Bending hand motion with tactile illusions: modelling and applications for advanced human-machine interaction

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In this talk I will discuss the role of touch as an auxiliary proprioceptive cue for movement control. I will show how motion estimates from different somatosensory cues – including tactile motion estimates that are biased by ridge orientation   -- are optimally integrated for the control of hand movements and can be used to devise model predictive control strategies for guiding hand motions. These strategies could be exploited as haptic retargeting techniques in mixed and augmented reality and for advanced human-machine applications in different domains.