Université catholique de Louvain
UCL
SECTEUR DES SCIENCES ET TECHNOLOGIES
INFORMATION AND COMMUNICATION TECHNOLOGIES, ELECTRONICS AND APPLIED MATHEMATICS

Invitation à la soutenance publique de thèse

Pour l'obtention du grade de Docteur en Sciences de l'Ingénieur

Monsieur Thibault GIARD

Master ingénieur civil biomédical

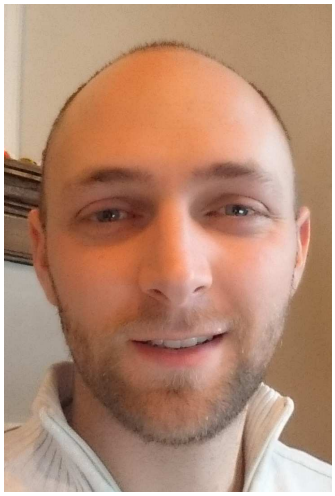
Grip force adaptation to static and dynamic torques during object manipulation

The human hand is an amazing tool. It is one of the most important interface between us and the world by allowing us to touch and manipulate it. Its complexity is certainly similar to its usefulness. To control the manipulatory and the exploratory functions of the hand, the brain needs to collect, to store, and to process adequately a considerable quantity of data about the objects and the environment. When gripping an object with the index finger and the thumb only, all this information is used to control the kinematics and the dynamics of the movement. In some situations, we have to manipulate unbalanced objects that produce load torques at the finger/object. The objective of the present work was to further investigate the control strategies during object manipulation in presence of load torques.

The results show that the grip force adaptation is slowed down when a load torque is present. The reproduction of a slower adaptation when manipulating torques under microgravity suggests that the presence of load torques experienced during movement may alter our internal estimates of required grip force. The last hypothesis tested was that the difference in control strategies when a load torque is present comes from a poor ability to discriminate load torques. Indeed, a poor ability to discriminate load torque was found during the active task. However, this bad discrimination was not due to an incapacity of the sensory system as the discrimination during the passive stimulation was much better.

Jeudi 18 février 2016 à 16h15

Auditoire SUD 11
Place Croix du Sud
1348 Louvain-la-Neuve



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