Special Issue

Wireless Sensor–Actuator Networks

Message from the Guest Editors

Recently, with the rapid development of wireless communication and embedded computing technologies, a lot of research activities have been dedicated to the fields of cyber physical systems (CPS). In CPS, sensors are involved in monitoring the physical environment, while actuators execute specific actions in response to the data provided by the networks. It is important to design novel resource self-management mechanisms, to avoid out-of-order and out-of-time execution of queries and commands due to the lack of proper resource allocation and scheduling between sensors and actuators. The topics of interest for this Special Issue include but are not limited to:

CPS applications;
Communication protocols, routing protocols, and scheduling algorithms;
Estimation and control mechanisms designed for sensors and actuators;
Safety, reliability, fault tolerance;
Real-time computation and communication;
Low-power design, energy management;
Architectures and methods for embedded system design and hardware and software co-design.

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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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