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[ASME *Journal of Dynamic Systems, Measurement, and Control*]

Special Issue on Optimal Energy Management and Control in Connected and Automated Vehicles (CAVs)

The automotive industry is undergoing major changes, with substantial growth in the areas of autonomy and connectivity. In this context, several studies have highlighted the potential offered by Connected and Automated Vehicle (CAV) technologies to reduce traffic congestion, expand and improve mobility options, and increase safety. Recent advancements in driver assistance systems and increased market penetration of connectivity options have created the opportunity to improve the energy efficiency of individual vehicles and fleets in new ways. Vehicle Dynamic and Powertrain Control (VD&PT) technologies, implemented on a single vehicle basis, or across a fleet of communicating and cooperating vehic les, could significantly improve individual vehicle and, ultimately, fleet energy efficiency.

On the other hand, the deployment and commercial success of future CAV technologies requires an unprecedented effort in advan cing and applying physics-based and data-driven modeling, optimization and control methods to manage the information available from the expanded sensing and the capabilities provided by the different levels and forms of automation. Further challenges arise from the presence of multiple layers of interactions among the surrounding vehicles and transportation systems at large, in a context where Vehicle to Vehicle (V2V) and Vehicle to Infrastructure (V2I) communication is becoming mainstream technology.

The proposed Special Issue collects and presents original research papers dealing with innovations in the use of connectivity and automation, which aims at co-optimizing vehicle operation and powertrain controls with the ultimate goal of reducing energy consumption and emissions.

Topic Areas

- Vehicle and powertrain dynamic models for control and energy management of CAVs
- Optimization and learning methods for single and multi-vehicle planning, coordination, and controls
- Application of machine learning and artificial intelligence in the energy efficient operation and controls of CAVs
- Cooperative automation with Vehicle to Everything (V2X) connectivity for energy efficiency
- Model-based and predictive control methods for energy management of individual vehicles and powertrains
- Incorporation of information, data and enhanced sensing in optimization and control algorithms
- Data-driven and physics-based methods for VD&PT optimization and control
- Modeling and simulation environments for virtual verification of Driver-in-the-Loop and Driver Assistance Systems
- Estimation of subsystem, system, and vehicle states under nominal and fault conditions
- Concepts and technologies supported by experimental studies are welcome

Publication Target Dates

Paper submission deadline	**March 30, 2021**
Initial review completed	**May 31, 2021**
Special Issue publication date	**September 2021**

Submission Instructions

Papers should be submitted electronically to the journal at [journaltool.asme.org]. If you already have an account, log in as author and select **Submit Paper** at the bottom of the page. If you do not have an account, select **Submissions** and follow the steps. In either case, at the **Paper Submittal** page, select the [ASME *Journal of Dynamic Systems, Measurement, and Control*] and then select the Special Issue **Optimal Energy Management and Control in Connected and Automated *Vehicles* (CAVs).** *Papers received after the deadline or papers not selected for inclusion in the Special Issue may be accepted for publication in a regular issue.*

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