RobotsFor.Me and Robots for You

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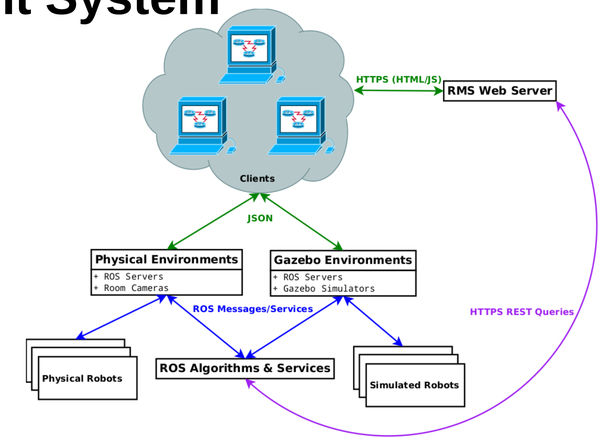
Overview

Interactive Machine Learning (IML) and Human-Robot Interaction (HRI) are rapidly expanding fields that focuses on allowing non-expert users to naturally and effectively interact and teach robots. The importance of conducting extensive user studies has become a fundamental component of this work; however, due to the nature of robotics research, such studies often become expensive, time consuming, and limited to constrained demographics. In this work we present the Robot Management System, a novel framework for bringing robotic experiments to the Web through a project known as *RobotsFor.Me*. We present a description of our open source system and describe the potential this and similar systems have for contributing to Interactive Machine Learning.

The Robot Management System

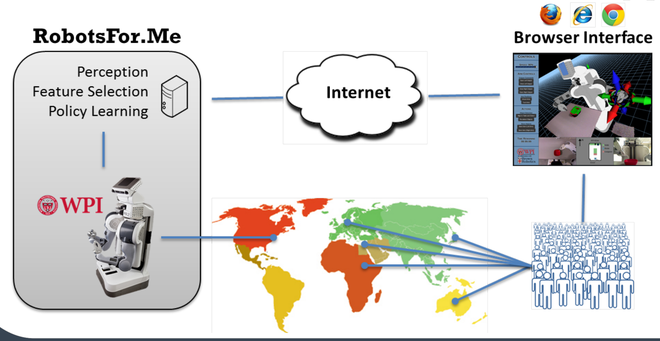
- PHP Web System backed by a MySQL database
- Robot and interface independent design
- Support for easy creation and management of new widgets and interfaces
- Secure user authentication and authorization
- Creation, management, logging, and analysis of multi-condition user studies
- Website content management



Goals

- Reduce time and financial limitations associated with HRI user studies
- Create a web-based framework for HRI and IML experiments
- Enable more rapid HRI development-evaluation cycle

RobotsFor.Me



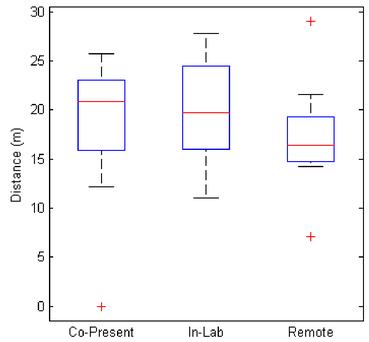
- Provide access to robots to non-expert users
- Support 24/7 open access to robot platforms and simulators
- Gain a steady stream of users
- Conduct large-scale HRI and IML user studies

Resources

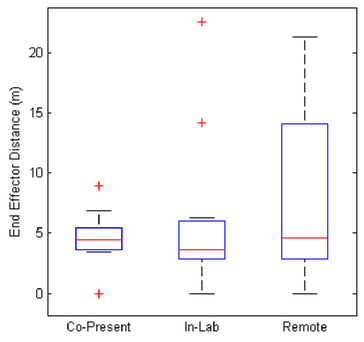
- The Robot Management System
  - Source: https://github.com/wpi-rail/rms
  - Doc: http://www.ros.org/wiki/rms/
- RobotsFor.Me
  - About: https://www.robotsfor.me/

Validation Study

- Validation user study for RobotsFor.Me
- 33 participants from across the country
- Split into remote and co-present groups
- Asked to perform a series of navigation and manipulation tasks
- Saw little-to-no difference in metrics across groups



Distance Traveled by Robot



Distance Traveled by End Effector

Acknowledgements

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