

# AAKRITI KUMAR

aakriti.kumar@kellogg.northwestern.edu  $\diamond$  [www.aakritikumar.com](http://www.aakritikumar.com)  $\diamond$  [google scholar](#)

## CURRENT APPOINTMENT

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### Postdoctoral Researcher

Aug 2024-

Kellogg School of Management, Northwestern University  
Northwestern Institute on Complex Systems

## EDUCATION

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### PhD in Cognitive Science

2018 - 2024

University of California, Irvine

### MS in Statistics

2018 - 2022

University of California, Irvine

### BTech in Engineering

2011 - 2015

Indian Institute of Technology, Madras

## RESEARCH EXPERTISE

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Human-AI Collaboration, AI-Assisted Decision-Making, Computational Social Science, Behavioral Science, Cognitive Science, Statistical Modeling, Team Dynamics, Digital Experimentation

## PEER-REVIEWED PUBLICATIONS

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- [1] **A. Kumar**, N. Pongpeth, D. Yang, E. Farrell, B. Lambert, M. Groh. When Large Language Models are Reliable for Judging Empathic Communication. *Nature Machine Intelligence (in press)*
- [1] **A. Kumar\***, R. Tham\*, M. Steyvers (2025). Seeing Things Differently: The Role of Differing Perspectives in Advice-Taking. *Cognitive Science (Vol. 47)*
- [2] M. Steyvers, H. Tejada, **A. Kumar**, S. Karny, X. Hu, L. Mayer, P. Smyth (2025). What large language models know and what people think they know. *Nature Machine Intelligence*
- [3] N. Kamali, K. Nakamura, **A. Kumar**, A. Chatzimparmpas, J. Hullman, M. Groh (2025). Characterizing Photorealism and Artifacts in Diffusion Model-Generated Images. *CHI 2025*
- [4] **A. Kumar**, P. Smyth, M. Steyvers (2023). Differentiating mental models of self and others: A hierarchical framework for knowledge assessment. *Psychological Review*
- [4] M. Steyvers & **A. Kumar**, (2023). Three Challenges for AI-Assisted Decision-Making. *Perspectives on Psychological Science*
- [6] M. Kelly, **A. Kumar**, P. Smyth, M. Steyvers (2023). Capturing Humans' Mental Models of AI: An Item Response Theory Approach. *FAccT 2023*
- [7] **A. Kumar**, K. Akash, S. Mehrotra, T. Misu, M. Steyvers (2023). When Do Drivers Intervene In Autonomous Driving?. *Human Robot Interaction (Late-Breaking Report) 2023*
- [7] H. Lemus, **A. Kumar**, M. Steyvers (2022). How Displaying AI Confidence Affects Reliance and Hybrid Human-AI Performance. *Proceedings of the Second International Conference on Hybrid Human-Machine Intelligence.*
- [8] H. Lemus, **A. Kumar**, P. Smyth, M. Steyvers (2022). AI-assisted Decision-Making: A Cognitive Modeling Approach to Infer Latent Reliance Strategies. *Computational Brain & Behavior*
- [9] H. Lemus, **A. Kumar**, M. Steyvers (2022). An Empirical Investigation of Reliance on AI-Assistance in a Noisy-Image Classification Task. *Proceedings of the First International Conference on Hybrid Human-Machine Intelligence.*

- [10] **A. Kumar\***, S. Chatterjee<sup>1</sup>, P. Shenoy (2022). Meta-Learning of Dynamic Policy Adjustments in Inhibitory Control Tasks. *Cognitive Science (Vol. 44)*.
- [11] **A. Kumar**, T. Patel, A. Benjamin, M. Steyvers (2021). Explaining Algorithm Aversion with Metacognitive Bandits. *Cognitive Science (Vol. 43)*
- [12] **A. Kumar**, A. Benjamin, A. Heathcote, M. Steyvers (2021). Comparing models of learning and relearning in large-scale cognitive training data sets. *NPJ Science of Learning*.
- [13] J. Rouder, **A. Kumar**, J. Haaf (2019). Why Most Studies of Individual Differences With Inhibition Tasks Are Bound To Fail. *Psych Bulletin & Review*

## PAPERS IN PROGRESS

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- [P1] **A. Kumar**, F. Pongpeth, D. Yang, B. Lambert, M. Groh. Boosting empathic communication skills with LLM powered role playing games.
- [P2] N. Dundas, Z. Guo, **A. Kumar**, O. Badri, A. Koochek, M. Groh. Mapping Diagnostic Blind spots by Physicians and AI in Dermatology.
- [P3] N. Kamali, **A. Kumar**, A. Chatzimpampas, C. Gerstner, J. Hullman, M. Groh. Guiding Human Visual Attention to Spot AI-Generated Images.
- [P4] **A. Kumar**, P. Petrides, K. Chauncey. Impact of System Delays on User Stress & Behavioral Intention: A Mixed Methods Approach.

