ALPEN-ADRIA UNIVERSITÄT KLAGENFURT

INVITATION TO THE DOCTORAL SEMINAR

Integrated intersection control for connected automated vehicles, pedestrians, and bicyclists

Tanja Niels | Technische Universität München

Chaired by Philipp Hungerländer | Department of Mathematics

Wednesday, 4 May 2022 | 10:00–10:45

V.1.02

ABSTRACT

Connected automated vehicles (CAVs) have the potential to increase both traffic safety and efficiency, especially at intersection zones. In recent years, many studies about new intersection control strategies have been presented. The presented strategies take advantage of vehicular communication and automated driving functions, and suggest that physical traffic signals could be omitted in the future. In these strategies, other road users usually play a minor role or are not considered at all. In this presentation, we discuss a new intersection control approach for traffic with CAVs, pedestrians, and bicyclists. We formulate a mixed-integer linear program to schedule the right-of-way of different road users and apply a rolling-horizon strategy to repeatedly solve the program. In a second layer, vehicle trajectories are optimized applying a model-predictive control approach. The control strategy allows for reducing delays and prioritizing road user groups according to policy considerations.

We hope to see you there!

