

SUDA LAB.

Dynamics and Control of Vehicle



Advanced Mobility Research Center (ITS center)
Department of Mechanical and Biofunctional Systems

Department of Mechanical Engineering,
Graduate School of Engineering,
Interdisciplinary Information Sciences Course, GSII

Dynamics and Control of Vehicle

<http://www.nozomi.iis.u-tokyo.ac.jp/>

Study on Mobility Systems with Advanced Control, Multi-body Dynamics, Human Factors, Vehicle System Applied AI, for Sustainable Mobility.

1. Analysis and optimization of human-vehicle-infrastructure boundary area.

Dynamic analysis and modeling of vehicle with multi-body dynamics, contact mechanics of wheel/rail and tire/road, dynamics control and monitoring in boundary area, R&D of HMI (Human / Mechanical system), improvement of curving performance for railway vehicle, free access platform gate.

2. Study on driver characteristics and automated driving.

Steering performance just as intended by the driver, truck automated driving and platoon project, practical study on automated driving bus.

3. Study on new method of transportation system.

Clarification of social significance, basic performance evaluation of vehicle, ecosystem considering the whole system from control system design to operation, R&D in consideration of technical standards and legal maintenance for practical use (PMC, eco-ride ...)

4. Study on mobility with AI and biological information measurement.

Machine Learning and big data analysis, detection of vehicle abnormal state and derailment, evaluation method of driving skill by driver behavior and brain activity measurement

5. Study on comfort and social acceptance in mobility.

Engineering research group activity on comfort, comfort evaluation of railway vehicle, quantitative evaluation method, seat arrangement of commuter train and automobiles, evaluation of social acceptability by business ecosystem.

6. Integrated research of ITS (intelligent Transport Systems) and advanced mobility.

Sustainable ITS project, Development of Mixed Reality Transport Experiment Space, Tohoku Reconstruction Energy and Mobility Management, Parking lot ITS project, Mobility Innovation Collaborative Research Organization The University of Tokyo (Utmobi)

7. Regional and International collaborative research for social implementation.

Kashiwa City (Kashiwa ITS Promotion Council), Nagasaki Prefecture, Hiroshima City (ASV project in Hiroshima), Ishinomaki City, etc....

8. Development of proving ground for advanced mobility research

Driving simulator, railway test track, test field for automobile and road traffic, traffic light

