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**Human Intent Detection and Physically-Interactive Control of a Robot
without Force Sensors**

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ABSTRACT OF THE TALK

In this presentation a physically interactive control scheme for a manipulator robot arm will be introduced. The human touches the robot and applies force in order to make it behave as he/she likes. The communication between the robot and human is maintained by physical contact without any sensors. The intent of human is estimated by observing the change in control-effort. The robot receives the estimated human intent and updates its position reference accordingly. The developed method uses the principle of conservation of zero momentum for position controlled systems. A switching scheme is developed to go between the modes of pure impedance control with a fixed position reference and interactive control under human intention. The switching mechanism does not use and physical switch or sensor; it observes the human intent and puts the robot in interactive mode if there is any. When the human intent disappears the robot goes into the pure impedance control mode, stabilizing in the left position.