# Special Issue

# AI Learning for Control of Predictive Vehicle Dynamics

## Message from the Guest Editor

Controlling the lateral dynamics of vehicles remains a key research area alongside technological advancements. Recent progress in optimization and AI has opened new paths to integrate control theory with machine learning, both in theory and practice. The rise of autonomous and connected vehicles, powered by diverse energy sources, introduces critical challenges attracting broad academic interest. This Special Issue (SI) explores control problems in modern vehicles using predictive data enabled by advanced technologies. AI-processed data can enhance or design model-based physical control laws, such as Model Predictive Control (MPC), a widely used technique. Integrating sensor and estimator data into MPC via machine learning offers efficiency with low computational burden. We welcome original research and reviews on control theories, applications, and implementations. Topics include robust AI learning, MPC with learned dynamics, human-centric AI, physics-informed neural networks, safety and energy optimization, fault detection, reinforcement learning, and intelligent sensing for vehicle dynamics control.

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## Message from the Editor-in-Chief

## Editor-in-Chief

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