Special Issue

Actuation and Biomedical Development of Micro/Nano Robotics

Message from the Guest Editor

This Special Issue aims to provide comprehensive review/research articles on the state of the art of small-scale robotics at the micro/nanometer level and to highlight the various approaches towards actuators for biomedical applications. Micro/nanorobots have tremendous potential to be utilized in biomedical applications, with advantages in their high precision and swarm operations. However, there are still many challenges remaining for biomedical applications with living organisms, such as innovative designs for the integration of functionalities, biocompatible actuation systems, and imaging tracking technology. This issue presents the main challenges of micro/nanorobots for biomedical developments, including, but not limited to, novel hardware design, actuation principles, dynaimics, controls, sensors, new functionalities, and artificial intelligence.

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About the Journal

Message from the Editorial Board

We are just entering the Next Wave of Technology (NWT) where actuators will play the same role as the computer chip did for computers/social media approximately four decades ago. Just in the U.S., production of $1 trillion year of electromechanical systems (vehicles, orthotics, manufacturing cells, freight trains, aircraft, etc.) will be impacted by the NWT, all driven by actuators. Five key trends can be found for the future perspectives: “Performance to Reliability”, “Hard to Soft”, “Macro to Nano”, “Homo to Hetero” and “Single to Multi functional”. We invite papers that primarily impact these economic sectors; those illustrating basic scientific principles are also welcome.

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