



IEEE SMC'19
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BMI Workshop

SPECIAL SESSION ON
“BMIs enabled by shared-control: principles and applications”

SPECIAL SESSION CODE
1eyg8

Session Organizers:

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Session description

This special session deals with the problem of blending human and Artificial Intelligence (AI) towards smarter future Brain-Machine Interaction (BMI). Current BMIs are marked by low Degrees of Freedom (DOF) and decoding accuracies, thus being unable to adequately support dexterous control of robotic and prosthetic devices or software. Whilst most efforts to address these issues are focused on the signal processing, machine learning and hardware involved in brain signal decoding, shared-control approaches have proven to be a promising alternative. Shared-control encompasses methods where intelligent actuators, equipped with their own sensors and embedded AI, (semi-)autonomously undertake the low-level details of a BMI task and refine, correct or complement the user's input. The user maintains control over high-level decisions through the BMI and thus, the sense of agency, while enjoying fine-grained task execution that can be accomplished even with an uncertain and low-DOF BMI.

The goal is to push forward the application of shared-control approaches in BMI, by welcoming contributions on both the theoretical underlying principles and potential applications. Special focus will be cast on real-time adaptive methods modulating the level of robotic assistance by exploiting contextual information, like the surrounding environment and the assessment of the BMI reliability.

Keywords

- Human-Machine Interface
- Assistive Technology
- Brain-based Information Communications

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **March 31, 2019**: <http://controls.papercept.net/conferences/scripts/start.pl>. In PaperCept, click on the **SMC 2019 link “Submit a Contribution to SMC'19” and follow the steps.**

All papers must be written in English and should describe original work. For guidelines, please follow the the SMC website link http://smc2019.org/information_for_authors.html

DEADLINES

March 31, 2019: deadline for paper submission

June 7, 2019: notification of paper acceptance/rejection

July 7, 2019: deadline for final camera-ready papers.