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Optimal control systems for rolling stock

Thursday, 29 June 2023 09:55 (20 minutes)

In this presentation, we will focus on mathematic approaches to optimal control systems for rolling stock. We will discuss several formulations of optimal control problems for trains and trams. We will then look into optimising the energy consumption under various constraining conditions, including the available power and force, time schedule, and speed limits. We will present the tram optimal energy control using reinforcement learning and the advantages of this machine learning approach for vehicle optimization in stochastic environments, e.g. in the city. Simulation results will be presented.

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Session Classification: Dynamic Decision Making