

Exponent®
Engineering & Scientific Consulting

Himanshu Ahuja, Ph.D.

Scientist | User Sciences
Philadelphia
+1-215-594-8849 | hahuja@exponent.com

Professional Profile

Dr. Himanshu Ahuja is a cognitive scientist specializing in human factors, with a focus on haptic perception. His research evaluates how motion and texture on the skin interact with arm posture across varying visual contexts to influence perception and decision-making. He applies behavioral, qualitative and quantitative methods to evaluate and improve how people interact with products and devices in real-world use. Through product testing, usability evaluations, and safety assessments, Dr. Ahuja helps identify user needs, performance constraints, and potential use-error or risk scenarios.

Dr. Ahuja also has experience working with AI, software, and engineering teams on the user evaluation of software-enabled, sensor-rich products. In these collaborations, he designs and conducts human-subjects studies that translate behavior into actionable insights, informing product design decisions, labeling and instructions, and risk mitigation strategies.

Dr. Ahuja earned his PhD in Brain and Cognitive Science at the University of Rochester. His doctoral research examined how context and prior expectations shape the integration of touch with posture, informing the evaluation and design of wearable technology, user experience, and prosthetic design.

Academic Credentials & Professional Honors

Ph.D., Brain and Cognitive Sciences, University of Rochester, 2025

M.A., Brain and Cognitive Sciences, University of Rochester, 2024

B.Tech., Computer Science, Delhi Technological University, 2019

Donald M. and Janet C. Barnard Fellowship, University of Rochester 2022

Graduate Training in Data-Enabled Research into Human Behavior and its Cognitive and Neural Mechanisms Travel Grant, NSF 2021

Institute for Pure and Applied Mathematics Fellowship, NSF 2018

Academic Appointments

Teaching Assistant, Brain and Cognitive Sciences, University of Rochester, 2019-2023

Prior Experience

Graduate Research Assistant, University of Rochester, 2019-2025

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Professional Affiliations

Human Factors and Ergonomics Society, Member

Society for Neuroscience, Member

Publications

Ahuja H, Shivkumar S, Feistritzer C, Haefner RM, DeAngelis GC, Gomez-Ramirez M. "Flexible Perception of Tactile Motion in Multiple Reference Frames." bioRxiv 2023.

Ahuja H, Haefner RM, DeAngelis GC, Gomez-Ramirez M. "Tactile Motion Coordinate Transforms in the Somatosensory System." World Haptics Conference 2021.

Walia GS*, Ahuja H*, Kumar A, Bansal N, Sharma K. "Unified Graph Based Multi-Cue Feature Fusion for Robust Visual Tracking." IEEE Transactions on Cybernetics 2019.

Kumar A*, Ahuja H*, Singh NK, Gupta D, Khanna A., Rodrigues JPC. "Supported Matrix Factorization using Distributed Representations for Personalized Recommendations on Twitter." Computer & Electrical Engineering 2018; Vol. 71, Elsevier, pp. 569-577.

Sanwal K, Ahuja H. "Breast Cancer Detection using Low-Computation-Based Collaborating Forward-Dependent Neural Networks." Advances in Data Information Sciences, Notes in Network Systems, vol. 39 Springer 2018.

Singh I, Sareen S, Ahuja H. "Detection of Malicious Transactions in Databases using Dynamic Sensitivity and Weighted Rule-Mining." IEEE ICIIECS 2017, pp. 1-8.

Presentations

Ahuja H, Ignaco A, DuHain M, Borja L, Li C, DeAngelis G.C., Gomez-Ramirez M. Neural basis of coordinate transformations of tactile motion stimuli on the hand. 53rd Society for Neuroscience Annual Meeting, Chicago, IL, 2024.

Ahuja H, Ignaco A, DuHain M, Borja L, Li C, DeAngelis G.C., Gomez-Ramirez M. Neural basis of coordinate transformations of tactile motion stimuli on the hand. Simian Collective, Pittsburgh, PA, 2023.

Ahuja H, DeAngelis G.C., Gomez-Ramirez M. Neural interactions between motion and proprioception in touch. 52nd Society for Neuroscience Annual Meeting, Washington, D.C., 2023.

Ahuja H, DeAngelis G.C., Gomez-Ramirez M. Neural computational models underlying coordinate transforms of motion representations in touch. 51st Society for Neuroscience Annual Meeting, San Diego, CA, 2022.

Ahuja H, Shivkumar S, Haefner R.M., DeAngelis G.C., Gomez-Ramirez M. Coordinate transforms mediating tactile motion representations. International Multisensory Research Forum, Ulm, Germany, 2021.

Ahuja H, Feistritzer C, Shivkumar S, Haefner R.M., DeAngelis G.C., Gomez-Ramirez M. Multisensory interactions mediating motion perception on the hand. 50th Society for Neuroscience Annual Meeting, Chicago, IL, 2021.

Feistritzer C, Ahuja H, Shivkumar S, Haefner R.M., DeAngelis G.C., Gomez-Ramirez M. Multisensory interactions mediating motion perception on the hand. Annual Neuroscience Symposium, University of Rochester, Rochester, NY, 2021.

Ahuja H, Italo M, Cavanaugh B, Can T. How does previous trial experience affect neural activity in different brain regions? Steinmetz Dataset. Neuromatch Academy, 2020.

Ahuja H, Haefner R.M., Gomez-Ramirez M. Coordinate transform mechanisms mediating tactile motion representations on the hand. Center for Visual Science Retreat, Rochester, NY, 2020.

Ahuja H, Haefner R.M. Exploring simulation-based inference methods for model fitting—case study on sequential neural posterior estimation. Data Science Colloquium, University of Rochester, Rochester, NY, 2020.

Ahuja H, Michels A. Computational fact-checking through relational similarity-based path mining. AMS Contributed Paper Session, Joint Mathematics Meetings, 2019.

Ahuja H. Computational fact-checking through relational similarity-based path mining. AMS Contributed Paper Session, Joint Mathematics Meetings, 2019.

Ahuja H. Machine Learning: The fad, and our responsibilities. Women in Machine Learning Meet, 2019.