

Anjali Singh, PhD

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Human-centered AI researcher working at the intersection of human-AI interaction, cognitive science and human behavior. Expertise in leading interdisciplinary research programs, 0-1 product development, and mixed-methods research and experimentation. Passionate about designing AI experiences that users trust, understand, and learn deeply from. Proficient in leveraging AI to enhance research practices and accelerate insight generation from diverse data sources. Led research across industry and academia to develop and evaluate AI systems for education, search, and societal impact.

Education

School of Information

Ph.D. in Information (Research Areas: Learning Sciences & Analytics & HCI)

University of Michigan, Ann Arbor

2019–2024

Mathematics and Computing

Integrated Bachelor and Master of Technology

Indian Institute of Technology, Delhi

2012–2017

Research and Work Experience

University of Texas at Austin | Postdoctoral Research Scientist

Enhancing Search & Learning with Generative AI [\[View Project\]](#)

Sept'24–Current

- **Led the design, development, and evaluation of MetaCues, a GenAI-powered search and note-taking system**, that provides **metacognitive support** during information-seeking, helping users critically engage with information [\[Demo\]](#).
- **Increased exploration breadth by 88%, sustained inquiry behaviors by 60%, and user querying by 46%**, compared to baseline system, demonstrating improved engagement and deeper information exploration.
- **Developed novel behavioral metrics** using interaction data (chat history, user notes, and clickstream logs) to **characterize GenAI-based search workflows and evaluate user exploration and learning behaviors**.
- Designed & conducted Wizard-of-Oz studies, user interviews, and behavioral analyses to **understand how users search with GenAI**, engage with metacognitive support and **place trust in AI-generated information**.
- Implemented **RCTs, incorporating surveys, pre-test & post-test** comparing GenAI-based search and learning with vs. without metacognitive support across diverse decision-making tasks.
- Leveraged **LLM-as-a-judge** approach to evaluate user data & outcomes based on quality of reasoning and decision-making.
- **Synthesized literature on GenAI's effects on human cognition**. Drawing on theories of learning & reflective thinking, explained how GenAI impacts the development of human cognitive abilities such as reasoning, learning and creativity.

Responsible and Scalable AI-Integration in Higher Education [\[View Project\]](#)

Sept'24–Current

- Designed & supported RCTs and user studies evaluating impact of **multimodal, RAG-based GenAI tutors** on student performance and engagement; Led to **0.61σ boost in scores, significantly enhanced engagement & trustworthiness**.
- Generated actionable **design recommendations spanning safety, transparency, privacy, & pedagogy**, supporting deployment of UT Austin's campus-wide AI tutor platform based on usability testing and instructor interviews.

Microsoft, Redmond + University of Michigan (U-M) | UX Research Intern

Supporting Data Science Programming through Personalized Feedback [\[View Project\]](#)

Jan'22–July'22

- **Led design and deployment** of personalized feedback generation tool for data science courses at U-M, in partnership with 10-member cross-functional team of researchers, product managers, and developers across Microsoft and U-M.
- **Facilitated data sharing between U-M and Microsoft**. Identified common misconceptions and core competencies on which novice data scientists and learners require support through log analysis and qualitative code analysis.
- **Identified priority areas for tool-improvement** by collecting and analyzing user feedback, including perceived helpfulness.
- **Disseminated findings with Microsoft leadership**, informing future directions for data science developer tools.

University of Michigan | Graduate Researcher

Designing & Experimenting with Student-AI Collaborative Learning Experiences [\[View Project 1, Project 2\]](#)

Jan'20–Aug'24

- Designed and led **large-scale field experiments & surveys** involving **3800+ learners** to evaluate **learning technologies promoting critical thinking, agency, and active learner-AI engagement**, across informal and formal learning contexts.
- Generated **insights into motivation, participation, and effort** that informed the design of scalable learning systems.
- Developed **AI-integrated personalized learning experiences** using **LLM prompting** leveraging data from past cohorts; **Measured impact using metrics** such as retention, performance, learning outcomes and perceived value.
- **Developed evaluation frameworks and benchmark datasets** for assessing educational content such as learner feedback.
- **Identified patterns in user interaction and learning strategies using ebook log-data** using machine learning and behavioral clustering techniques, obtaining 3 distinct behavioral groups.

