Manaswi Saha, Ph. D.

HCI Research Scientist | Human-AI Interaction | Emerging Tech Design & Development

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EDUCATION

University of Washington, Seattle

MS & Ph.D. Computer Science & Engg.

09/2017 - 08/2022 Seattle, WA

- Google PhD Fellowship 2020–22 • 2019 Amazon Catalyst Award $10K • CHI'19 Best Paper Award

University of Maryland (transferred to University of Washington)

Ph.D. in Computer Science

08/2015 - 08/2017 College Park, MD

- Dean's Fellowship 2015 - 2017

Vellore Institute of Technology University

Master of Computer Applications (MCA)

07/2009 - 05/2012 Vellore, India

- Merit Scholarship: awarded all three years – top 3 (of 120) students

University of Mumbai

Bachelor of Science Information Technology

06/2006 - 04/2009 Mumbai, India

- Certificate of Merit: awarded all three years – top 3 (of 60) students

SKILLS

Research Dev: system building • design space development • public deployments

Programming: Python, C, C++, Java | Front-end: HTML/CSS, JavaScript, Play, Django, React • mapbox, d3, kepler.gl | Backend: PostgreSQL, MySQL, MongoDB | Others: Git, Amazon Mechanical Turk, Prolific

Applied AI/ML Development

LLM Dev: Cursor, Gemini, HuggingFace • Data Analysis: Python – pandas, numpy, sklearn

User Research

domain-specific problem discovery and understanding, user studies, semi-structured interviews, surveys, affinity diagramming, stakeholder analysis, thematic analysis

Communication and Leadership

cross-functional team management and collaborations, C-suite stakeholder communication, people development, student mentorship

SUMMARY

An Applied R&D Scientist with expertise in human-centered technology design and development and multi-disciplinary research and 12+ years of experience, leveraging emerging technologies for building innovative AI-driven immersive systems and human experiences.

Research Areas: HCI • Human-AI Interaction • AR • Future of Work • Urban Informatics • Accessibility • Sustainability • Data Visualization

Technical Areas of Interest: Human-AI/agent interaction and experiences • AI assistants — multimodal conversational AI, always-on contextual AI, emotion AI • AR — visual, audio

INDUSTRY EXPERIENCE

Accenture Labs • Digital Experiences Group

Associate Principal Researcher 09/2022 - Present San Francisco, CA

Team Leads/Managers: Alex Kass, Mirjana Spasojevic, and Mike Kuniavsky

- **Leading HCI research, focusing on Human-AI Interaction** to inform enterprise applications: designing AI/AR-assisted workflows and pipelines for diverse worker profiles and industry verticals (e.g., utilities, healthcare, media & entertainment); exploring multimodal conversational AI agents, combining biosensing and applied neuroscience for various business use cases (e.g., workforce training, filmmaking)
- **Designing and conducting user studies, developing technical prototypes, and translating research** into business value for $1B+ clients, through presentations and reports, informing innovation and strategic decisions
- **Leading research for AI-driven real-time tools for cross-disciplinary knowledge support** as the Principal Investigator, involving development and testing of LLM-based prototypes for diverse use cases (e.g., video learning, online meetings, scientific reading) and publishing across multiple academic publications (CHI, CSCW)
- **Spearheading Audio-AR research**, developing guidance tools for physical tasks, collaborating with Cornell Tech on healthcare applications; paper at CUI
- **Mentored and managed 9 PhD and undergraduate students** during summer internships and university collaborations across various research initiatives
- **Managing the team's graduate and undergraduate internship program**, including developing new streamlined processes for hiring as well as internship experience, ensuring uniform experience across remote and in-person interns

Autodesk Research • HCI/VIS: User Interface Research Group

Research Intern 06/2020 - 10/2020 (Remote) Toronto, Canada

Mentor: Justin Matejka

- Studied people's estimation skills for metrics (e.g., cost, power, carbon footprint) for insights on effective communication of sustainability data and metrics
- Built a HTML/CSS/JS app and ran an online study with 50+ sustainability experts and novices
- Communicated study results to research leadership and broader internal audience to demonstrate the implications for future product enhancements such as new sustainability features for CAD software

Microsoft Research • Ability and Enable Groups

Research Intern 2018 - 09/2018 Redmond, WA

Mentors: Meredith R. Morris, Ed Cutrell, Alex Fiannaca

- Engineered Landmark AI, a mobile app prototype using 3D-audio and computer vision algorithms for addressing the last-few-meters challenge in GPS systems
- Conducted a design-probe study to understand and address wayfinding challenges using GPS tools for visually impaired users: white cane and guide dog users
- Ran a survey and an interview study with 12 participants to create the design space for AI-based navigation tools catering people with visual disabilities
- Published results in ASSETS 2019

SELECTED PUBLICATIONS

Exploring the Design Space of Real-time LLM Knowledge Support Systems: A Case Study of Jargon Explanations • ACM CHI 2025
Y. Liu, A. Shah, J. Ackerman, **M Saha**

