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EDITOR'S COLUMN

Interacting, Learning & Adapting

Not that long ago, mechanics & electronics were the primary design ingredients for embodying a transportation system solution(s). These days, versatile decision-making algorithms contribute to it as well, and are important enablers of contemporary transportation system services.

For many years now we have been witnessing the increased engagement of intelligent control systems-based paradigms and algorithms towards addressing the variety of transportation system tasks. Conventional and intelligent control system algorithms are, and have been, applied to almost all levels of transportation systems. These days, AI-based algorithms are coming to the equation as well and are increasingly involved in operating not just transportation system components, such as driverless vehicles and trains, but also operating the overall transportation system tasks towards meeting the mobility needs and integrating multi-modal services in real-time.

Although our scientists, researchers and solution developers are not univocal in approaching transportation tasks of concern, they all however are in the mission of looking for a solution which will interact with its surrounding environment and exhibit learning and adaptation abilities.

This is in particularly true when the exact mathematical model of the specific transportation task is not known and when we are unable to experimentally determine it either. And indeed, to cope with such uncertainty we try to learn about the nature of the task and adapt to its dynamics, in real-time terms in particular. In doing so, our actions are aimed at achieving the best possible operational outcome(s).

To be able to judge whether the best possible outcome is indeed achieved, one must be familiar with the tasks of learning and adapting which are often sequential (multi-staged) decision-making processes aimed at defining the goal, mutually exclusive constraints; and decision-making criteria that will satisfy these constraints [1].

The recent inventions of the Generative Adversarial Networks (GANs) paradigm and Parallel Transportation Systems paradigms, and the combination of the two in particular [2], has enabled parallel execution of, and interactions between, the real and artificial transportation systems. The merger of the GANs and Parallel Transportation Systems paradigms has compensated the difficulties that may appear due to the absence of the exact mathematical model. Thus, the merger of the GANs and Parallel Transportation Systems paradigms has brought a potential for better addressing the dynamics of transportation systems, better implementing the deployment of decision-making in real-time and, thus, advancing ITS future, its solutions, products and services. In that context, papers on Parallel Driving and Parallel Motion Planning, included in this edition, do demonstrate a step rise in such a potential.

While talking about the ITS future, it was pleasing to receive 20 submissions in response to the Society's announcement of the 2018 Student Essay Competition on *"Your*

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The 1st Prize recipient Bin Xu.

The 2nd Prize recipient Milos Balac.

The 2nd Prize recipient Ahmed Hussein.

Dream & Futuristic Vision on Transportation Systems". Thus, the decision was made to continue with the competition series in 2019 and invite not just students but young professionals to participate in the 2019 competition round as well.

In this year's round, the 1st Prize recipient was ***Bin Xu*** of Xi'an Jiaotong-Liverpool University, China, while the 2nd Prize was presented to both ***Milos Balac*** of the Institute for Transport Planning, ETH Zürich, Switzerland and ***Ahmed Hussein*** of Universidad Carlos III de Madrid (UC3M), Spain.

The 1st Prize was comprised of:

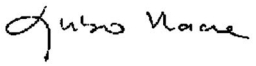
- Attendance at the IEEE—ITS Conference 2018, Hawaii, USA
- Return flight tickets, economy class, to Hawaii, USA
- 3-night accommodation during the ITSC 2018 Conference days.

The 2nd Prize was comprised of:

- Attendance at the IEEE—ITS Conference 2018, Hawaii, USA
- Return flight tickets, economy class, to Hawaii, USA.

May I invite you all to please join me in congratulating Bin, Milos and Ahmed for this extraordinary recognition of their achievements which they obtained at a very early stage of their career.

Please stay tuned as more information about the 2019 Essay competition on the topic of the Futuristic Vision on Transportation Systems is coming soon.



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