Shwetha Rajaram

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shwetharajaram.github.io

University of Michigan, Ann Arbor

School of Information

Research Interests

Human-computer interaction (HCI); Augmented & Virtual Reality (AR/VR); Usable Security & Privacy, Human-AI Interaction

Education

University of Michigan, Ann Arbor	Sept 2020
Ph.D. in Information	- Present
Advisor: Prof. Michael Nebeling	
Committee: Florian Schaub, Franziska Roesner, Jiasi Chen, Andrew D. Wilson	

completed 1 year of coursework in the University of Michigan School of Information Masters program with a full scholarship, before matriculating to PhD	Sept 2019 - May 2020

University of Michigan, Ann Arbor	Sept 2015
B.S.E. in Computer Science & Engineering	- May 2019
Minor in Art & Design	

Publications
Peer-Reviewed Conference Papers

[C10]   **Shwetha Rajaram**, Jiasi Chen, Michael Nebeling. Privacy Equilibrium: Balancing Privacy Needs in Dynamic Multi-User Augmented Reality Scenarios. In *Proceedings of the 38th Annual ACM Symposium on User Interface Software and Technology* **(UIST 2025)**.

[C9]   **Shwetha Rajaram**, Macarena Peralta, Janet Johnson, Michael Nebeling. Exploring the Design Space of Privacy-Driven Adaptation Techniques for Future Augmented Reality Interfaces. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* **(CHI 2025; Honorable Mention Award)**.

[C8]   **Shwetha Rajaram**, Hemant Bhaskar Surale, Codie McConkey, Carine Rognon, Hrim Mehta, Michael Glueck, Christopher Collins. Gesture and Audio-Haptic Guidance Techniques to Direct Conversations with Intelligent Voice Interfaces. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* **(CHI 2025)**.

[C7] **Shwetha Rajaram***, Nels Numan*, Bala Kumaravel, Nicolai Marquardt, Andrew D. Wilson. BlendScape: Enabling End-User Customization of Video-Conferencing Environments through Generative AI. In *Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology* (**UIST 2024**; **Honorable Mention Award**).

[C6] Nels Numan*, **Shwetha Rajaram***, Bala Kumaravel, Nicolai Marquardt, Andrew D. Wilson. SpaceBlender: Creating Context-Rich Collaborative Spaces Through Generative 3D Scene Blending. In *Proceedings of the 37th Annual ACM Symposium on User Interface Software and Technology* (**UIST 2024**).

[C5] **Shwetha Rajaram**, Franziska Roesner, Michael Nebeling. Reframe: An Augmented Reality Storyboarding Tool for Character-Driven Analysis of Security & Privacy Concerns. In *Proceedings of the 36th Annual ACM Symposium on User Interface Software and Technology* (**UIST 2023**).

[C4] **Shwetha Rajaram**, Chen Chen, Franziska Roesner, Michael Nebeling. Eliciting Security & Privacy-Informed Sharing Techniques for Multi-User Augmented Reality. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (**CHI 2023**).

[C3] **Shwetha Rajaram**, Michael Nebeling. Paper Trail: An Immersive Authoring System for Augmented Reality Instructional Experiences. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (**CHI 2022**).

[C2] Michael Nebeling, **Shwetha Rajaram**, Liwei Wu, Yifei Cheng, Jaylin Herskovitz. XRStudio: A Virtual Production and Live Streaming System for Immersive Instructional Experiences. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (**CHI 2021**).

[C1] Michael Nebeling, Maximillian Speicher, Xizi Wang, **Shwetha Rajaram**, Brian D. Hall, Zijian Xie, Alexander R. E. Raistrick, Michelle Aebersold, Edward G. Happ, Jiayin Wang, Yanan Sun, Lotus Zhang, Leah E. Ramsier, Rhea Kulkarni. MRAT: The Mixed Reality Analytics Toolkit. In *Proceedings of the ACM Conference on Human Factors in Computing Systems* (**CHI 2020**; **Best Paper Award**).

Peer-Reviewed Journal Articles

[J2] Janet Johnson, Macarena Peralta, Mansanjam Kaur, Ruijie Sophia Huang, Sheng Zhao, Ruijia Guan, **Shwetha Rajaram**, Michael Nebeling. Exploring Collaborative GenAI Agents in Synchronous Group Settings: Eliciting Team Perceptions and Design Considerations for the Future of Work. In *Proceedings of the ACM on Human-Computer Interaction* (**CSCW 2025**).

[J1] Abraham Mhaidli, **Shwetha Rajaram**, Selin Fidan, Gina Herakovic, Florian Schaub. Manipulation In VR Marketing: A Content Analysis Of Virtual Reality Marketing Experiences. In *IEEE Security & Privacy; Special Issue: Security and Privacy for the Metaverse* (**2024**).

Workshop Organization & Participation

[W5] Kaiming Cheng, **Shwetha Rajaram**, Franziska Roesner, Tadayoshi Kohno, Michael Nebeling, Mark Billinghurst. Approaching AR Design & Development with a Security, Privacy, & Safety Mindset. **Workshop Organizer** at IEEE International Symposium on Mixed and Augmented Reality **(ISMAR 2024)**.

[W4] **Shwetha Rajaram**. Enabling Safer Everyday Augmented Reality Experiences: Usable Privacy Interventions for AR Creators and End-Users. **Doctoral Consortium Participant** at ACM Symposium on User Interface Software and Technology **(UIST 2024).**

[W3] **Shwetha Rajaram**, Michael Nebeling. Balancing Accessibility and Privacy Considerations in the Design of AR Assistive Technologies. **Workshop Participant** in Designing Inclusive Future Augmented Realities **(CHI 2024)**.

