



IEEE Systems Journal

Special Issue on “Translational Issues in Clinical Brain-Machine Interface Systems for Assistance, Diagnostic and Restorative Applications”

CALL FOR PAPERS

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SCOPE

Advances in Brain-Machine Interface (BMI) systems have led to exciting breakthroughs and proof-of-concept demonstrations in people with paralysis or stroke in early human clinical trials. However, these complex systems have yet to reach the target clinical populations. This special issue focuses on addressing complex end-user, engineering, clinical, regulatory, reimbursement, ethical, legal and social acceptance challenges which require system-of-systems solutions towards the clinical translation of BMI systems to the end-user.

This special issue intends to highlight research in support of systems-based approaches to the theory, technology, design methodology, validation, translation and impact in the real life, and societal implications of clinical BMI systems. Both theoretical contributions and application validations are welcome. Topics of interest include, but are not limited to:

- Innovative AI approaches for robust high-performing clinical BMI design and training
- Patient screening, selection, and training for clinical BMI systems
- Reliability, physics of failures (PoF), and health prognosis of clinical BMI systems
- Interoperability and standards for clinical BMI systems
- Emergent neurotechnologies for clinical BMI systems
- BMI systems for adaptive human-machine interaction.
- Ethical, legal, regulatory, reimbursement, and social issues concerning deployment of clinical BMI systems to patient populations
- Data Science applications in BMI systems
- Lessons learned from ongoing or complete clinical trials of BMI systems for communication or assistance
- Diagnostic applications of BMI systems, including daily life and activity monitoring
- BMI-aided rehabilitation to trigger neuroplasticity, neurorestoration and neuroregeneration

Papers should always address the above specific topics from the system perspective in order to be considered for this special issue.

SUBMISSION GUIDELINES

Authors are invited to submit original research contributions by following the detailed instructions given in the “Information for Authors” at <http://www.ieeesystemsjournal.org>. In the cover letter, authors should explicitly state that the paper is submitted to the “Translational Issues in Clinical Brain-Machine Interface Systems for Assistance, Diagnostic and Restorative Applications”. Questions about the special issue should be directed to the Guest Editors.

SCHEDULE

Paper submission deadline:	November 1, 2019	Minor revision deadline:	June 1, 2020
Notification of the first review:	February 15, 2020	Final notification:	July 15, 2020
Revised paper submission:	April 1, 2020	Final manuscript:	August 1, 2020
Notification of the re-review:	May 1, 2020	Expected publication:	First half of 2021