



Closing the Teleoperation Gap: Integrating Scene and Network Understanding for Dexterous Control of Remote Robots

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Challenge

Robot teleoperation lags behind physical capabilities of robots:

- 1) Lack of intuitive scene awareness around the robot.
- 2) Lack of effective low-latency interface to control the robot.

Solution

New scene- and network- aware algorithms which couple sensing, display, interaction and transmission.
New interfaces for allowing operators to control the robot in 3D.



Human operator using virtual reality to fold a t-shirt using one of our preliminary interfaces.

Scientific Impact

New data for robot learning.
Ability for robots to operate in a wider variety of situations because humans can provide help.
New algorithms for scene- and network-aware display, sensing and transmission.

Broader Impact

Remote teleoperation in health care, factory, military and space.
Panel discussion on the ethical implications of our work.
Loaning VR equipment to local high schools.

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