K. Nakano Lab.

[Measurement and Control in Mobility]

Advanced Mobility Research Center

http://www.knakanolab.iis.u-tokyo.ac.jp

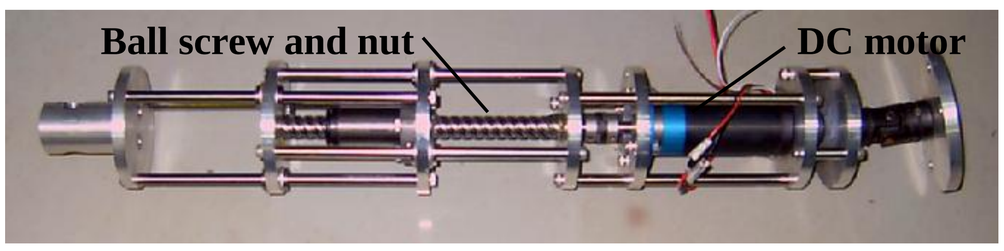
Mechanical and Biological Systems Control

Interdisciplinary Information Studies, Mechanical Engineering

Human-oriented Mobility Engineering

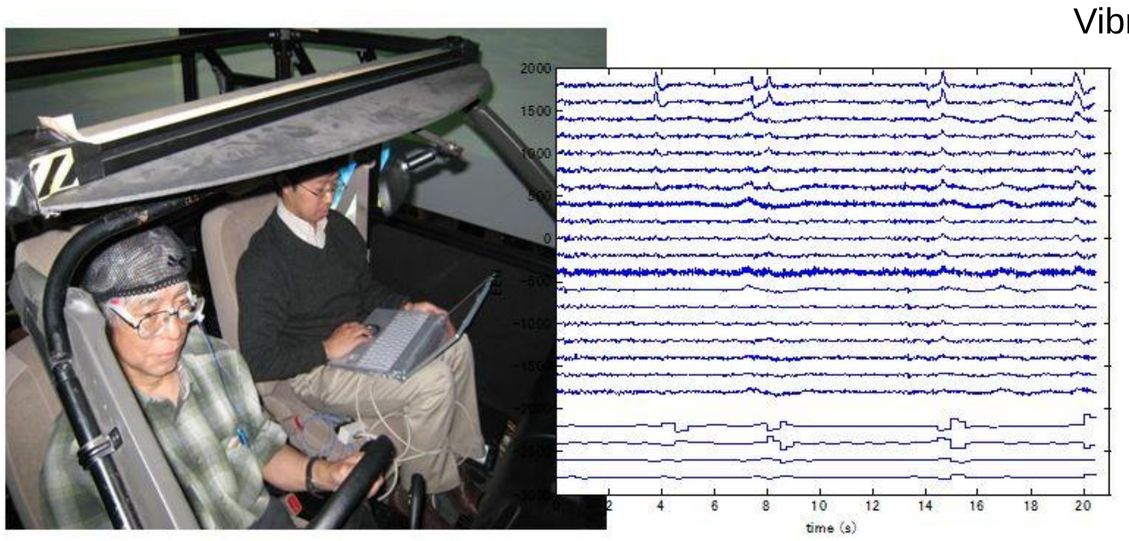
Based on knowledge of signal processing, control and vibration engineering, we are carrying out studies on active vibration control, personal mobility, multi-channel signal processing method such as independent component analysis and parallel factor analysis (PARAFAC) applied for condition monitoring and system identification, driving ability of elderly drivers, and estimation of condition of a driver through measurements of bio-signals. Human-oriented studies on control and signal processing for vehicles and humans are widely being conducted in the lab.

- ◆Self-powered active vibration control
- ◆Electromagnetic suspensions
- ◆Personal mobility vehicle
- ◆Independent component analysis for analysis on vehicle vibration
- ◆Detection of output of fiber-optic brag grating sensor using Parallel Factor Analysis
- ◆Estimation of driver’s conditions through measurement of bio-signals
- ◆Simulation of automatic platooning using a driving simulator
- ◆Evaluation of driving ability of elderly drivers with white matter lesions

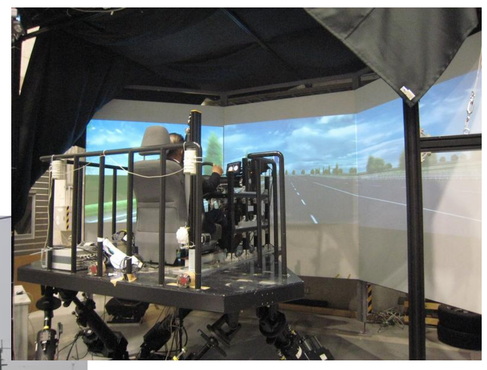


Electromagnetic actuator

Vibration analysis on a railway bogie using ICA



EEG analysis on a driver manipulating a driving simulator



Test of driving ability of elderly drivers