

Niharika Mathur

Human-Centered Computing PhD, Georgia Tech

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Education

Georgia Institute of Technology (Georgia Tech)

August 2021 - present

Atlanta, Georgia, USA.

Ph.D. Human-Centered Computing (HCI specialization)

Advisors: **Dr. Elizabeth Mynatt** and **Dr. Sonia Chernova**

Georgia Institute of Technology (Georgia Tech)

August 2019 - May 2021

Atlanta, Georgia, USA.

M.S. Human-Computer Interaction

Specialization: *Interactive Computing*

Vellore Institute of Technology

July 2015 - May 2019

Vellore, India.

B.Tech. Computer Science and Engineering

Publications

1. **Niharika Mathur**, Tamara Zubatiy, Agata Rozga, Elizabeth Mynatt. **"Why did you say that?": Recommendations for Understanding Explainability in Conversational AI systems for Older Adults with Mild Cognitive Impairment (MCI)**. Ubiquitous Computing and Ambient Intelligence UCAmI 2023.
2. Tamara Zubatiy, **Niharika Mathur**, Elizabeth Mynatt. **A Distributed Cognition Approach to Understanding Compensatory Calendaring Cognitive Systems of Older Adults with Mild Cognitive Impairment and their Care Partners**. Ubiquitous Computing and Ambient Intelligence UCAmI 2023.
3. Tamara Zubatiy, **Niharika Mathur**, Larry Heck, Kayci Vickers, Agata Rozga, Elizabeth Mynatt. **"I don't know how to help with that" - Learning from Limitations of Modern Conversational Agent Systems in Caregiving Networks**. ACM Computer Supported Cooperative Work (CSCW) 2023.
4. **[Best Paper Award]** **Niharika Mathur**, Kunal Dhodapkar, Tamara Zubatiy, Jiachen Li, Brian D. Jones, and Elizabeth D. Mynatt. **A Collaborative Approach to Support Medication Management in Older Adults with Mild Cognitive Impairment Using Conversational Assistants (CAs)**. In The 24th International ACM SIGACCESS Conference on Computers and Accessibility (ASSETS '22), pp. 1-14. 2022.
5. Tamara Zubatiy, Kayci L. Vickers, **Niharika Mathur**, Elizabeth D. Mynatt. **Empowering Dyads of Older Adults With Mild Cognitive Impairment And Their Care Partners Using Conversational Agents**. In *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems*, pp. 1-15. 2021.
6. Ilanthenral Kandasamy, Vasantha W.B., **Niharika Mathur**, Mayank Bisht, Florentine Smarandache. **Sentiment analysis of the #MeToo movement using neutrosophy: Application of single-valued neutrosophic sets**. In *Optimization Theory Based on Neutrosophic and Plithogenic Sets*, pp. 117-135. Academic Press, 2020.

Awards

Best Paper | ASSETS 2022 | Athens, Greece.

October 2022

Recognition for Outstanding Review | CHI 2022

June 2022

George Family Foundation Fellowship | Innovation in Health Systems.

Academic Year 2022

Research Work

Human-Centered Explainable AI (HCXAI) for Audio-based Conversational AI Systems for Everyday Tasks in Collaborative Caregiving Settings

August 2022 - present

Research supported by NSF-AI CARING and Emory University, Atlanta, Georgia.

Developing and **Evaluating** a design framework for Conversational AI systems to generate explanations for everyday tasks for caregivers and older adults, grounded in HCXAI design.

Identified conversational breakdowns and algorithm-centeredness of AI explanations through analysis of interactions between older adults (and their caregivers) and a Conversational AI system for 20 weeks.

Conversational AI for Medication Management in Older Adults with Mild Cognitive Impairment (MCI) and their Caregivers

August 2020 - 2022

Collaboration with Emory University Hospital Brain Health Center, Atlanta, Georgia.

Conducted user research with older adults with MCI through remote focus groups, interviews and co-design sessions to understand their medication practices and expectations from a Conversational AI Assistant (Google Home Hub).

Designed an interactive "check-in" based Google Action for medication management and deployed it for 6 dyads in a period of 20 weeks divided into 2 phases and evaluated usage through interaction log analysis and semi-structured interviews to inform design revisions.

Redesign of Jamba Juice Mobile App | Focus Brands

August 2019 - December 2019

Project supported by Focus Brands, Atlanta, Georgia.

Conducted research using a triangulated approach by combining competitive analysis, semi-structured interviews and surveys to understand current user experiences and identify pain points leading to high cart abandonment on the Jamba mobile app.

The project led to a **53%** increase on the System Usability Scale (SUS) from the existing design.

Teaching Experience

Graduate Teaching Assistant | Georgia Tech

Explainable AI (CS8803XAI) | Dr. Sonia Chernova

Fall 2023

Digital Health Equity (CS8803) | Dr. Andrea Parker

Spring 2022

Human-Computer Interaction (CS6750) | Dr. Elizabeth Mynatt

Spring 2020

Human-Computer Interaction (CS6750) | Dr. Elizabeth Mynatt

Spring 2021

Work Experience

UX Intern | Georgia Tech Office of Information Technology

May 2020 - July 2020

Remote Internship.

Implemented research analysis on multiple official Georgia Tech websites.

Conducted user research with incoming freshmen and designed the Week of Welcome website for new incoming undergraduate Fall 2020 students. The website gathered **543** visits in the first week.

UX Research Intern | Tika Data Services

May 2018 - July 2018

Bangalore, India.

Implemented design research concepts to design wireframes for an internal machine learning annotation tool and tested outcome efficiency using Monte Carlo Simulation.

Conducted user research with community partners in remote parts of India and developed actionable **design recommendations** based on user feedback.