

AGATHE (Assistance to Gesture with Application to THERapy) team at ISIR (Paris) is specialized in physical human-machine interactions and human-robot co-manipulation for medical applications. This includes surgical robotics, gait assistance, light touch and prosthetics. My PhD, named *Intuitive and natural control for upper-limbs prosthetics*, aims to work on movement-based control for above-elbow prostheses. A first study focused on synergy-based control and compared different regression models to predict elbow motion from shoulder motion. This work has led to develop an assessment framework to analyze movement quality, not only based on performance but also on joint motions and body compensations. A second study, that just begins, proposes to use the natural body compensations to infer the desired arm movement.