NRI: Robot-Assisted Longitudinal Physical and Cognitive Exercise Interventions for Older Veterans

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Central Research Question

How do social-physical and adaptive exercise activities with a robot contribute to the wellness of older veterans?
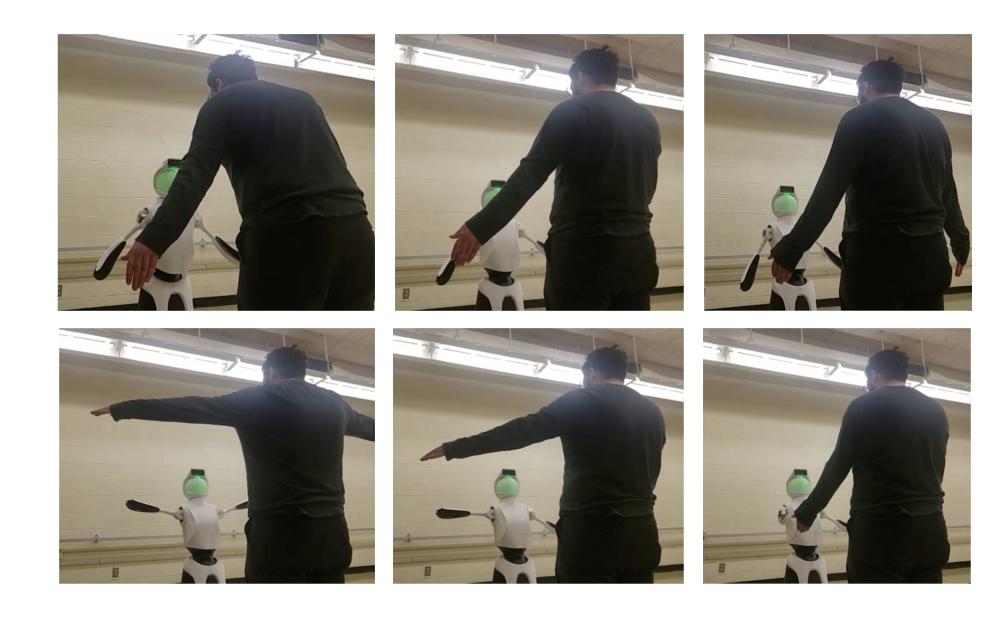
Motivation

- Increased life expectancy is leading to demand for new wellness options for elders
- Exercise promotion is particularly challenging
- Robot-mediated interventions are a solution

Key Problems to Address

- Design of a robotic physical and cognitive intervention that is engaging to use
- Giving the system appropriate adaptation
- In situ testing in a skilled nursing facility

Broader Impacts

- Project supported 5 graduate students
- Project team hosted 2 REU students
- Regular visits and interfacing with the local Oregon Veterans' Home (OVH)

Early exercise interaction prototyping session with the Quori robot

Updated exercise interaction prototype with the NAO robot and adaptive pose matching

Our partner facility, the Oregon Veterans' Home in nearby Lebanon, OR

Intervention Design Steps

- Design sessions with older adults, physical therapists, and gerontologists underway
- Testing of core robot platform options, such as Quori and NAO, completed

Adaptation Details

- Early MDP model formulation and update ideas tested in a convenience population
- Beginning testing of sensing, such as skeleton tracking, underway with older veterans

In Situ Testing Preparation

- Partner for testing will be the OVH
- Team conducted early visits
  - Beginning tour and conversations
  - Monthly design sessions beginning mid-Year 1