Robot-Mediated Learning: Exploring School-Deployed Collaborative Robots for Homebound Children

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Goal: Create telerobots with new inclusive interfaces, control modalities, and telemanipulators to enable children with medical conditions or disabilities remotely attend school.

Problem:

- Each year, over 2.5 million children in the US are restricted to their homes due to medical risk

- Urgent need to use inclusive technologies beyond static platforms such as Zoom or online schools

- Commercially available telerobots were not designed for children or schools

Approach:

- Create best practices and guidelines that incorporate social norms for daily co-robot interactions

- Design accessible, adaptable, and usable control modalities for mobile telemanipulation

- Leverage interaction with an embodied co-robot to motivate interest in STEM, with a particular focus on remote children and children with disabilities

Recent Work: Telerobots for Learning through Play [1]

We will explore how to make mobile telemanipulators accessible to remote children and children with disabilities.

Our work will include new insights into the creation of future robot systems that can be dynamically reconfigured by end users without requiring domain expertise.

Additionally, this work will generate new insights into child-operated telerobots in public spaces.

We will work with remote children and educators in the co-design process to identify the unique educational and social needs of this population and identify robot-mediated learning tasks that contribute to optimal learning and development.

[1] Veronica Ahumada-Newhart and Laurel D. Riek. 2021. Telerobots for Informal Learning in Schools. In HRI 2021 Workshop on Robots 4 Learning (R4L).

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