

Are you from North or South

India? Analyzing systematic representational differences between humans and machines

This talk explores the process of forming rapid and consistent first impressions from new faces, a fundamental aspect of human vision that shapes social interactions. It delves into the information extracted for judgments and investigates whether AI algorithms follow similar strategies. The investigation uncovers insights into the complex process of face classification and its implications for both human and AI vision systems, highlighting the value of studying challenging classification tasks.

By utilizing both behavioral and computational methods, the study addresses the underlying features used for face judgments. The research introduces a complex geographical-origin classification challenge to understand feature representations in humans and AI algorithms. In Experiment 1, a diverse collection of 1,647 Indian faces was categorized by both humans and machine vision algorithms. While many algorithms matched human performance (64%), their error patterns varied significantly. The study also identified mouth shape as the most distinguishing facial part for human classification, surpassing eyes, nose, and external contour. Experiment 2 further confirmed mouth shape's significance through classifications of partially occluded faces. Experiment 3 revealed that humans rely more on generic features when processing inverted faces, as computational models better predicted human performance on inverted faces compared to upright faces.

A key figure from this study comparing human behavior and many AI models made it to the cover of *Journal of Vision*, Vol 19(7) 2019 issue.

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About the Speaker

Harish Katti is a Research Fellow at the National Institute of Mental Health (NIMH/NIH) in USA. Before this he was a postdoctoral researcher in the vision research group at the Center for Neuroscience, Indian Institute of Science. His interests are in the intersection of human cognition and visual media. He has a BTech in Computer Science from Karnatak University, MTech in biomedical engineering from IIT Bombay, and a PhD from the National University of Singapore.

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