Special Issue

Brain-Computer Interfaces for Robotic Applications in Extended Reality

Message from the Guest Editors

Recent years have seen significant advancements in brain-computer interface (BCI) technology within the fields of robotics and artificial intelligence. This innovation establishes a direct link between the human brain and robotic systems, enabling control and interaction. Comprising both software and hardware components, BCI systems through the decoding of brain signals, BCI techniques translate neural activity into actionable commands for robotic systems.Extended reality (XR) technologies encompass three different alternative realities (virtual, augmented and mixed realities), which are increasingly showing their potential within the robotic domain. The fusion of XR and BCI systems has the potential to revolutionize the HRI domain. Robotic rehabilitation and industrial tasks are among the critical areas which benefit from this integration.This Special Issue aims to showcase the latest research and innovations in this rapidly evolving field, fostering interdisciplinary collaboration and shaping the future of human-robot partnerships.

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About the Journal

Message from the Editor-in-Chief

It is my great pleasure to welcome you to our open access journal, *Robotics*, which is dedicated to both the foundations of artificial intelligence, bio-mechanics and mechatronics, and the real-world applications of robotic perception, cognition and actions. The 21st century is the robotics century and intelligent robots will change our lifestyle forever. Let us work together toward the realization of intelligent robots step by step.
It is great fun to create intelligent robots and imagine their practical applications. *Robotics* is now ready to serve you in the long journey towards such a goal.

Editor-in-Chief

Prof. Dr. Marco Ceccarelli
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