AAKRITI KUMAR

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CURRENT APPOINTMENT

Postdoctoral Researcher *Aug 2024-*
Kellogg School of Management, Northwestern University
Northwestern Institute on Complex Systems

EDUCATION

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

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

PEER-REVIEWED PUBLICATIONS

[1] **A. Kumar**, N. Poungpeth, D. Yang, E. Farrell, B. Lambert, M. Groh. When Large Language Models are Reliable for Judging Empathic Communication. *Nature Machine Intelligence (accepted)*

[2] **A. Kumar**, R. Tham, M. Steyvers (2025). Seeing Things Differently: The Role of Differing Perspectives in Advice-Taking. *Cognitive Science (Vol. 47)*

[3] M. Steyvers, H. Tejeda, **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*

[4] N. Kamali, K. Nakamura, **A. Kumar**, A. Chatzimparmpas, J. Hullman, M. Groh (2025). Characterizing Photorealism and Artifacts in Diffusion Model-Generated Images. *CHI 2025*

[5] **A. Kumar**, P. Smyth, M. Steyvers (2023). Differentiating mental models of self and others: A hierarchical framework for knowledge assessment. *Psychological Review*

[6] M. Steyvers & **A. Kumar**, (2023). Three Challenges for AI-Assisted Decision-Making. *Perspectives on Psychological Science*

[7] M. Kelly, **A. Kumar**, P. Smyth, M. Steyvers (2023). Capturing Humans' Mental Models of AI: An Item Response Theory Approach. *FAccT 2023*

[8] **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*

[9] 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.*

[10] 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*

[11] 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.*

[12] **A. Kumar***, S. Chatterjee*[1], P. Shenoy (2022). Meta-Learning of Dynamic Policy Adjustments in Inhibitory Control Tasks. *Cognitive Science (Vol. 44).*

[13] **A. Kumar**, T. Patel, A. Benjamin, M. Steyvers (2021). Explaining Algorithm Aversion with Metacognitive Bandits. *Cognitive Science (Vol. 43)*

[14] **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.*

[15] 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

[P1] **A. Kumar**, F. Poungpeth, 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. Chatzimparmpas, 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

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 Behvaioral 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

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

[1]* indicates equal contribution

Recruitment Fellowship Award, 2018, Department of Cognitive Science, UCI *Total Award: $5000*

EXPERIENCE

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

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

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

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