

Robust Learning of Sequential Motion from Human Demonstrations to Enable Robot-guided Exercise Training




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Challenge

- What does a robot need to learn this from an expert and then teach this to a patient? 



Shoulder Press

Solution

- A robust trajectory learning algorithm: kinematics and dynamics
- A high-level policy learning algorithm
- An intuitive performance metric
- Good human-robot interaction ability

Scientific Impact

- Trajectory learning only from kinematic and kinetic variables
- Sample efficient policy learning

Broader Impact

- Motor rehabilitation service is critical for healthy living.
- Therapist shortage can be mitigated by leveraging robots that can learn from demonstrations