1. Section Collection:

Control of Wearable robots/devices

2. Deadline for Manuscript Submissions: 2024-12-30

3. Section Editors' Information:

Name:	Dr. Ali Soltani Sharif Abadi
Email:	ali.abadi@pw.edu.pl
Affiliation:	Warsaw University of Technology
Homepage:	https://www.linkedin.com/in/ali-soltani-sharif-abadi-5b4334138/
Research Interest:	Control systems, Sliding Mode Control, Fuzzy control, Robotics, Wearable robots

4. Summary:

Wearable robots/devices have emerged as transformative tools across diverse applications, from healthcare to industry. This call emphasizes key areas:

Advanced Control Algorithms: Share insights on cutting-edge control algorithms enhancing the efficiency, adaptability, and robustness of wearable robots. Topics include adaptive control, machine learning approaches, and real-time optimization, pushing the boundaries of control system capabilities.

Human-Machine Interaction: Explore user interface design, haptic feedback systems, and methods ensuring seamless collaboration between wearers and robotic systems. Addressing user experience is crucial for the successful integration of wearable robots into daily activities.

Biomechanics and Kinematics: Investigate control strategies grounded in biomechanical principles for improved performance and user comfort. Submissions may cover biomechanical modeling, kinematic control, and the integration of sensor feedback for precise motion control.

Sensory Feedback Systems: Present innovations in sensory feedback mechanisms, encompassing proprioceptive feedback, environmental sensing, and sensor fusion. These advancements contribute to a more immersive and responsive interaction between the wearer and the robotic device.

Clinical Applications: Showcase research on wearable robots designed for medical and rehabilitation purposes. Highlight assistive devices, exoskeletons, and therapeutic applications, emphasizing the pivotal role of control systems in enhancing patient outcomes.

Wearable Robotics in Industry: Explore the application of control systems in wearable robots deployed in industrial settings. Submissions may include safety considerations, case studies, and optimization strategies for enhanced productivity and worker well-being.

5. Keywords: Control systems, Robotics, Wearable robotics, Nonlinear control, Force estimation, human-robot interaction.

References:

[1] Soltani Sharif Abadi Ali, Alinaghi Hosseinabadi P, Hameed A, Ordys A, Pierscionek B. Fixed-time observer-based controller for the human–robot collaboration with interaction force estimation. Int J Robust Nonlinear Control. 2023; 1-34. doi: 10.1002/rnc.6719.

[2] Rocon, E., A. F. Ruiz, R. Raya, A. Schiele, Jose L. Pons, J. M. Belda-Lois, R. Poveda, M. J. Vivas, and J. C. Moreno. "Human-robot physical interaction." Wearable robots: Biomechatronic exoskeletons (2008): 127-163.

[3] Pons, J.L., 2008. Wearable robots: biomechatronic exoskeletons. John Wiley & Sons.

[4] Cifuentes, C.A. and Frizera, A., 2016. Human-robot interaction strategies for walker-assisted locomotion (Vol. 115, p. 105). Cham, Switzerland: Springer.

[5] Haddadin, S. and Croft, E., 2016. Physical human–robot interaction. Springer handbook of robotics, pp.1835-1874.