CALL FOR PAPERS - SPECIAL SESSION
"Smart State Estimation algorithms and safe coordination methods for Automated Vehicle in Urban and Highway Transportation Networks"

for CODIT 2024
July 01-04, 2023 ▪ Valletta, Malta

Session Co-Chairs:

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Session description:

Nowadays, the problem of the proliferation of autonomous vehicles in urban and highways environments presents a complex array of challenges. Indeed, the deployment of individual autonomous cars may lead to complexified traffic situations. Despite progress in addressing some issues, there remains a need for comprehensive solutions to ensure the fully and the completely integration of autonomous vehicles into urban and highway environments. A promising approach to ensure the integration of autonomous vehicles into existing traffic networks, particularly during the low penetration rate period, is to perform an adaptive routing of each autonomous vehicle which considers real-time traffic conditions which will contribute to the sustainable and efficient mobility of smart cities and highways. To perform this routing scheme, several challenges need to be addressed. Among these challenges but not limited, we have: 1) The accurate state estimation of multi-agent systems composed of autonomous cars. The challenge will concern the real-time information updates from the GPS systems particularly the one which operate in dynamics highway environment. 2) Control policies particularly the centralization VS the decentralization aspects of the control structures concerning individual agents within the autonomous transportation network. 3) The integration of the Artificial Intelligence (AI) algorithms particularly the role of AI for ensuring safe maneuvers, in addressing the coordination challenges of the automated vehicles in the transportation network including the new concept of Duty of Care of automated.

The goal of this special session is to explore the recent and original propositions in the fields of of state estimation algorithms and safe coordination methods for Urban and Highway Autonomous vehicle in hybrid Transportation Networks.

The topics of interest include, but are not limited to:

- Estimation of inter-vehicles variables under known and unknown time-delay and data packet loss constraints.
- Deep-Learning and reinforcement learning for understanding and estimating the complex vehicles model dynamics.
- Multiples vehicles coordination algorithms using Dep learning methods.
- Safety coordination methods for multiple vehicles including faults, obstacle avoidance and unexpected events.
- Fault-tolerant control algorithms design for multiple vehicles in urban and highway environments.
- Estimation algorithms for detecting security problems in the communication between vehicles related to potential cyberattacks.

SUBMISSION

Papers must be submitted electronically for peer review through PaperCept by **February 03, 2024:** **http://controls.papercept.net/conferences/scripts/start.pl**. In PaperCept, click on the **CoDIT 2024 link "Submit a Contribution to CoDIT 2024" and follow the steps.**

IMPORTANT: All papers must be written in English and should describe original work. The length of the paper is limited to a maximum of 6 pages (in the standard IEEE conference double column format).

DEADLINES

February 03, 2024: deadline for paper submission

April 14, 2024: notification of acceptance/reject

May 10, 2024: deadline for final paper and registration