PREETI RAMARAJ

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LinkedIn | Personal Website | Google Scholar

EDUCATION

University of Michigan, Ann Arbor, MI

August 2023 — **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

EXPERIENCE

Postdoctoral Researcher - HEALTHCARE ROBOTICS LAB, UC SAN DIEGO, San Diego, CA
October 2023 – Present

- Conducted qualitative video analysis of human robot teams to uncover insights on their social behaviors, which informs design of robots that can better support human teams [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

Graduate Student Researcher - SOAR LAB, UNIVERSITY OF MICHIGAN, Ann Arbor, MI
January 2017 – August 2023

- Created a research program to analyze 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 using Java, Python, and Soar Markup Language, to build novel robot interaction capabilities
- Collaborated with interdisciplinary teams to design and develop research projects

Research Intern - INTELLIGENT SYSTEMS LAB, PALO ALTO RESEARCH CENTER, Palo Alto, CA
May 2020 – April 2021

- Performed cognitive task analysis of 10 participant teaching interactions with a Wizard-of-Oz robot, developing design requirements to enhance robot communication using a planning model [Paper 1]

Research Intern - ANTICIPATORY COMPUTING LAB, INTEL LABS, Santa Clara, CA
May 2018 – September 2018

- Identified 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 study with 64 participants [Paper 3]

Software Engineer - MICROSOFT, Hyderabad, India
July 2012 – July 2015

- 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

RESEARCH SKILLS

Thematic analysis, Cognitive task analysis, Contextual inquiry, Usability studies, Interviews, Surveys, Statistical Methods

TECHNICAL SKILLS

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

SELECTED PUBLICATIONS

1. **P. Ramaraj**, C.L. Ortiz, Jr., & S. Mohan. Unpacking Human Teachers' Intentions for Natural Interactive Task Learning. RO-MAN 2021.
2. **P. Ramaraj**. Robots that Help Humans Build Better Mental Models of Robots. AAAI '21.
3. **P. Ramaraj**, S. Sahay, S. H. Kumar, W. Lasecki, & J. E. Laird. Towards using transparency mechanisms to build better mental models. ACS 2019: 7th Goal Reasoning Workshop.
4. 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