Callie Y. Kim

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Summary

CS PhD candidate working on human-centered end-user robot programming: interactive systems that help people specify, verify, and refine robot behavior through scaffolding, transparent verification, and proactive clarification. Builds across extended reality (XR) interfaces and multi-agent LLM architectures, paired with empirical study of how people communicate task intent. Seven peer-reviewed papers at CHI, UIST, HRI, and DIS, including two Honorable Mention Awards. Seeking research or applied scientist roles in human-AI interaction and embodied AI.

Experience

People and Robots Laboratory, University of Wisconsin-Madison, Graduate Researcher — Madison, WI, Sept 2021 – Present

- Built **RoboCritics**, an end-to-end LLM robot programming framework that pairs language-model task specification with expert-informed motion-level critics to catch unreliable robot behaviors before execution; first author, **HRI 2026 Honorable Mention**
- Building **MISE**, a mixed-initiative robot task planning system pairing a multi-agent LLM backend with an XR frontend, enabling spatial task specification with proactive, object-anchored clarification
- Designed and shipped end-user robot programming systems that let non-experts specify, verify, and refine robot behavior without writing code; evaluated in live community workshops
- Ran mixed-methods evaluations (controlled studies, semi-structured interviews, surveys, thematic analysis) of LLM-powered interactive systems, translating findings into concrete system requirements
- Mentored seven undergraduate research assistants

NSF Engineering Research Center for Human AugmentatioN via Dexterity (HAND ERC), Project Manager — Madison, WI, Sept 2025 – Present

- Lead the University of Wisconsin-Madison team within a seven-institution, $26M NSF center led by Northwestern University
- Own NSF reporting deliverables for the center's annual review cycle and represent the team at center-wide meetings

Dept. of Computer Science, University of Maryland, Research Assistant — College Park, MD, July 2020 – May 2021

- Designed and fabricated wearable VR haptic prototypes using CAD-designed silicone components to support accessible spatial understanding

Selected Publications

- **RoboCritics: Enabling Reliable End-to-End LLM Robot Programming through Expert-Informed Critics.** ***Kim, C.***, White, N., He, E., Sala, F., Mutlu, B. *HRI 2026*. Honorable Mention Award
- **Generative Scaffolding in End-User Design and Programming of Social Robots.** Sato, A.*, ***Kim, C.****, White, N., et al. *DIS 2026*
- **SHRIMP: Iterative Refinement of Robot Task Plans.** Schroder, M., Hwang, Y., ***Kim, C.***, et al. *UIST 2026*
- **Bridging Generations using AI-Supported Co-Creative Activities.** ***Kim, C.***, Sato, A., White, N., et al. *CHI 2025*. Honorable Mention Award
- Full list (7 papers) on Google Scholar

Education

- **PhD, Computer Sciences**, University of Wisconsin-Madison (Sept 2021 – Present) — Advisor: Dr. Bilge Mutlu
- **MS, Computer Science**, University of Maryland (Aug 2019 – May 2021) — Advisor: Dr. Huaishu Peng
- **BS, Computer Science and Engineering**, Ewha Womans University (Mar 2015 – Feb 2019)

Skills

Languages: Python, Java, C#, JavaScript, Swift

AI and ML: Large Language Models, LangChain, LangGraph, PyTorch, Computer Vision (object detection)

Robotics and Systems: ROS, Gazebo, RViz, Unity, Docker, Flask, React, XR

Research Methods: System prototyping, controlled user studies, semi-structured interviews, thematic analysis, mixed-methods evaluation, participatory design

Patent

Virtual Reality Based Disaster Education Method, Device and Computer Readable Medium for Performing the Method. Park, S., ***Kim, C. Y.***, Shin, I., Jung, H. KR Registration No. 1021139260000