

# Implementation of Realistic Reaching Motion Using a Sliding Mode/Operational Space Controller

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## **Abstract**

It has been shown that a task-level controller with minimal effort posture control produces human-like motion in simulation. This control approach is based on the dynamic model of a human skeletal system superimposed with realistic muscle like actuators whose effort is minimised. In practical application, there is often a degree of error between the dynamic model of a system used for controller derivation and the actual dynamics of the system. We present a practical application of the task-level control framework with simplified posture control in order to produce life-like and compliant reaching motions for a redundant task. The addition of a sliding mode controller improves performance of the physical robot by compensating for unknown parametric and dynamic disturbances without compromising the human-like posture.