

Experimental testing of robot-controlling algorithms

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Our technological instruments became unnoticed but natural in everyday life. In the newest cars there are so many controls that are nearly uncountable. The steering servo system, the Brake Force Distributer, the Anti-lock Braking System and furthermore the air conditioner and the radio have some controlling system too. The controlling methods can be presented more spectacularly on robotic systems after all, where the movements visualize the controlling parameters and effects.

In the manufacturing technology there are robots for a long while. The increasingly small scales require more accurate operation from the robots that can be improved by the structure of the robots and the control methods. The robotics have more important role in space science and already in the surgery technique too. The controlling methods are not only for our convenience but they're vital for our lives after all. This is calling for higher reliability, faster and more accurate machines.

In this work I try to represent in simulation and on a real one-degree-of-freedom robotic model the controlling algorithms' properties and the characteristic effects of changing the system parameters. The robot model control will be simulated and tested with PD, PID, "inverse dynamic control" and adaptive control algorithm.

References:

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