IBM Research, Bengaluru | Research Software Engineer

AI for Social Good—Early Childhood Learning & Civic Engagement [\[View Project\]](#)

Jul'17–May'19

- *Visual Assessment Generation*. Generated insights for picture-based assessment development through interviews with instructors; Leveraged **image captioning, open information extraction, and neural embedding based semantic similarity matching** to auto-generate visual assessments using knowledge base and image corpus.
- *Civic Issue Reporting*. Conducted user research with Indian citizens to identify barriers and preferences for reporting civic issues. **Mined 1.5k images** with civic issues and associated captions for **adversarial training of deep learning model** to automatically detect civic issues from images, **improving accessibility and effectiveness of civic reporting tools**.

Technical Skills & Interests

Quantitative Research Methods: A/B Testing & Experimentation, Statistical Modeling & Analysis (e.g., Regression, Cluster Analysis), Causal Inference, Behavioral Analysis, Log Analysis, Text Analysis, Applied AI/ML, Data Visualization

Qualitative Research Methods: Interviews, Surveys, User Studies, Usability Testing, Wizard-of-Oz studies, Contextual Inquiry, Focus Groups, Diary Studies, Co-design, Thematic Analysis, Lab Studies, Field Studies

Technical: Python (NumPy, Pandas, SciPy, Matplotlib, Scikit-Learn, NLTK), R, SQL, React, Prompt Engineering, LLM APIs, AI-Assisted Prototyping

Tools & Platforms: Qualtrics, Prolific, Canva, Figma, Atlas.ti, MAXQDA, Jupyter, VSCode, RStudio, Github, Claude Code

Product & Collaboration: Research Strategy & Leadership, Stakeholder Engagement, Cross-functional Collaboration

Selected Awards

Best Paper Awards: ACM Learning@Scale Conference, 2021 | Learning Analytics and Knowledge Conference, 2024

Awarded \$200,000 Funding for Doctoral Research: Microsoft, 2022

Summer Undergraduate Research Award: Indian Institute of Technology Delhi, 2014

Gold Medal: Indian Physics Olympiad (InPhO), Awarded to Top 35 Indian high-school students as per InPhO exam, 2012

Selected Publications [\[Google Scholar, 15+ publications, 500+ citations, h-index: 9\]](#)

Impact of Multimodal and Conversational AI on Learning Outcomes and Experience. K. Taneja, [A. Singh](#), A. K. Goel. *International Conference on Artificial Intelligence in Education (AIED)*. 2026 [\[Paper\]](#)

Toward Responsible and Scalable Integration of Course-Specific AI Tutors: Instructor Experiences with a Campus-Wide Platform. G. Ko, H. K. Lee, [A. Singh](#), L. Boddy, K. Ford, and E. Huff Jr. *Proceedings of the 2025 CHI Conference on Human Factors in Computing Systems*. [\[Paper\]](#)

Enhancing Critical Thinking in Generative AI Search with Metacognitive Prompts. [A. Singh](#) et al. *Proceedings of the Association for Information Science and Technology (ASIS&T)*. 2025 [\[Paper\]](#)

What's In It for the Learners? Evidence from a Randomized Field Experiment on Learnersourcing Questions in a MOOC. [A. Singh](#). et al. *Proceedings of the Eighth ACM Conference on Learning@Scale (L@S)*. 2021. **Best Paper Award** [\[Paper\]](#)

Automatic Generation of Leveled Visual Assessments for Young Learners. [A. Singh](#) et al. *Proceedings of the AAAI Conference on Artificial Intelligence*. 2019. [\[Paper\]](#)

Research Outreach & Community Leadership

Invited Talk: Designing Technologies for Critical and Active Learning in the Age of AI. *EPFL*, 2025

Organised Workshop: Tools for Thought: Understanding, Protecting, and Augmenting Human Cognition with Generative AI—From Vision to Implementation. *CHI 2026 Conference*

Organised Workshop: Empowering Education with LLMs - the Next-Gen Interface and Content Generation. *Artificial Intelligence in Education Conference*, 2023

Invited Talk: Feedback Generation using Human-AI Collaboration for Introductory Data Science. *Microsoft*, 2021

Leadership & Mentoring

2020–Current: Program Committee Member/Reviewer. *Conferences:* CHI ('25,'24,'23), Learning@Scale ('25,'26), Learning Analytics and Knowledge'26, SIGCSE ('24,'23), Educational Data Mining Conference ('21); *Journals:* Computers & Education, Human-Computer Interaction, Journal of Learning Analytics

2018–Current: Mentored 5 undergraduate and 6 graduate students at the University of Michigan, UT Austin, and Georgia Tech and 3 research fellows and interns at IBM Research and Microsoft

2021: Mentored 2 teams in Educational Data Mining track, **LearnLab Summer School, Carnegie Mellon University**

2018: Organising team member for **Hackathon on AI for Social Good** at IBM Research Labs India