Special Issue

Design and Application of Actuators with Multi-DOF Movement-2nd Edition

Message from the Guest Editors

With the increasing demand for industrial automation and robotics worldwide, actuators with multi-degree-of-freedom (DOF) motion capabilities have been developed to enable more complex movements in machines and robots. Applications of multi-DOF actuators cover a wide range of fields, such as robotics, haptic devices for augmented reality systems, precision measurement, camera modules, data storage devices, projectors, optics, optoelectronics, and medical and healthcare engineering, among others. The development of multi-DOF actuators is expected to expand substantially in the years and decades ahead. To highlight the current status and perspectives, this Special Issue invites contributions, including research and review articles, that cover all aspects of multi-DOF actuators, including, but not limited to: novel designs of multi-DOF actuators; theory, modeling, and control; simulation; experimental methodology; multi-degree-of-freedom movement; manufacturing and processing; 3D printing for multi-DOF actuators; and applications in research, industry, and education.

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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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