group, UVA
Charlottesville, VA

MACHINE LEARNING RESEARCH ASSISTANT
Oct 2017 – Aug 2019

Advisor: Prof. David Sheffler
Developed a 3D-printed autonomous UAV platform (Raspberry Pi + Pixhawk) for fully autonomous mission execution. Prototyped machine learning pipelines in OpenCV for onboard object recognition and mission-specific visual communication.

Publications & Preprints

Are We Automating the Joy Out of Work? Designing AI to Augment Work, Not Meaning

Jaspreet Ranjit, Ke Zhou, Swabha Swayamdipta, Daniele Quercia

Under Review, CHI 2025.

Paper coming soon!

Uncovering Intervention Opportunities for Suicide Prevention with Language Model Assistants

Jaspreet Ranjit, Hyundong J. Cho, Claire J. Smerdon, Yoonsoo Nam, Myles Phung, Jonathan May, John R. Blosnich, Swabha Swayamdipta

EAAMO'25, GenAI4Health Workshop at NeurIPS'25

Paper · 🏆 Nominated for award at NeurIPS'25 GenAI4Health Workshop, Runner Up for Oral Presentation at ShowCAIS'25

Uncovering and Mitigating Covert Dialect Bias in LLMs

Claire Smerdon, Kritee Kondapally, Pooja Patel, Ogheneyoma Akoni, Jevon Torres, Matthew Finlayson, **Jaspreet Ranjit**, Swabha Swayamdipta

Under Review, 2025.

Paper coming soon! · Accepted to EAAMO'25 for Poster Presentation · 🏆 Best Responsible AI Impact Award at SoCal AI Responsibility Summit 2025

OATH-Frames: Characterizing Online Attitudes Towards Homelessness via LLM Assistants

Jaspreet Ranjit, Brihi Joshi, Rebecca Dorn, Laura Petry, Olga Koumoundouros, Jayne Bottarini, Peichen Liu, Eric Rice, Swabha Swayamdipta

Empirical Methods in Natural Language Processing (EMNLP), 2024.

Paper · 🏆 Outstanding Paper Award at EMNLP'24, Best Poster at ShowCAIS 2024

Variation of Gender Biases in Visual Recognition Models Before and After Finetuning

Jaspreet Ranjit, Tianlu Wang, Baishakhi Ray, Vicente Ordóñez

NeurIPS Workshop on Algorithmic Fairness through the Lens of Time, 2023.

Paper

Scenario2Vector: Scenario Description Language Based Embeddings for Traffic Situations

Aron Harder, **Jaspreet Ranjit**, Madhur Behl

ACM/IEEE 12th International Conference on Cyber-Physical Systems (ICCPS), 2021.

Paper

Scenario2Vec: A Scenario Description Language to Characterize Traffic Scenarios for the Development of a Certification Scheme

Jaspreet Ranjit, Madhur Behl, Catherine Baritaud

Technical Report, 2020.

Paper

Awards & Press

2025

Voted Judge's Favorite, and receieved Honorable Mention in AI for Social Good Hackathon hosted by LA Tech Week x Lovable

WiSE Merit Award for 2025

First Place in Min Family Challenge: CaseFlo – an agentic AI platform that streamlines the workflow of case managers, enabling effective discovery of resources, reduced case worker burnout, and data-driven interventions for people experiencing homelessness.

Runner up for best oral presentation at ShowCAIS 2025: Designing and Validating Intervention Opportunities for Suicide Prevention with Language Model Assistants.

2024

Viterbi Magazine: Featured in the USC Viterbi Magazine under the theme: "Human Centered" The USC School of Advanced Computing.

Received an outstanding paper award at EMNLP 2024 for OATH-Frames

Passed my Qualifying Exam

Presidential Leadership Council: Invited to present at USC's Presidential Leadership Council.

Spectrum News Coverage: Spectrum News covers our work on OATH-Frames: Characterizing Online Attitudes Towards Homelessness via LLM Assistants.

USC Media Coverage: USC covers our work on OATH-Frames: Characterizing Online Attitudes Towards Homelessness via LLM Assistants.

Best Poster Award: ShowCAIS 2024: Awarded best poster at annual conference organized by Center for AI in Society.

2021

Rodman Scholar: Academic honor awarded to top 5% of undergraduate engineering class at University of Virginia.

Cornell, Maryland, and Max Planck Pre-Doctoral Research School: Promising undergraduate and Masters students are invited to attend this program that provides an overview of the state of the art research in Computer Science.

Truly OpenML: Led a team of four people to pitch a web application that provides a collaborative, intuitive and accessible platform for individuals who are passionate about learning machine learning (ML). Semi-finalist at the American Evolution Innovator's Cup.