## INVITED TALKS & PRESENTATIONS

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- Cultivating Human Empathy with AI Role-playing Partners. *Parallel Talk, Conference on Digital Experimentation @ MIT, 2025*
- Cultivating Human Empathy with AI Partners. *Invited Speaker, DySoc Seminar 2025, University of Tennessee, Knoxville*
- Cultivating Human Empathy with AI Partners. *Guest Speaker, Learn Behavioral Leadership Symposium, Chicago*
- Large language models can provide expert-aligned judgments of empathic communication. *Lightning Talk, Northwestern Institute on Complex Systems Seminar, 2025*
- What Decision-Makers Should Know About Generative AI. *JTIP Symposium 2025: Innovation, AI, and Access, Northwestern School of Law*
- AI-assisted Decision Making. *UC Noyce Initiative Symposium, 2022*
- Understanding Human-AI Teams. *Noyce Symposium, 2022*
- Member, Panel on Human-AI Relationships. *Noyce Symposium, 2022*
- Metacognitive Bandits: When Do Humans Seek AI Assistance? *Social Intelligence in Humans and Robots Workshop, ICRA 2021*
- Explaining Algorithm Aversion with Metacognitive Bandits. *Workshop on Human-AI Collaboration in Sequential Decision-Making, ICML 2021*

## AWARDS AND FELLOWSHIPS

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UCI Associate Dean's Fellowship 2023, UCI	<i>Total Award: \$7000</i>
Irvine Initiative in AI, Law, and Society Fellowship 2021-2023	<i>Total Award: \$66,000</i>
Graduate Dean's Recruitment Fellowship 2018, UCI	<i>Total Award: \$5000</i>

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<sup>1</sup>\* indicates equal contribution

## EXPERIENCE

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### Quantitative Human-Computer Interaction Intern, Motional

*Apr'23 - Dec'23*

*Human Assistance in Self-Driving Robotaxis:* Investigated Motional's remote vehicle assistance capability in assisting their robotaxi. [P2]

### Human Behavior Modeling Intern, Honda Research Institute

*Jun'22 - Sept'22*

*Trust in Autonomous Vehicles:* Created a quantitative model to capture the effect of an autonomous vehicle's driving style on users' trust and risk perception. Identified scenarios perceived as risky across two mobility types [7]

### Statistical Consultant, Google Research, India

*Jan'20 - Jan'21*

*AI for Social Good:* Helped design data collection and analysis methods to evaluate an ML solution's efficacy in reducing drop-off from an Indian maternal health program. *Reliability in People's Inhibitory Control:* Proposed and tested RNN models to assess people's cognitive control task traits are reliable. [8]

## TEACHING EXPERIENCE

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Teaching Assistant, UC Irvine: Probability and Statistics in Psychology I, II, III *Fall 2019 - Spring 2020*

Lead Teaching Assistant, UC Irvine: Introduction to Human Memory

*Winter 2019*

Teaching Assistant, UC Irvine: Introduction to Psychology

*Fall 2018*

## SKILLS

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**Programming:** Python (pandas, numpy, matplotlib, scikit-learn, pytorch), R, Stan, HTML/CSS, Flask

**Research Methods:** Experiment Design, Computational Cognitive Models, Generalised Linear Models, Bayesian Statistics, Probabilistic Learning, Machine Learning

## MEMBERSHIPS AND SERVICE

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Reviewer (TiiS, Trends in Cognitive Sciences, Cognitive Science, Human-Robot Interaction, CHI, Applied Psychology: Health and Well-Being) *2020 - Present*

Department Colloquium Coordination Committee Member

*2021 - 2022*

Cognitive Science Society Student Member