Special Issue

Fluid Power Actuation Systems

Message from the Guest Editor

Systems driven by fluid power such as pneumatics, oil and water hydraulics, and functional fluids have unique characteristics that are difficult to realize with other actuator drives. A new paradigm in fluid power systems is now being born by integration with soft materials, 3D printing, IoT, etc. This Special Issue aims to present the latest research on Fluid Power Actuation Systems, including innovative fluid-driven actuators, valves, piping configuration methods, portable pressure sources, and control methods, as well as system integration. It will also cover research on epoch-making applications of fluid power systems that will revolutionize soft robotics, medical devices, construction and industrial machinery, etc.

- Fluid Power Systems
- Soft Robotics
- Drive System Using Fluid Phenomenon
- Pneumatic Actuator
- Oil Hydraulic Actuator
- Water Hydraulic Actuator
- Functional Fluid Actuator
- Valve / valve-less Control

Guest Editor

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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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