Special Issue

AI-Powered Smart Transportation: From Predictive Maintenance to Autonomous Control

Message from the Guest Editor

The rapid development of artificial intelligence is reshaping smart transportation by enabling both predictive maintenance and autonomous control in a unified framework. Predictive maintenance techniques, driven by prognostics and health management (PHM), allow for the real-time monitoring of critical assets such as batteries, drivetrains, and infrastructure, providing accurate remaining useful life estimation and anomaly detection. These methods improve system reliability, reduce downtime, and lower operational costs. At the same time, autonomous driving and control systems leverage trajectory prediction and motion planning to achieve safe, efficient, and human-like driving behaviors. With the support of cooperative perception and vehicle-to-everything (V2X) communication, vehicles can share intent, extend their sensing range, and operate collaboratively within dynamic traffic environments. By bringing together predictive maintenance and autonomous control, this Special Issue aims to provide a platform for innovative solutions that ensure reliability, safety, and scalability of next-generation transportation systems.

Guest Editor

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As the world of science becomes ever more specialized, researchers may lose themselves in the deep forest of the ever increasing number of subfields being created. This open access journal *Applied Sciences* has been started to link these subfields, so researchers can cut through the forest and see the surrounding, or quite distant fields and subfields to help develop his/her own research even further with the aid of this multi-dimensional network.

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