[W2] **Shwetha Rajaram**, Michael Nebeling. Extending AR Authoring Tools with Built-in Support for Privacy and Security Analysis. **Workshop Participant** in Novel Challenges of Safety, Security and Privacy in Extended Reality **(CHI 2022)**.

[W1] **Shwetha Rajaram**, Franziska Roesner, Michael Nebeling. Designing Privacy-Informed Sharing Techniques for Multi-User Augmented Reality. **Workshop Participant** in Security for XR and XR for Security **(SOUPS 2021)**.

Professional Experience

Meta Reality Labs Research, Toronto, ON, Canada   May 2024
Research Intern   - Aug 2024
Mentor: Christopher Collins
Committee: Hemant Surale, Carine Rognon, Codie McConkey, Michael Glueck

Microsoft Research, Redmond, WA   May 2023
Research Intern   - Aug 2023
Mentors: Andy Wilson, Nic Marquardt, Bala Kumaravel

JP Morgan Chase, Jersey City, NJ   Jan 2018
Software Engineering Intern   - Dec 2018

John Deere, Moline, IL   May 2017
Information Technology Intern   - Aug 2017

Teaching Experience

University of Michigan, Ann Arbor

Graduate Student Instructor, SI 559: Introduction to AR/VR Application Design **Instructor:** Michael Nebeling	Fall 2021, 2023, 2025
Graduate Student Instructor, SI 659: Developing AR/VR Experiences **Instructor:** Michael Nebeling	Winter 2022, 2024
Instructional Aide, EECS 493: User Interface Development	Winter 2019
Departmental Ambassador for CS, ENGR 110: Design Your Engineering Experience	Fall 2018

Scholarships & Awards

CHI 2025 Honorable Mention Award	Apr 2025
UIST 2024 Honorable Mention Award	Oct 2024
University of Michigan Rackham Predoctoral Fellowship	Sept 2024 - Aug 2025
ACM-Women Scholarship	Feb 2023
CHI 2020 Best Paper Award	May 2020
Society of Women Engineers Outstanding Collegiate Member	Oct 2019
MLK Spirit Award, University of Michigan College of Engineering	Jan 2019

Service

Program Committee

Associate Chair (**Subcommittee:** Interacting with Devices: Interaction Techniques & Modalities)	CHI 2026
Assistant to Program Chairs (Michael Nebeling, Ranjitha Kumar)	UIST 2021

Reviewing

ACM Conference on Human Factors in Computing Systems **(CHI)** *Full Papers & Late-Breaking Work*	2021-2025
ACM Symposium on User Interface Software and Technology **(UIST)**	2023-2025
ACM Conference On Computer-Supported Cooperative Work And Social Computing **(CSCW)**	2023-2024
ACM Designing Interactive Systems **(DIS)**	2023
IEEE International Symposium on Mixed and Augmented Reality **(ISMAR)**	2021-2024
IEEE Conference on Virtual Reality and 3D User Interfaces **(IEEE VR)**	2024

Leadership & Outreach

University of Michigan Human Computer Interaction Seminar Seminar Series Coordinator	Sept 2025 - Present
Michigan Interactive & Social Computing Group (MISC) Seminar Series Coordinator	Jun 2023 - Apr 2024
Washtenaw Elementary Science Olympiad (WESO) Event Supervisor	Sep 2011 - Present
Society of Women Engineers (SWE) at UMich President, Executive Board Secretary, Executive Board Summer Engineering Exploration Camp Director Elementary Outreach Officer	Apr 2016 - Apr 2019
Women+ Excelling More in Mathematics, Engineering and Science (F.E.M.M.E.S.) Grants Manager Website Developer STEM Activities Coordinator	Apr 2016 - Present

Academic Mentoring

Master Thesis supervision

Anhua Wu, University of Michigan School of Information *(Masters)* — Aug 2024 - Aug 2025

Research Assistants

Anthony Walker, University of Michigan Computer Science *(Undergraduate)* — Oct 2024 - Apr 2025

Macarena Peralta, University of Michigan Computer Science *(Undergraduate)* — Nov 2022 - Apr 2023

Chen Chen, University of Michigan School of Information *(Masters)* — Jun 2021 - Apr 2022

Jihee Yoon, University of Michigan School of Information *(Masters)* — Jan 2022 - Apr 2022

Sereen Kallerackal, University of Michigan School of Information *(Masters)* — Feb 2021 - Apr 2021

Maya Subramanian, University of Michigan Computer Science *(Undergraduate)* — Jan 2021 - Mar 2021

I Hun Chan, University of Michigan Computer Science *(Undergraduate)* — Jan 2021 - Mar 2021

Skills

Research Methods: HCI systems research, mixed-methods user studies, user-driven elicitation, interviews, focus groups

Programming Languages: C#, HTML/Javascript, Python

AR/VR Technologies
SDKs: Unity Engine (ARFoundation, Vuforia, MRTK) and A-Frame
Devices: mobile AR, HoloLens 1/2, Meta Quest, Windows Mixed Reality headsets

Generative AI Technologies: developed interactive systems using image generation techniques (Stable Diffusion) and large language models (GPT)

Coursework

Ph.D. Courses

Privacy in Information Technology, Human-Computer Interaction, Research Methods, Human-AI Interaction, Algorithms & Societal Implications, Introduction to Statistics and Data Analysis, Information Science Theory, Educational Technology Design

Masters in Information Courses

Developing AR/VR Experiences, Engineering Interactive Systems, Contextual Inquiry, Graphic Design, Fundamentals of Human Behavior, Game Development Research, Independent Study (AR/VR)

Selected Undergraduate Courses

Game Development, User Interface Development, Web Systems, Intro to Computer Security, Intro to Machine Learning, Data Structures and Algorithms, Intro to Computer Organization, Computer Science Theory, Interaction Design, Drawing