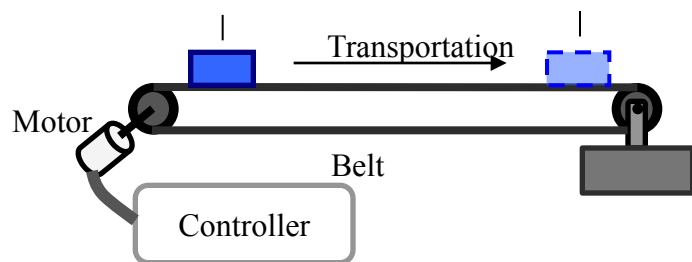


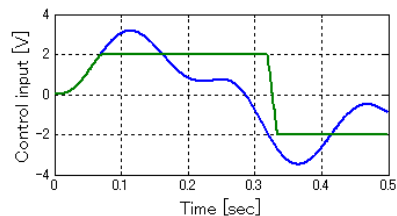
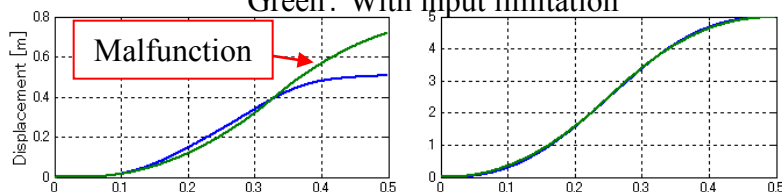
The Value-added Improvement of Machine Systems by Control Engineering

Assistant Professor Yuichi Ariga

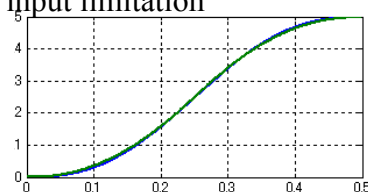
Ex. : Transport system



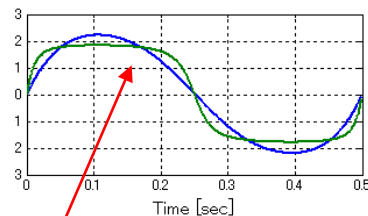
Blue: Without input limitation
Green: With input limitation



PID Control



Final-State control with learning



Even if there is limitation in a control input,
this system works precisely.

Content :

By applying various control theories appropriately, I aim at improving the performance and the added value of the machine system. The main specialties are vibration control, motion control, robust control of time delay systems, final-state control and control of magnetic bearing.

An example of a transport system control that there is a limit in a control input is shown in left figures. When there is a limit in a control input by the general control theory, control performance worsens. However, we can get right control movement automatically by Final-State Control with error learning. Using this method, because a machine system can adopt a cheap motor with low performance, the designer can reduce the price of the product.

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Magnetic Bearings

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