Special Issue

Actuator Fault Diagnosis, State Detection and Fault Tolerant Control for Ground and Rail Vehicles

Message from the Guest Editors

Actuators serve as pivotal components, which are responsible for ensuring the precise control and maneuverability in both ground and rail vehicles, directly impacting their operational safety and reliability. The purpose of this Special Issue is to establish a platform for researchers and practitioners to share their latest findings, thereby contributing to the advancement of ground and rail vehicles. The topics of interest within the scope of this Special Issue include, but are not limited to, the following:

- Actuator Fault Diagnosis under Multi-Sensor Fusion;
- Data-driven fault diagnosis and failure prediction;
- Real-time detection and dynamic warning;
- Trajectory tracking and collision avoidance control considering actuator failure;
- Control of multi-vehicle platooning systems considering actuator failure;
- Fault-tolerant control of vehicle chassis under actuator failure;
- Active control of vehicle actuators (braking, drive, steering systems, etc.);
- Analysis of vehicle passive safety (e.g., actuator failure analysis, etc.)

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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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