Invited Talks

2025

National Alliance to End Homelessness x Center for Homelessness Impact: Using AI to End Homelessness
Homelessness Policy Research Institute Research Seminar
Google: Technology, AI, Society and Culture Team: STAR Talk Series

2024

National Alliance to End Homelessness: Research Seminar
ISI Natural Language Seminar
USC Center for AI in Society Seminar Talk

Service & Leadership

Conference Reviewer

ACM Conference on Human Factors in Computing Systems (CHI)– 2025
Workshop on Natural Language Processing for Positive Impact (NLP4PI)– 2025
International Joint Conference on Artificial Intelligence (IJCAI)– 2025
Empirical Methods in Natural Language Processing (EMNLP)– 2024
Association for Computational Linguistics (ACL)– 2024

Leadership

Secretary, Women in Science and Engineering (WiSE)– USC
Student Leader, Center for AI in Society (CAIS)– USC

Mentoring

Graduate Mentoring

Risha Surana, USC →Microsoft
Aspect Based Summarization for Public Attitudes Towards Homelessness: 2024-present

Claire J. Smerdon, USC →Palo Alto Networks
Uncovering and Mitigating Covert Dialect Bias in LLMs: 2024-2025

Kritee Kondapally, USC
Uncovering and Mitigating Covert Dialect Bias in LLMs: 2024-present

Pooja Patel, USC
Uncovering and Mitigating Covert Dialect Bias in LLMs: 2024-present

Ogheneyoma Akoni, USC
Uncovering and Mitigating Covert Dialect Bias in LLMs: 2024-present

Myles Phung, USC →Citadel Securities
Uncovering Intervention Opportunities for Suicide Prevention with Language Model Assistants: 2024-2025

Ruyuan Zhou, USC →PhD at Georgia Tech
OATH-Frames: Characterizing Online Attitudes Towards Homelessness via LLM Assistants: 2023-2024

Undergraduate Mentoring
Aryan Gulati, USC →Bloomberg
Aspect Based Summarization for Public Attitudes Towards Homelessness: 2024-2025

Catherine He, USC
Aspect Based Summarization for Public Attitudes Towards Homelessness: 2024-2025

Industry Experience

Nokia Bell Labs: Social and Responsible AI Team   *Cambridge, UK*

RESEARCH INTERN   *Jun 2025 – Aug 2025*

Mentor: Daniele Quercia, Ke Zhou
Conducted mixed-methods research on human–AI alignment in workplace automation, combining survey design, behavioral analysis, and language-model simulations. Modeled divergences between worker and developer automation preferences to inform human-centered frameworks for responsible and value-aligned AI deployment. Investigated how AI-driven workplace automation reshapes workers' sense of value, purpose, and meaning. Designed and conducted large-scale surveys with developers and workers to examine divergences in automation preferences, and used language-model simulations to scale behavioral insights. Developed computational frameworks for socially informed automation that embed human well-being, stakeholder values, and cultural context into AI system design. *Under review at CHI 2025*

Vimeo   *New York, NY*

MACHINE LEARNING RESEARCHER ON SEARCH AND RECOMMENDATIONS   *Jun 2021 – Aug 2021*

Mentor: Silvena Chan
Analyzed gender biases in search and recommendation models and formulated a bias identification framework with the Rank Bias metric quantifying gender biases in ranked search results. Developed learning to rank (LTR) models in Pytorch using RankNet and LambdaMART, and developed an internal dataset for LTR models in private search. Worked with big data in Snowflake and wrote queries in SQL to scale bias experiments.
Medium Publication

Expedition Technology   *Herndon, VA*

MACHINE LEARNING ENGINEER   *Jun 2019 – Aug 2019*

Mentor: Cheryl Daner
Researched anchorless object detection techniques for 3D point cloud object detection. Designed a convolutional neural network on the basis of existing VoxelNet and CenterNet architectures in Tensorflow. *Summary of Work*

NASA Goddard Spaceflight Center   *Greenbelt, MD*

CORE FLIGHT SOFTWARE ENGINEER   *Jun 2018 – Aug 2018*

Mentor: Alessandro Geist
Developed and benchmarked core Flight Software apps in C/C++ that directed AI image processing and command/telemetry with ground station. Worked with Xilinx Platform Studio and ISE Design Suite.

NASA Langley Research Center   *Hampton, VA*

3D PRINTING ENGINEER   *Jun 2016 – Aug 2016*

Mentor: Godfrey Sauti
Leveraged sensor technology to design and improve the dimensional integrity of a printed component using Pronterface. Designed 3D components in Inventor.