Situated Conversational Agents for Task Guidance: A Preliminary User Study • ACM CUI 2024
AWD Bremers*, **M Saha***, AG Ramirez-Aristizabal

Visualizing Urban Accessibility: Investigating Multi-stakeholder Perspectives through a Map-based Design Probe Study • CHI 2022
M. Saha, D. Chauhan, S. Patil, R. Kangas, J. Heer, and J. E. Froehlich

Urban Accessibility as a Socio-Political Problem: A Multi-Stakeholder Analysis • CSCW 2020
M. Saha, A. J. Fiannaca, M. Kneisel, E. Cutrell, M. R. Morris

Closing the Gap: Designing for the Last-Few-Meters Wayfinding Problem for People with Visual Impairments • ASSETS 2019
M. Saha, A. J. Fiannaca, M. Kneisel, E. Cutrell, M. R. Morris

Project Sidewalk: A Web-based Crowdsourcing Tool for Collecting Sidewalk Accessibility Data at Scale • CHI 2019 • Best Paper (Top 1%)
M. Saha, M. Saugstad, H. Maddali, A. Zeng, R. Holland, S. Bower, A. Dash, S. Chen, A. Li, K. Hara, J. Froehlich

EnergyLens: Combining Smartphones with Electricity Meter for Accurate Activity Detection and User Annotation • e-Energy 2014
M. Saha, S. Thakur, A. Singh, Y. Agarwal

ACCOMPLISHMENTS

Engineered Project Sidewalk, a tool deployed in 20+ cities around the world; used by 15000+ users; generated 1M+ point datasets

Research recognized by media, notably in New York Times, NPR, and local TV news in Seattle and DC

Invited speaker across academic institutions, tech industry, government conferences, and local meetups

INDUSTRY EXPERIENCE

Adobe Research • Big Data Experience Lab
Research Intern — 05/2016 - 08/2016 — San Jose, CA

Mentors: Tom Jacobs and David Tompkins

- Created an ecosystem design and built prototype for Bluetooth beacon-based personalized information delivery system for digital marketing that bridges the online world with the physical (brick and mortar stores)
- Submitted Patent as the lead

ACADEMIC EXPERIENCE

University of Washington
Graduate Assistant • Makeability Lab — 09/2017 - 08/2022 — Seattle, WA

Advisor: Jon Froehlich • **Collaborator**: Jeffrey Heer

- Led 4—10-person design, engineering, and research teams over 6 years
- Lead engineer and researcher for making the built infrastructure (e.g., sidewalks) and tools accessible to individuals with diverse abilities and capabilities
- Wrote 15.5K lines of code for HTML/CSS/JS frontend and Java/Scala/PostgreSQL backend
- Engineered tools and prototypes for collecting and mapping accessibility data at scale (e.g., Project Sidewalk); used Google Street View, crowdsourcing, gamification, interactive geovisualizations, AI, and human-centered design techniques
- Designed and executed interview studies with 35+ participants to understand multi-stakeholder data-driven decision-making needs and sensemaking practices around urban accessibility; stakeholders included policymakers, disability advocates, government officials, people with mobility disabilities, and caregivers
- Evaluated tools using lab studies, public deployments in 5+ cities, and user interviews with varied stakeholders
- Paper(s): CHI, CSCW, VIS, and ASSETS

University of Maryland
Graduate Assistant • Makeability Lab — 08/2015 - 08/2017 — College Park, MD

Advisor: Jon Froehlich

- Explored the use of thermal cameras mounted on smartphones by novices (e.g., DIY enthusiasts) to conduct thermography in homes
- Analyzed interviews for a 4-week field study with 10 participants
- Published in CHI 2016 and 2017

IIIT-Delhi
Research Associate • Mobile and Ubiquitous Computing Lab — 11/2012 - 07/2015 — Delhi, India

Advisor: Amarjeet Singh • **Collaborators**: Anind Dey (UW), Yuvraj Agarwal (CMU), Pushpendra Singh (IIIT-Delhi)

- Led engineering for SensorAct, a building Java/MongoDb-based middleware to control and operate hardware sensor modules, mounted with ambient environmental sensors, through an online interface for building managers and occupants
- Engineered EnergyLens+, a real-time energy apportionment and feedback system for smart living spaces that interfaced with smartphone sensors and smart meters for inferring and apportioning personal energy consuming activities to individuals
- Engineered the end-to-end system using Python/Django/MySQL server and designed an Android app for visualizing feedback
- Run a 2-week field study to evaluate the system with a small-scale deployment in single and multi-occupant homes
- Mentored an undergraduate student for Android app development, now a NYU professor
- Paper(s): ACM eEnergy, BuildSys, IEEE UIC, and NSDI

TEACHING

Human-Centered Computing Courses at University of Washington
Intro to HCI • Advanced HCI • The Future of Access Technologies • Crowdsourcing, Citizen Science, and Large-scale Online Experimentation • Capstone Software Design to Empower Underserved Populations

Programming at University of Maryland
Object-Oriented Programming I • Object-Oriented Programming II