Special Issue

Robust, Fault-Tolerant Control Design

Message from the Guest Editors

The pace of development in science and technology has significantly accelerated in recent years, while industrial applications are becoming much larger and more complex. Consequently, it is more common to encounter faults within systems as the complexity and number of components increases. Among the classes of possible faults, actuator faults are considered to be one of the most critical challenges to be solved, since system performance can be severely deteriorated by improper actuator function. The design of these systems involves advanced techniques including robust nonlinear estimation, adaptive learning-based control, and distributed control. Recently, these advanced techniques have been successfully applied to various types of unmanned aircrafts and autonomous mobile robots. This Special Issue is intended to provide a wide range of readers a copious collection of emerging fault-tolerant control design methods. In this context, it welcomes important contributions from renowned international researchers in a wide range of engineering disciplines.

Guest Editors

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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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