Actuation systems for Human-Robot Interaction

Active impedance by control

Stiff actuators + Position/Force/Torque sensor

- Impedance-based
- Admittance-based

Inherent impedance

Inherent compliance

- Serial Elastic Actuators - SEA
- Variable Stiffness Actuators - VSA

Inherent damping

- Controlled friction
- Controlled rheology
- Eddy currents
- Fluid dynamic