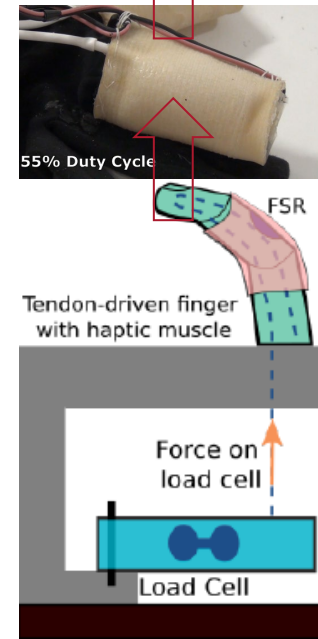
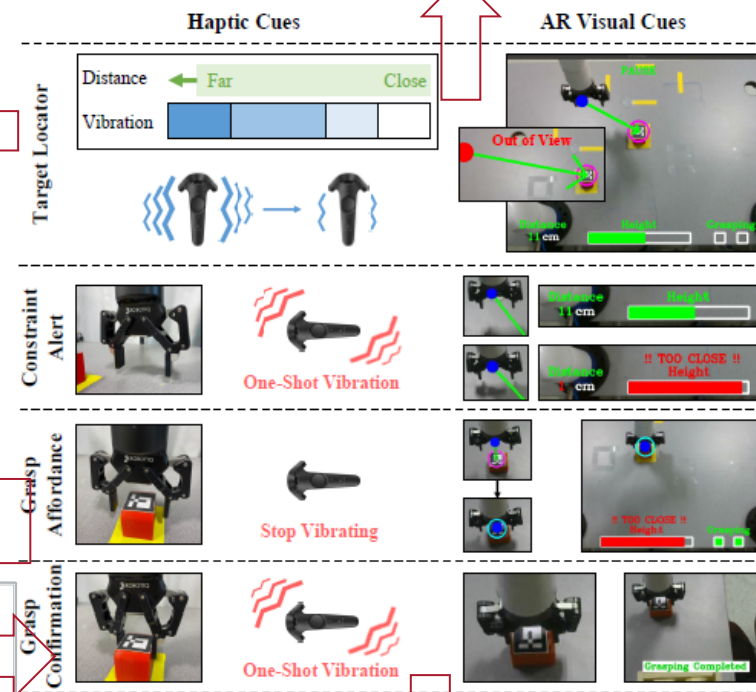
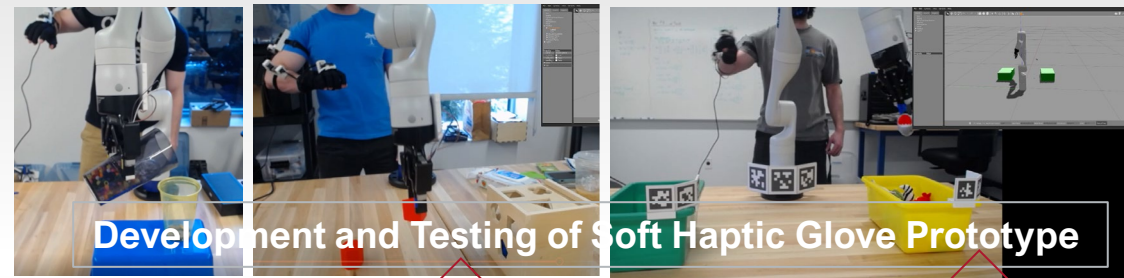


NSF Award #2024689 “Collaborative Research: NRI: INT: Transparent and Intuitive Teleoperation Interfaces for the Future Nursing Robots and Workers”, 2020/09/01-2023/08/31. Funded by **NSF NRI** and **NIOSH**.
PI: Zhi Jane Li¹ (zli11@wpi.edu), **Cagdas Onal¹**, **Jie Fu¹**, **Jeanine Skorinko²**, **Yunus Telliel²**, **Paula Bylaska-Davies³** .

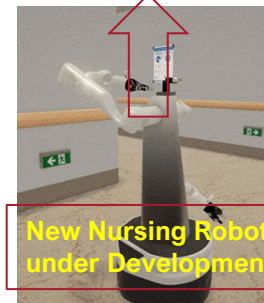


Objective Develop **transparent** and **intuitive** teleoperation interfaces to control nursing robots to perform nursing assistance tasks involving **dexterous manipulation**, **loco-manipulation** and **human-robot interaction** tasks; Evaluate the technological and social impacts on healthcare workers of diverse age and gender.

Significance Tele-Nursing Robots for **pandemic response** (Ebola, Zika, COVID-19); Benefit 2.9 million US **registered nurses and nursing practitioners**; Support in-home care, clinics, and hospitals given the **shortage of nursing workers**; Prepare healthcare workers for the future of work through **fusion of nursing and engineering education**.



Stackelberg game 1) **Deterministic** robot policy for predictability and fast adaptation; 2) **Balancing** task performance and human/robot's costs.



Evaluation 1) **Technological impacts** Testing the usability of the **soft haptic glove** to control general-purpose dexterous manipulation motor skills; Conducting user studies to understand the performance, workload, learning efforts of **visuo-haptic sensory feedback**, and user preference of sensory integration; 2) **Social impacts** Pilot interview registered nurses and nursing faculty to understand their **perception of tele-nursing robots**, **experience with tele-nursing interface prototypes**; understand their **preferred interface design features**.

