Jingyu Shi

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Education

Ph.D. in Computer Engineering — Jan. 2021 – Aug. 2025
Purdue University — West Lafayette, IN

M.S. in Computer Engineering — Sept. 2019 – Dec. 2020
Georgia Institute of Technology — Atlanta, GA

B.Eng. in Instrument Science and Technology — Sept. 2015 – Jun. 2019
Beihang University — Beijing, China

Professional Experience

Research Scientist — Aug 2025 – *present*
Meta Platforms Inc. — Redmond, WA

Research Intern — May 2024 – Dec. 2024
Futurewei Technologies Inc. — Santa Clara, CA

Software Engineer Intern — Jan. 2018 – Mar. 2018
Hikvision Digital Technology Co., Ltd. — Hangzhou, China

Publications & Preprints

SketchConcept: Sketching-based Concept Composition for Product Design using Multimodal Large Language Model
Runlin Duan, Chenfei Zhu, Yuzhao Chen, Dizhi Ma, ***Jingyu Shi***, Yichen Hu, Ziyi Liu, Karthik Ramani
DIS '26: ACM Designing Interactive Systems Conference, Jun 2026

Canvas3D: Empowering Precise Spatial Control for Image Generation with Constraints from a 3D Virtual Canvas
Yuzhao Chen, Runlin Duan, Rahul Jain, Yichen Hu, Chenfei Zhu, ***Jingyu Shi***, Karthik Ramani
IUI '26: ACM International Conference on Intelligent User Interfaces, Mar 2026

Inverse Rendering for High-Genus Surface Meshes from Multi-View Images
Xiang Gao, Xinmu Wang, Xiaolong Wu, Jiazhi Li, ***Jingyu Shi***, Yuanpeng Liu, Yu Guo, Xiyun Song, Heather Yu, Zongfang Lin, Xianfeng David Gu
3DV '26: International Conference on 3D Vision, Mar 2026

PowVRtool: A Handheld Haptic Device for Realistic Power Tool Feedback in VR-Based Manufacturing Training
Mayank Patel, Asim Unmesh, Ananya Ipsita, Levi Erickson, Priyam Maheshwari, Rahul Jain, ***Jingyu Shi***, Laura H. Blumenschein, Karthik Ramani
Virtual Reality: Virtual Reality, vol. 30, article 16 (2026), Dec 2025

ConceptVis: Exploring and Visualizing Design Concepts With Large Language Models Using Interactive Knowledge Graph
Runlin Duan, Nachiketh Karthik, Yuzhao Chen, ***Jingyu Shi***, Rahul Jain, Maria Yang, Karthik Ramani
JCISE: ASME Journal of Computing and Information Science in Engineering, vol. 26, no. 1, article 011002 (2026), Nov 2025

Enhancing Diversity in Text-to-Image Generation without Compromising Fidelity
Jiazhi Li, Mi Zhou, Mahyar Khayatkhoei, ***Jingyu Shi***, Xiang Gao, Jiageng Zhu, Hanchen Xie, Xiyun Song, Zongfang Lin, Heather Yu, Jieyu Zhao
TMLR: Transactions on Machine Learning Research, Oct 2025

agentAR: Creating Augmented Reality Applications with Tool-Augmented LLM-based Autonomous Agents
Chenfei Zhu*, Shao-Kang Hsia*, Xiyun Hu*, Ziyi Liu, ***Jingyu Shi***, Karthik Ramani
UIST '25: ACM Symposium on User Interface Software and Technology, Sep 2025

DesignFromX: Empowering Consumer-Driven Design Space Exploration through Feature Composition of Referenced Products
Runlin Duan, Chenfei Zhu, Yuzhao Chen, Yichen Hu, ***Jingyu Shi***, Karthik Ramani
DIS '25: ACM Designing Interactive Systems Conference, Jul 2025

OccludeNeRF: Geometry-aware 3D Scene Inpainting with Collaborative Score Distillation in NeRF
Jingyu Shi, Achleshwar Luthra, Jiazhi Li, Xiang Gao, Xiyun Song, Zongfang Lin, David Gu, Heather Yu
CVPR '25 Workshop: IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops (CV4Metaverse), Jun 2025

An Exploratory Study on Multi-modal Generative AI in AR Storytelling
Hyungjun Doh*, ***Jingyu Shi****, Rahul Jain*, Heesoo Kim, Karthik Ramani
arXiv preprint arXiv:2505.15973, May 2025

Generalized TensoRF: Efficient Multi-Scene Radiance Fields and View-Consistent 3D Editing
Achleshwar Luthra, ***Jingyu Shi***, Xiyun Song, Zongfang Lin, Heather Yu
I3D '25: Companion Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games, May 2025

