# Kaitlynn T. Pineda

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## RESEARCH OVERVIEW

Human-centered embodied AI and robotics researcher building end-to-end interactive systems that combine large language models, speech, perception, and physical interaction. My work spans autonomous robot deployments, embodied conversational agents, multimodal sensing, local and cloud-based LLMs, agentic workflows, and hardware prototyping, informed by controlled human-subject studies and long-term real-world deployments. Industry R&D experience at Inflection AI, Nissan, and Meta.

## TECHNICAL SKILLS

**Programming:** Python (PyTorch, NumPy, pandas), C, C++, C#, MATLAB, JavaScript, HTML, CSS, Linux, LaTeX, Git
**AI / LLM Systems:** Ollama, LangChain, Hugging Face, OpenAI API (ChatGPT), Gemini API, Claude, Local LLMs, Retrieval-Augmented Generation (RAG), Vector Databases (FAISS), Function Calling, Agentic Workflows, Prompt Engineering
**Speech & Multimodal Systems:** Speech-to-Text (Whisper, Google Cloud), Text-to-Speech (Google Cloud), Azure Kinect depth sensing, multimodal sensing, Pupil Labs Invisible (eye tracking), OpenFace
**Robotics-Hardware:** Franka Emika Robot, Kinova Gen3, UR5, Fourier GR3, Arduino, Raspberry Pi, 3D printing, rapid prototyping
**Robotics-Software:** ROS, Gazebo, RViz, MoveIt
**Tools:** Unity, AutoCAD, Adobe Illustrator, Figma, Pupil Labs Invisible (eye tracking)
**Data & Evaluation:** Human-Robot Interaction (HRI), Human-Computer Interaction (HCI), Human-Centered Design, Human-Subject Experimentation, mixed-methods evaluation, quantitative analysis, qualitative analysis, Statistical Analysis (JMP, R), coding (MAXQDA)

## INDUSTRY EXPERIENCE

**Inflection AI, Palo Alto, CA** 06/2026 – 08/2026
Member of Technical Staff Intern | Inflection AI Labs

- Researched context-aware AI experiences combining physical-world sensing, conversational AI, and human-centered interaction
- Designed human-subject experiments evaluating how contextual signals can inform proactive AI behavior and conversation initiation.
- Built software and hardware prototypes for experimental AI systems in collaboration with research and special projects teams

**Nissan, Santa Clara, CA** 06/2025 – 08/2025
Artificial Intelligence Intern | NATC-SV

- Developed LLM-driven conversational agents for human-vehicle interaction and contributed to a cross-team demo for Nissan Global CEO Ivan Espinosa.
- Built agentic workflows using RAG, function calling, speech, and vehicle data to support context-aware conversational experiences.
- Prototyped and deployed on-device conversational agents powered by local LLMs for real-world vehicle contexts.

**Meta, Menlo Park, CA** 06/2021 – 08/2021
Software Engineering Intern | Meta Quest (Oculus)

- Built a synthetic IMU trajectory generation pipeline in Reality Labs, producing artificial kinematic headset data from upper-body and head animation key-point sequences.
- Applied Monte Carlo sampling for spatial optimization; MATLAB to visualize and validate 3D trajectory alignment algorithms.

**Software Engineering Intern** | FAIAR 06/2020 – 08/2020

- Worked on dialog policy for conversational AI used with Meta Ray-Ban Glasses and built Android/web testing tools for device-to-cloud photo and video pipelines.

## RESEARCH EXPERIENCE

**Johns Hopkins University, Baltimore, MD** 08/2021 – Present
Graduate Research Assistant | Intuitive Computing Lab | LCSR

- Design and deploy autonomous, LLM-driven robotic systems that integrate social dialogue into physical tasks, spanning controlled human-subject studies and in-the-wild deployments.
- Build end-to-end research systems combining robot control, conversational AI, speech interfaces, and multimodal sensing, then evaluate engagement, rapport, communication, and teamwork.
- Analyze behavioral and multimodal data using mixed-effects modeling, qualitative coding, and facial/gaze signal processing.

**Yale University, New Haven, CT** 05/2018 – 05/2021
Undergraduate Research Assistant | Social Robotics Lab

- Developed a Unity-based user-study interface for research on trust and fairness in human-robot collaboration and analyzed long-term in-home socially assistive robot interactions.

## PUBLICATIONS

- **K. T. Pineda**, B. Chien, A. Mishra, T. Williams, A. Guo, Z. Xiao, & C. M. Huang. *From Small Talk to Rapport: Exploring Robot Self-Disclosure in Collaborative Tasks.* IEEE RO-MAN, 2026. **Best Student Paper Award.**
- **K. T. Pineda**, E. Brown, & C. M. Huang. *"See You Later, Alligator": Impacts of Robot Small Talk on Task, Rapport, and Interaction Dynamics in Human-Robot Collaboration.* ACM/IEEE HRI, 2025. **Best Paper Honorable Mention.**
- G. Ajaykumar, **K. T. Pineda**, & C. M. Huang. *Older adults' expectations, experiences, and preferences in programming physical robot assistance. International Journal of Human-Computer Studies*, 2023.
- N. Salomons, **K. T. Pineda**, A. Adéjàre, & B. Scassellati. *"We Make a Great Team!": Adults with Low Prior Domain Knowledge Learn More from a Peer Robot than a Tutor Robot.* ACM/IEEE HRI, 2022.
- N. Tsoi, J. Connolly, E. Adéníran, A. Hansen, **K. T. Pineda**,T. Adamson, S. Thompson, R. Ramnauth, M. Vázquez, & B. Scassellati. *Challenges Deploying Robots During a Pandemic: An Effort to Fight Social Isolation Among Children.* ACM/IEEE HRI, 2021. **Best Paper Honorable Mention.**

## SELECTED AWARDS

**IEEE Best Student Paper Award**, IEEE RO-MAN 2026
**Best Paper Honorable Mention**, ACM/IEEE HRI 2025
**Professor Joel Dean Excellence in Teaching Award**, Johns Hopkins Computer Science 2025
**Best Paper Honorable Mention**, ACM/IEEE HRI 2021

## EDUCATION

**Johns Hopkins University, Baltimore, MD** 08/2021 – Present
PhD Candidate in Computer Science *Expected Graduation: December 2026*

**Johns Hopkins University, Baltimore, MD** 05/2024
MSE in Computer Science

**Yale University, New Haven, CT** 05/2021
BS in Electrical Engineering and Computer Science; Certificate in Spanish

## LEADERSHIP & MENTORSHIP

**President**, Johns Hopkins LCSR Graduate Student Association – lead executive board managing $8,000/year in student resources 01/2024 – 05/2026

Mentor to Johns Hopkins master's and undergraduate researchers in robotics, computer science, cognitive science, and electrical engineering 2024 – Present

## ADDITIONAL HONORS & SERVICE

KROS Interdisciplinary Research Award in Social Human-Robot Interaction, nominee 2026
RO-MAN Student Travel Grant ($1,000) 2026
Peer Reviewer, ACM/IEEE International Conference on Human-Robot Interaction 2024 – 2026
Assistant Local Arrangements Chair, ACM/IEEE International Conference on Human-Robot Interaction 2027
Robotics Science and Systems Inclusion Fellow 2022