Modeling and Model Predictive Control for a Bicycle-Rider System
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ABSTRACT
In this study, a bicycle-rider system was developed. Model predictive control (MPC) is used to control the system follows reference roll-angle. Control inputs are steering torque on the handle bar and the leaning torque of rider's upper body. The performance of the controller, the interaction between rider's motion and the bicycle dynamics are discussed via simulation results.

Keywords: bicycle dynamics; system identification; roll-angle tracking; model predictive control

REFERENCES