Special Issue

Design of Sensing and Actuation Systems

Message from the Guest Editors

The last several decades have seen the advent and development of innovative materials and systems, whose level of compactness and integration, in conjunction with their high functional performance, contribute to their designation as “smart”. Consequently, research and development projects have been focusing on the development of highly integrated sensing and actuation systems based on “highly embedded and distributed architectures”, targeting growing levels of market and technical competitiveness, while facing increasingly strict environmental requirements. This Special Issue focuses on the design of integrated actuator and sensor networks, applied to different fields, such as:

- Morphing and deployable systems;
- Electric aircraft and vehicle applications;
- Energy harvesting systems;
- Noise and vibration annoyance;
- Innovative de-icing systems for aeronautics;
- Civil buildings, for health monitoring and seismic attenuation;
- Bio-medical applications, ranging from surgery to wearable systems;
- Any other application concerning the development and use of highly integrated actuation and sensing systems.

Guest Editors

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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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