Call for Papers

Special Issue of *Presence: Teleoperators and Virtual Environments*
Brain-Computer Interface (BCI) Systems in Virtual Reality Environments
Guest Editors: G. Pfurtscheller, R. Leeb, and B. Allison

Brain-Computer Interface (BCI) systems are quickly moving out of the laboratory and becoming practical communication and control systems. BCIs have been validated in homes, hospitals, exhibitions, and other noisy environments. BCIs may provide accurate control through different brain signals, and can allow people to spell, select items, browse the internet, manage smart home systems, and control robotic devices, including wheelchairs, orthoses, and prostheses.

However, despite the progress in neuroscience and computer engineering, important work remains to enhance the feedback provided during training sessions, e.g., through games and/or VR applications.

Recent work has clearly shown that BCIs can allow control in virtual environments, including control of an avatar. Subjects who use immersive virtual environments report that BCIs are easier to learn and use, and state that they enjoy BCI use more. Thus, there is an opportunity to further enhance BCI usability by developing and testing rich, engaging virtual environments for BCIs.

In this special issue, we invite the community to present new work describing and evaluating BCIs that use virtual environments. In these BCIs, information might be presented on a computer monitor, over a head-mounted device, or in a computer-animated multiscreen virtual environment.

Topics of interest will include:

- Comparisons between conventional and VR environments
- New approaches to present feedback
- “Hybrid” BCI systems that include beside brain also non-brain signals
- Review/commentary of BCIs and VR
- New applications for VR systems
- Presence and BCIs
- Control of avatars or virtual objects with a BCI
- Comparisons between virtual and real control (such as a virtual vs. actual orthosis)
- Extension of basic HCI/Human Factors principles into BCI design
- Rehabilitation with virtual environments

Authors are encouraged to submit papers that include original data and/or analysis of existing work; purely hypothetical papers are discouraged.

Submission Deadline: September 15, 2009

Please send documents in .pdf form to presence@mit.edu. Email attachments are preferred. Include contact information for the corresponding author in the body of the email. Papers should conform to the submission guidelines available at http://www.mitpressjournals.org/page/sub/pres

Contact:
G. Pfurtscheller, Guest Editor
BCI-Lab
Graz University of Technology
Krenngasse 37
8010 Graz, Austria
Tel: +43 316 873 5300
E-mail: pfurtscheller@tugraz.at