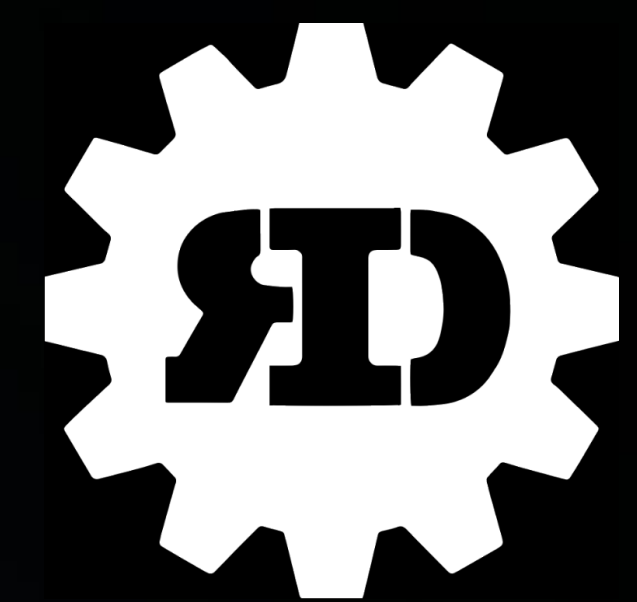


NSF NRI 2.0 - FND: Immersive whole-body teleoperation of wheeled humanoid robots for dynamic mobile manipulation

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<https://publish.illinois.edu/robodesign/>



Motivation: Emergency responders get injured or die due to physically demanding labor. But robots could help but lack the ability to coordinate their body to manipulate objects.



Our approach: employ bilateral whole-body teleoperation.

- **Aim 1:** Implement whole-body bilateral teleoperation Human-Machine Interface and the wheeled robot SATYRR.
- **Aim 2:** Develop whole-body bilateral feedback teleoperation strategies for physical tasks.
- **Aim 3:** Create algorithms for safe teleoperation using shared autonomy

Scientific Impact:

- Contributions to whole-body haptics.
- Principles for teleoperation of dynamic whole-body motions.
- Efficient algorithms for safe shared autonomy

Impact on society:

- Protect the life of human workers.
- Enable ubiquitous collaborative robots.
- Create of the next generation of robotic first responders.

Impact on education & outreach:

- K-12 Robotics Summer Camp.
- Public demonstrations
- Workshop on teleoperation for dynamic physical tasks

