Special Issue

Design and Control in Exoskeleton Systems: Challenges and Innovations in Physical Human–Robot Interaction

Message from the Guest Editor

This Special Issue aims to provide an international platform for academics, researchers, and industry professionals to share the latest developments, trends, and innovations in the design and control of exoskeleton systems, with a strong emphasis on physical interaction dynamics. Topics of interest include but are not limited to biomechanically informed design, compliant actuation, real-time control, adaptive and personalized assistance, sensor integration, and user intent recognition. Contributions may include theoretical studies, simulation frameworks, experimental validation, and real-world deployments.

- Wearable robotics and exoskeleton design;
- Physical human–robot interaction (pHRI) modelling and control;
- Adaptive and compliant control strategies for exoskeletons;
- Sensor fusion and user intention detection;
- Human biomechanics and ergonomic integration;
- Real-time control and feedback systems;
- AI, machine learning, and data-driven methods for exoskeleton adaptation;
- Evaluation metrics, benchmarking, and experimental validation.
- Applications in rehabilitation, industry, and mobility assistance;

Guest Editor

Dr. Mohammadhadi Sarajchi
Bristol Robotics Laboratory, University of the West of England, Bristol T Block, Frenchay Campus Coldharbour Lane, Bristol BS16 1QY, UK

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Machines
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
machines@mdpi.com

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Message from the Editor-in-Chief

Machines is an international, peer reviewed journal on machinery and engineering. It publishes research articles, reviews and communications.
Our aim is to encourage scientists to publish their experimental and theoretical results in as much detail as possible. There is no restriction on the length of the papers. Full experimental and/or methodical details must be provided.
There are, in addition, unique features of this journal: Manuscripts regarding research proposals and research ideas will be particularly welcomed; Electronic files or software regarding the full details of the calculation and experimental procedure - if unable to be published in a normal way can be deposited as supplementary material.

Editor-in-Chief

Prof. Dr. Antonio J. Marques Cardoso
CISE—Electromechatronic Systems Research Centre, University of Beira Interior, Calçada Fonte do Lameiro, P-6201-001 Covilhã, Portugal

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