NRI: FND: Customizable Haptic Co-Robots For Training Emergency Surgical Procedures

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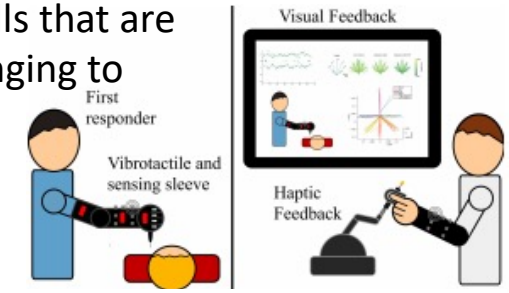
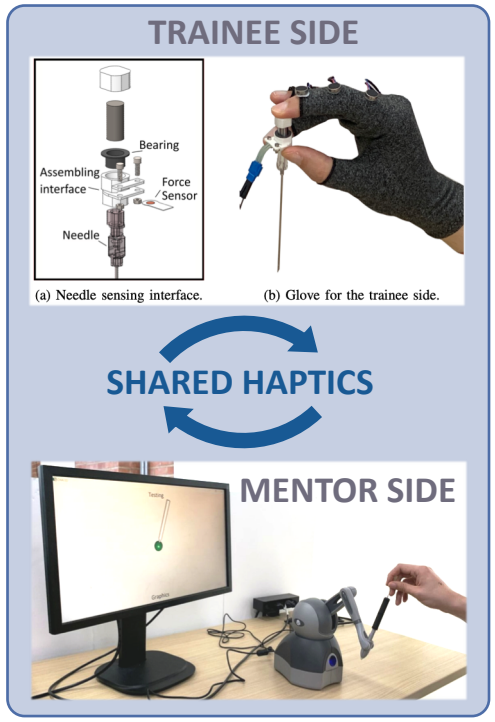
SCIENTIFIC CHALLENGE

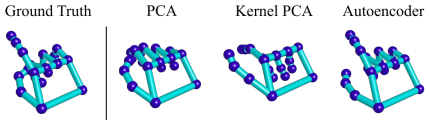
Trauma skills require complex spatial coordination, a delicate sense of touch, and ability to work under intense time pressure – all are skills that are challenging to train.

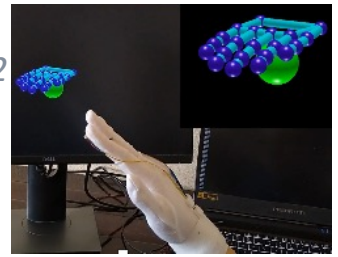


SOLUTION: HAPTIC TELEMENTORING SYSTEM

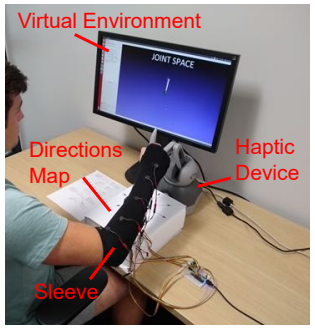


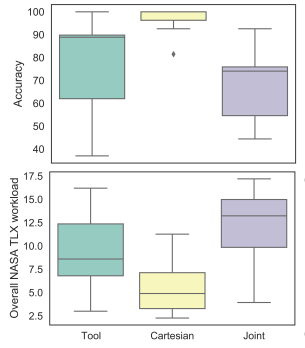
A1.1: Hand posture dimensionality reduction and reconstruction.
HAPTICS WIP '21 & ISMR '22
https://github.com/ebattaglia/cHand



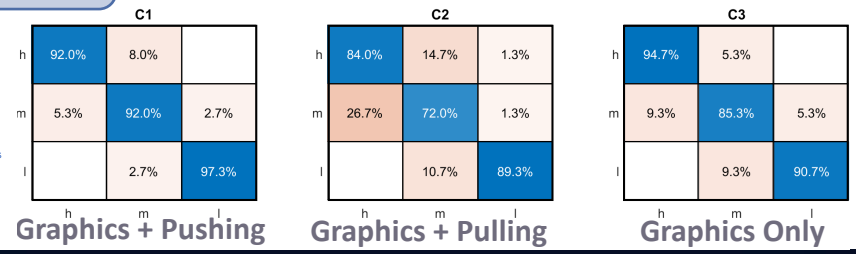


A2: Intuitive Guidance for 3D Needle Insertion
HAPTICS '22





A1.2: Mentor Perception of Trainee Applied Forces
HAPTICS '22



SCIENTIFIC IMPACT

- Fundamental science of human movement guidance via haptics
- Design of co-robotics for medical applications

BROADER IMPACT

- Improving healthcare and quality of training of trauma skills.
- Team includes 2 REU students + 1 female URM graduate student.
- Engaging Engineering World Health Undergraduate Students in research

2022 NRI & FRR Principal Investigators' Meeting
April 19-22, 2022