

Systems and Control Seminar

Fujita Laboratory, Tokyo Institute of Technology

Predictive velocity and state of charge planning for hybrid electric vehicles

Wednesday, July 22nd, 2015

17:00-18:00, S5-201

**Research Assistant, Gunter Heppeler
University of Stuttgart
Institute for System Dynamics**



Abstract

Fuel economy for cars is getting more and more important due to stricter environmental regulations and increasing fuel prices. One approach to reduce fuel consumption are hybrid electric cars, where the combustion engine is combined with an electric motor and a battery. Maximize the efficiency for these systems an intelligent energy management system utilizing preview information of the driving cycle needs to be developed. A second approach is economic driving, where the velocity is as degree of freedom to reduce the fuel consumption. Here an algorithm combining both approaches is proposed, optimizing both the velocity trajectory and the power split between engine and motor for a predefined gearshift horizon. The results are compared with the solution of the potential analysis by discrete dynamic programming.
