PI: Zhi Jane Li[1] (zli11@wpi.edu), **Cagdas Onal[1]**, **Jie Fu[1]**, **Jeanine Skorinko[2]**, **Yunus Telliel[2]**, **Paula Bylaska-Davies[3]** .

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.

AR interface for shared autonomous control

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**.

Development and Testing of Soft Haptic Glove Prototype

Pilot in-lab test with nursing tasks

Virtual testbed + Benchmark nursing tasks
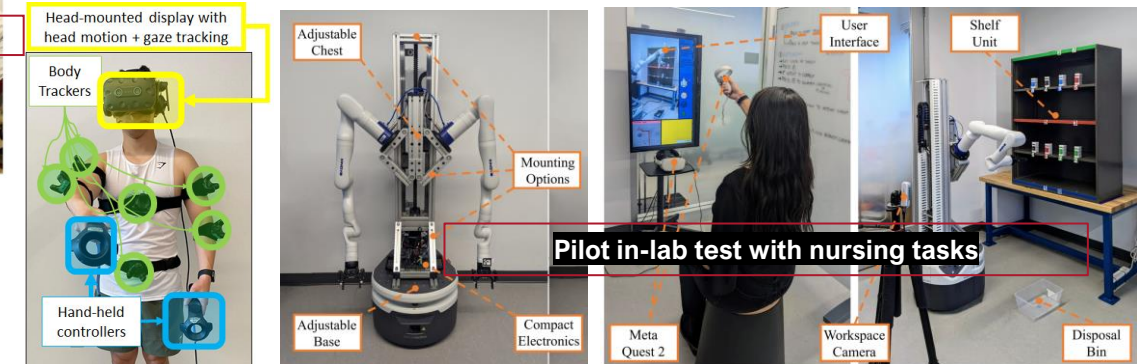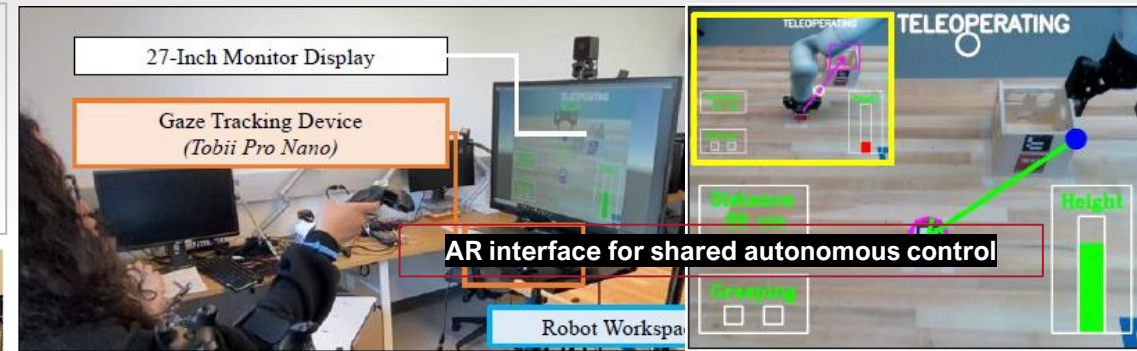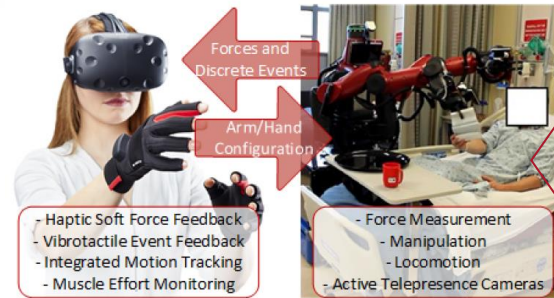
Evaluation 1) <u>Technological impacts</u> Testing the usability of the soft haptic glove to control general-purpose dexterous manipulation motor skills; Conducting user studies to understand the performance, workload, learning efforts of visuo-haptic sensory feedback, and user preference of sensory 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.

Research Seminar and Interactive Demonstration with Nursing Faculty and Students at WSU

WPI **WORCESTER STATE UNIVERSITY** Worcester Polytechnic Institute ([1] Robotics Engineering Department, [2] Social Science Department), [3] Worcester State University (Nursing Department)