

# AAKRITI KUMAR

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## EDUCATION

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### PhD in Cognitive Science

2018 - 2023 (*expected*)

University of California, Irvine

Advisor: Mark Steyvers

### MS in Statistics

2018 - 2022 (*expected*)

University of California, Irvine

### BTech in Engineering

2011 - 2015

Indian Institute of Technology, Madras

## RESEARCH PROJECTS

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### Theory of Mind & Theory of Machine

Advisor: [Mark Steyvers](#)

*Human-Computer Interaction*

Designed a human subject experiment and currently developing computational models to capture a human's assessment of their own and another agent's (human/AI) ability

### Algorithm Aversion & Metacognitive Bandits

Advisor: Mark Steyvers

*Human-Computer Interaction*

Developed metacognitive bandits - a cognitive model of humans' advice seeking behavior when working with an AI assistant. Demonstrated that algorithm aversion, a widely reported bias, can be explained as the result of a quasi-optimal sequential decision-making by the human

### Human-AI Complementarity

Advisor: Mark Steyvers

*Human-Computer Interaction*

Designed a human subject experiment and carried out a comparative study of human performance, machine predictions and a combination of human and machine predictions on the experimental task

### Trust between Humans and Machines

Advisor: Mark Steyvers

*Human-Computer Interaction*

[Reviewed](#) literature on factors that influence trust between humans and machines

### Reliability in Inhibitory Control

Collaboration with [Pradeep Shenoy](#), [Google Research - India](#)

*Cognitive Control & Meta-Learning*

Proposed and evaluated recurrent neural network models to learn individual specific parameters in cognitive control task data

### Learning and Forgetting in [Lumosity Data](#)

Advisor: Mark Steyvers, Aaron Benjamin (UIUC)

*Human Learning*

Analysed large-scale data from the Lumosity platform and proposed a computational model to characterise learning and forgetting behavior across individuals and cognitive tasks over time

### Inhibition: Unified or not?

Advisor: [Jeff Rouder](#)

*Cognitive Control*

Developed Bayesian hierarchical models to separate trial noise from other covariation in low signal, high-noise inhibition task data

## PUBLICATIONS & PRESENTATIONS

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**Aakriti Kumar**, Trisha Patel, Aaron Benjamin, Mark Steyvers (2021). Explaining Algorithm Aversion with Metacognitive Bandits

**Workshop on Human-AI Collaboration in Sequential Decision-Making, ICML 2021**  
**Cognitive Science 2021**[\[paper\]](#)

**Aakriti Kumar**, Trisha Patel, Aaron Benjamin, Mark Steyvers (2021). Metacognitive Bandits: When Do Humans Seek AI Assistance?

**Social Intelligence in Humans and Robots Workshop, ICRA 2021**

**Aakriti Kumar**, Soumya Chatterjee, Pradeep Shenoy (2021). Meta-learning of Dynamic Policy Adjustments in Inhibitory Control Tasks [In submission]

Jeffrey N. Rouder, **Aakriti Kumar**, Julia M. Haaf (2019). Why Most Studies of Individual Differences With Inhibition Tasks Are Bound To Fail [\[preprint\]](#)

## AWARDS AND FELLOWSHIPS

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[Irvine Initiative in AI, Law, and Society Fellowship 2021](#) *Total Award: \$22,000*

Graduate Dean's Recruitment Fellowship 2018, UCI *Total Award: \$5000*

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

## 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, tensorflow), R, Stan, HTML/CSS

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

## PROFESSIONAL EXPERIENCE

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**Research Associate, IIT Madras** *Mar'17 - May'18*

Analysed data for consultancy projects involving fraud detection. Modeled supply chain dishonesty arising due to information asymmetry in a principal-agent system

**Associate Program Manager, Ola cabs** *Jun'15 - Aug'16*

Corporate Strategy & Process Excellence

**Ola Store, City Manager (Chennai):** Led a team of 40 employees to launch operations of hyper-local delivery services arm

**Ola Airport Pickup Process (Bangalore, Mumbai):** Designed a process for smooth passenger and driver movement. Worked with the product team to add driver side demand based alert features on the app

## MEMBERSHIPS AND SERVICE

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Department Colloquium Coordination Committee Member *2021 - 2022*

Cognitive Science Society Student Member

Psychonomic Society Student Member

Contributed to [Advancing the Understanding of Attentional Control](#) *Psychonomics 2018*