AGENT-BASED MODELING APPROACH IN MATAB AND SIMULINK FOR AUTONOMOUS DRIVING SCENARIOS

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ABSTRACT

Using different new features in MATLAB and Simulink, we will show how to model autonomous driving scenarios with an agent based modeling approach. ABM is a popular simulation approach for autonomous driving scenarios, e.g. in developing driving policies and safety verification. The conventional motion planning and control methods, e.g. PID control, feedback linearization or model predictive control, expect a prediction over the future trajectories of other traffic participants to avoid collisions. However, actual traffic scenarios involve complicated interactions between drivers. To conquer this challenge, the emerging trends are the behavior-aware motion planning and learning-based approaches. ABM could then be exploited to handle the complex environments, while modeling the uncertain interactions with each other.