CARING-AI: Towards Authoring Context-aware Augmented Reality INstruction through Generative Artificial Intelligence
Jingyu Shi*, Rahul Jain*, Seunggeun Chi*, Hyungjun Doh, Hyung-gun Chi, Alexander J. Quinn, Karthik Ramani
CHI '25: ACM CHI Conference on Human Factors in Computing Systems, Apr 2025

Transparent Barriers: Natural Language Access Control Policies for XR-Enhanced Everyday Objects
Kentaro Taninaka, Rahul Jain, ***Jingyu Shi***, Kazunori Takashio, Karthik Ramani
CHI '25: ACM CHI Conference on Human Factors in Computing Systems, Apr 2025

pARametric: Empowering In Situ Parametric Modeling in Augment Reality for Personal Fabrication
Runlin Duan, Xiyun Hu, Min Liu, ***Jingyu Shi***, Karthik Ramani
JCISE: ASME Journal of Computing and Information Science in Engineering, vol. 25, no. 4, article 041001, Feb 2025

Visualizing Causality in Mixed Reality for Manual Task Learning: A Study
Rahul Jain*, ***Jingyu Shi****, Andrew Benton, Moiz Rasheed, Hyungjun Doh, Subramanian Chidambaram, Karthik Ramani
TVCG: IEEE Transactions on Visualization and Computer Graphics, Feb 2025

avaTTAR: Table Tennis Stroke Training with Embodied and Detached Visualization in Augmented Reality
Dizhi Ma*, Xiyun Hu*, ***Jingyu Shi***, Mayank Patel, Rahul Jain, Ziyi Liu, Zhengzhe Zhu, Karthik Ramani
UIST '24: ACM Symposium on User Interface Software and Technology, Oct 2024

ConceptVis: Generating and Exploring Design Concepts for Early-Stage Ideation Using Large Language Model
Runlin Duan, Nachiketh Karthik, ***Jingyu Shi***, Rahul Jain, Maria C. Yang, Karthik Ramani
IDETC/CIE '24: ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Aug 2024

Parametric: Empowering In-Situ Parametric Modeling in Augment Reality for Personal Fabrication
Runlin Duan, Xiyun Hu, Min Liu, ***Jingyu Shi***, Karthik Ramani
IDETC/CIE '24: ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Aug 2024

Interacting Objects: A Dataset of Object-Object Interactions for Richer Dynamic Scene Representations
Asim Unmesh, Rahul Jain, ***Jingyu Shi***, V. K. Chaithanya Manam, Hyung-Gun Chi, Subramanian Chidambaram, Alexander Quinn, Karthik Ramani
RA-L: IEEE Robotics and Automation Letters, vol. 9, no. 1 (2024), Nov 2023

Ubi-TOUCH: Ubiquitous Tangible Object Utilization through Consistent Hand-object interaction in Augmented Reality
Rahul Jain*, ***Jingyu Shi****, Runlin Duan, Zhengzhe Zhu, Xun Qian, Karthik Ramani
UIST '23: ACM Symposium on User Interface Software and Technology, Oct 2023

Understanding Generative AI in Art: An Interview Study with Artists on G-AI from an HCI Perspective
Jingyu Shi, Rahul Jain, Runlin Duan, Karthik Ramani
arXiv preprint arXiv:2310.13149, Oct 2023

An HCI-Centric Survey and Taxonomy of Human-Generative-AI Interactions
Jingyu Shi*, Rahul Jain*, Hyungjun Doh, Ryo Suzuki, Karthik Ramani
arXiv preprint arXiv:2310.07127, Oct 2023

Ubi Edge: Authoring Edge-Based Opportunistic Tangible User Interfaces in Augmented Reality
Fengming He, Xiyun Hu, ***Jingyu Shi***, Xun Qian, Tianyi Wang, Karthik Ramani
CHI '23: ACM CHI Conference on Human Factors in Computing Systems, Apr 2023

Patents

System and Method for Authoring Context-Aware Augmented Reality Instruction through Generative Artificial Intelligence
Karthik Ramani, Seunggeun Chi, Hyung-gun Chi, Rahul Jain, ***Jingyu Shi***
US12682535B2 (Granted, Jul 2026)

Visualizing Causality in Mixed Reality for Manual Task Learning
Karthik Ramani, ***Jingyu Shi***, Rahul Jain
US12444315B2 (Granted, Oct 2025)

Ubiquitous Tangible Object Utilization through Consistent Hand-Object Interaction in Augmented Reality
Karthik Ramani, ***Jingyu Shi***, Rahul Jain
US20250124671A1 (Application published, Apr 2025)

Authoring Edge-Based Opportunistic Tangible User Interfaces in Augmented Reality
Karthik Ramani, Fengming He, Xun Qian, ***Jingyu Shi***, Xiyun Hu
US20240312154A1 (Application published, Sep 2024)