Participate in Research

Multiuser brain-computer interface to control an educational robot through visual imagery

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The prism (Paediatric Rehabilitation Intelligent Systems Multidisciplinary) lab

Figure. Multiuser BCI

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We invite you to participate in a study validating a visual imagery task for multiuser brain-computer interface (BCI) robotic control

What is this study about:
We are investigating if thinking about the movement of a robot activates specific brain areas. Pair of participants will collaborate to imagine the movement of an educational robot along a path on a robotic mat. We will use electroencephalography (EEG) to record brain activity during this task and assess if these EEG signals can be interpreted by a multiuser Brain-Computer Interface (BCI) to control the educational robot through just thoughts.

Who can participate?
We are looking to recruit adults with the following profile:

- Typically developed, 18 years old or older
- Have normal vision or wear contacts/glasses
- Have normal or corrected-to-normal hearing
- Fluent in English
- Be able to remain still in their seated for a minimum of 5 minutes

What's involved?

- You will be asked to come to Holland Bloorview for **1 session**. The session is estimated to last **1.5 hours.**
- Your brain activity will be measured using an electroencephalography (EEG) headset with sensors that gently touch your head.
- You and another participant will control an educational robot through thought alone via an EEG-based multiuser Brain-Computer Interface (BCI) system. Your task involves imagining the movement of the robot along a line follower mat.

Potential Benefits?
The results gained from this study will support the use of a multiuser brain-computer interface to enable individuals with speech and motor impairments to interact with others in shared robotic activities through visual imagery.

Participants will receive a small token of appreciation to thank them for their time. Parking expenses or transit tickets at Holland Bloorview will also be covered.