Special Issue

New Trends in Exoskeleton Robot

Message from the Guest Editors

There are many kinds of exoskeleton robots such as rigid- and soft-exoskeleton robots, both of which are designed to reduce the subjects' working loads or metabolic energy. Mechanical engineering, control engineering and human factor engineering are involved in exoskeleton design. The mechanical design should achieve the load wearing function and guarantee flexibility in human movement. The control strategy should allow for human–robot coordinate movement, which involves human movement intention recognition and exoskeleton control methods. Human movement intention recognition involves motion pattern recognition and gait phase recognition. Many methods have been developed to recognize human motion patterns, however, most of the methods have not been established in the exoskeleton-embedded system. Online human movement recognition is more important during control. Furthermore, the control effect on the embedded system should also be determined. The evaluation of exoskeleton effects on humans is also important during control strategy optimization.

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Deadline for manuscript submissions

20 August 2025

Applied Sciences

an Open Access Journal by MDPI

Impact Factor 2.5
CiteScore 5.5

mdpi.com/si/209587

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal Applied Sciences has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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