Special Issue

AI, Designing, Sensing, Instrumentation, Diagnosis, Controlling, and Integration of Actuators in Digital Manufacturing—2nd Edition

Message from the Guest Editors

Actuators are usually essential enablers to implement the functions of a device, product, or system. As primary system elements, actuators are required to be integrated with other system elements such as other actuators, sensors, end-effectors, and embedded controls to fulfill their functions. Therefore, modern actuators have advanced greatly through the incorporation of newly developed digital technologies such as artificial intelligence (AI), cyber–physical systems (CPSs), Internet of Things (IoT), digital twins (DT-I), cloud computing (CC), digital triads (DT-II), additive manufacturing, predictive manufacturing, blockchain technologies (BCT), and big data analytics (BDA). This Special Issue aims to collect some representative studies on the development of new machines, products, and systems in digital manufacturing, especially in aerospace engineering, with merits in the designing, sensing, instrumentation, diagnosis, control, and integration of actuators.

Guest Editors

Prof. Dr. Zhuming Bi

Prof. Dr. Aki Mikkola

Prof. Dr. Guilin Yang

Dr. Yuk-Ming Tang

Prof. Dr. Kai Leung Yung

Prof. Dr. Andrew W. H. Ip

Deadline for manuscript submissions

30 September 2025

Actuators

an Open Access Journal by MDPI

Impact Factor 2.3
CiteScore 4.3

mdpi.com/si/198573

Actuators
Editorial Office
MDPI, Grosspeteranlage 5
4052 Basel, Switzerland
Tel: +41 61 683 77 34
actuators@mdpi.com

mdpi.com/journal/actuators

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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.

Editors-in-Chief

Prof. Dr. Kenji Uchino
Emeritus Academy Institute, The Pennsylvania State University, University Park, PA 16802, USA

Prof. Dr. Norman M. Wereley
Department of Aerospace Engineering, University of Maryland, 3179J Martin Hall, College Park, MD 20742, USA

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