

# PREETI RAMARAJ

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## EDUCATION

August 2023

**University of Michigan, Ann Arbor, MI**

**Ph.D.** Computer Science & Engineering, Advisor: John E. Laird

**Thesis:** Analysis of Situated Interactive Non-Expert Instruction of a Hierarchical Task to a Learning Robot

April 2017

**M.S.** Computer Science & Engineering

**University of Mumbai, Mumbai, India**

May 2012

**B.E.** Computer Engineering

## RESEARCH SKILLS

Qualitative methods: Thematic analysis, Cognitive task analysis, Contextual inquiry, Usability studies, Interviews, Quantitative methods: Surveys, Basic statistical methods

## TECHNICAL SKILLS

Python, Java, SQL, Linux, Git, Prototyping, System development

## EXPERIENCE

October 2023 – Present

**Postdoctoral Researcher - HEALTHCARE ROBOTICS LAB, UC SAN DIEGO, San Diego, CA**

- Generated insights on multi-human robot team social behaviors through a qualitative behavioral analysis to design appropriate robot interactions that improve robot acceptability [Paper 4]
- Mentoring PhD and Masters' students in their research process – engaging in project discussions, providing feedback on presentations and research papers with output of five publications

January 2017 – August 2023

**Graduate Student Researcher - SOAR LAB, UNIVERSITY OF MICHIGAN, Ann Arbor, MI**

- Created a research program to characterize non-expert mental models of Interactive Task Learning robots through qualitative and quantitative analyses of human participant studies [Paper 2]
- Extended development of simulated environment and architecture for robot built on Soar Cognitive Architecture using Java, Python, and Soar Markup Language
- Collaborated with interdisciplinary members to develop research projects

May 2020 – April 2021

**Research Intern - INTELLIGENT SYSTEMS LAB, PALO ALTO RESEARCH CENTER, Palo Alto, CA**

- Created robot design requirements to address robot communication issues leveraging a theoretical planning model and a bidirectional task analysis of human teaching interactions (N=10) with a Wizard-of-Oz robot [Paper 1]

May 2018 – September 2018

**Research Intern - ANTICIPATORY COMPUTING LAB, INTEL LABS, Santa Clara, CA**

- Categorized non-experts' robot knowledge gaps that contribute to human robot interaction failures
- Published results demonstrating non-expert ability to debug human robot interaction failures using verbal and visual transparency mechanisms through a human participant study (N=64) [Paper 3]

July 2012 – July 2015

**Software Engineer - MICROSOFT, Hyderabad, India**

- End-to-end ownership for shipping of front-end for configuration tools for Release Management for Visual Studio 2013
- Identified opportunity for improved code quality, piloted Test-Driven Development (TDD) leading to 100% code coverage, and conducted a workshop resulting in team-wide adoption of TDD
- Owner of project release for CRM system upgrade and developed Power BI reports enabling stakeholders to explore data insights and make informed decisions in real time

## SELECTED PUBLICATIONS

- P. Ramaraj**, C.L. Ortiz, Jr., & S. Mohan. Unpacking Human Teachers' Intentions for Natural Interactive Task Learning. RO-MAN 2021.
- P. Ramaraj**. Robots that Help Humans Build Better Mental Models of Robots. AAAI '21.
- P. Ramaraj**, S. Sahay, S. H. Kumar, W. Lasecki, & J. E. Laird. Towards using transparency mechanisms to build better mental models. ACS 2019: 7<sup>th</sup> Goal Reasoning Workshop.
- A. Haripriyan, R. Jamshad, **P. Ramaraj**, & L. D. Riek. Human-Robot Action Teams: A Behavioral Analysis of Team Dynamics. RO-MAN 2024.

## LEADERSHIP & OUTREACH

- 2022 HRI Pioneers Program Chair
- 2017-2019 Co-Chair of ECSEL+ (Ensemble of CSE Ladies +) at University of Michigan