

CRIR Scientific Conference

Presented by:
Jewish Rehabilitation Hospital, CISSS de Laval



Centre de recherche interdisciplinaire
en réadaptation du Montréal métropolitain

As part of the "Talking Research" series | Presentations by researchers or postdoctoral fellows on the findings of their research projects

Informing robotic systems about the user to optimize assistance and rehabilitation.



Guillaume Durandau, Ph.D.

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Guillaume Durandau is a new assistant professor at McGill University, where he heads the NeuRoC Lab. He received his PhD from the University of Twente in the Netherlands and his MSc from the Université de Sherbrooke.

The long-term aim of Guillaume Durandau's research program is to understand and model the neuromusculoskeletal system of healthy people and people with disabilities, with the goal of creating new controllers for assistive robotic devices customized to users' needs. To this end, his research interests include the creation of new neuromusculoskeletal models that can be personalized, and the creation of predictive simulations to examine the short- and medium-term effects of rehabilitation strategies. Guillaume is also studying and developing interfaces between neuromusculoskeletal models and biological signals such as neural signals (EMG, HD-EMG) and kinematics (joint angles, ultrasound muscle kinematics).

Conference abstract

How can we inform robotic system controllers about users' residual abilities? Neuromusculoskeletal models represent human digital twin that allow us to look at the inner workings of the human body. This provides a unique opportunity to inform robotic systems or looking for biomarkers for rehabilitation. What's more, these digital twins, augmented by artificial intelligence, can be used to simulate movement without the need for experimental data, opening the way to predictive simulation for rehabilitation.

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📍 **In person:** Jewish Rehabilitation Hospital, Room D 1004
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or

📍 **Virtual:** On Zoom. Please register:

https://us02web.zoom.us/join/zoom/register/tZYtf-ISRtGjGdJHRzGIAB696sAETTQ_ammI#/registration