Kaitlynn T. Pineda

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RESEARCH OVERVIEW

My research focuses on how LLMs can support natural small talk in physically collaborative robots. I design, develop, and deploy autonomous robotic systems that integrate social dialogue into task-based scenarios to foster engagement and rapport in human-robot/agent teams. My work spans lab-based human-subject studies and real-world field deployments.

EDUCATION

Johns Hopkins University, Baltimore, MD 08/2021 – Present
PhD Candidate *in Computer Science*
Advisors: Chien-Ming Huang and Gregory D. Hager

Johns Hopkins University, Baltimore, MD 05/2024
MSE *in Computer Science*
Selected Coursework: Human-Robot Interaction, Human-Computer Interaction, Computer Vision, Deep Learning, Networks

Yale University, New Haven, CT 08/2017 – 05/2021
Bachelor of Science *in Electrical Engineering and Computer Science,* ***Certificate*** *in Spanish*
Selected Coursework: Intelligent Robotics Laboratory (Graduate level), Building Interactive Machines, Artificial Intelligence, Neural Networks and Learning Systems, Systems Programming, Digital Systems, Circuits and Systems Design, Electronics

RESEARCH EXPERIENCE

Johns Hopkins University, Baltimore, MD 08/2021 – Present
Graduate Research Assistant

- Researcher in the Intuitive Computing Lab and Laboratory for Computation Sensing and Robotics
- Create LLM-driven robotic systems that integrate small talk into physical tasks, conducting lab studies and "in-the-wild" system deployments to evaluate engagement, rapport, and teamwork in human-robot collaborative settings
- Apply multimodal analysis methods including mixed-effects modeling, behavioral coding, and facial/gaze signal processing, and mixed qualitative-quantitative empirical evaluations

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

- Developed Unity-based interactive game interface for user studies on trust & fairness in human-robot collaboration
- Conducted behavioral analysis of children with ASD using a long-term, in-home socially assistive robot

Université catholique de Louvain, Louvain-la-Neuve, Belgium 05/2019 – 07/2019
Research Assistant

- Applied 2D and 3D U-Net models for biomedical image segmentation of mice entheses and integrated autoencoder based priors to enhance morphological accuracy

WORK EXPERIENCE

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

- Conducted R&D on LLM-driven conversational agents for human-vehicle interactions; contributed to a cross-team demo for Nissan's Global CEO, Ivan Espinosa, showcasing interactive AI experiences for autonomous vehicles
- Designed agentic workflows with RAG and function calling for conversational systems using speech & vehicle data
- Prototyped and deployed on-device conversational agents powered by local LLMs for real-world vehicle contexts

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

- Created a synthetic IMU trajectory generation pipeline within Meta Reality Labs, producing artificial kinematic headset data from upper-body and head animation key-point sequences
- Utilized Monte Carlo sampling for spatial optimization in virtual environments and used MATLAB to visualize and validate 3D trajectory alignment algorithms

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

- Worked on the AI Applied Research – Conversational AI team working on dialog policy for Meta Ray-Ban Glasses
- Built Android and web testing platforms to streamline photo & video transfer pipelines from devices to cloud services

PUBLICATIONS

Peer-Reviewed Conference Papers

[C-3]. **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.*
Proceedings of 2025 ACM/IEEE International Conference on Human-Robot Interaction (HRI) (2025)
Best paper award honorable mention | Top 5.25% of submissions

[C-2]. 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.*
Proceedings of 2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI) (2022)

[C-1]. 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.*
Proceedings of 2021 ACM/IEEE International Conference on Human-Robot Interaction (HRI) (2021)

Peer-Reviewed Journal Articles

[J-1]. G. Ajaykumar, **K. T. Pineda,** & C. M. Huang. (2023). *Older adults' expectations, experiences, and preferences in programming physical robot assistance.* International Journal of Human-Computer Studies, 180, 103127.

PREPRINTS

[M-1]. **K. T. Pineda,** A. Mahmood, & C. M. Huang. *"You Might Like It": How People Respond to Small Talk in Human-Robot Collaboration.* In: *arXiv preprint arXiv:2312.07454* (2023). [Under Review]

[M-2]. **K. T. Pineda,** B. Chien, A. Mishra, T. Williams, A. Guo, Z. Xiao & C. M. Huang. *Shaping Small Talk: Examining the Effects of Robot Disclosure in Collaborative Settings.* (2025). [Under Review]

PERSONAL AWARDS

Joel Dean Excellence in Teaching Award 2025
Robotics Science and Systems (RSS) Inclusion Fellow 2022
Johns Hopkins Computer Science Departmental Fellowship 2021 – 2022
Howard and Jacqueline Chertkof Endowed Fellowship 2021 – 2022
Science, Technology and Research Scholars (STARS) II Program 2019 – 2021
Alan S. Tetelman 1958 Fellowship for International Research in the Sciences 2019
Science, Technology and Research Scholars (STARS) I Academic Year & Summer Program 2017 – 2018

TEACHING EXPERIENCE

Computer Science Head Teaching Assistant, Johns Hopkins University Fall '22, Fall '23, Fall '24, Spring'25
EN.601.490/690 Human-Computer Interaction

- Held weekly office hours, led in-class activities, wrote exams, graded materials, lectured on human-AI interaction

Lecturer in Computer Science, Yale University
CPSC 470/570 Artificial Intelligence TF Spring '22

SERVICE

Peer Reviewer for ACM/IEEE International Conference on Human-Robot Interaction HRI '24, '25, '26
Organizer for RSS 2022 Workshop 01/2022 – 07/2022
Johns Hopkins LCSR Graduate Student Association, *President* 01/2024 – Present
Johns Hopkins Computer Science Graduate Student Council, *Social Committee* 04/2022 – Present

TECHNICAL SKILLS

Programming: Python (PyTorch, NumPy, pandas), C, C++, C#, MATLAB, JavaScript, HTML, CSS, Linux, LaTeX, Git

Robotics: ROS, Gazebo, RViz, MoveIt, Franka Emika Robot, Kinova Gen3, UR5, Arduino

Tools: Unity, AutoCAD, Adobe Illustrator, Figma, Pupil Labs Invisible (eye tracking)

Research: Human-Robot Interaction (HRI), Human-Computer Interaction (HCI), Human-Centered Design, Empirical Human-Subject Studies, Statistical Analysis (JMP, R), Qualitative Coding (MAXQDA)

AI Systems: Ollama, LangChain, Hugging Face, OpenAI API (ChatGPT), Speech-to-Text (Whisper, Google Cloud), Retrieval-Augmented Generation (RAG), Function Calling, Vector Databases (FAISS), Prompt Engineering, Local LLMs