

Abstract

Amerongen, J. van, "A MRAS-based Learning Feed-forward Controller", MECHATRONICS 2006 - 4th IFAC-Symposium on Mechatronic Systems Heidelberg, Germany, September 12th-14th, 2006, pp. 6, 2006

Inspired by learning feed–forward control structures, this paper considers the adaptation of the parameters of a model–reference based learning feed–forward controller that realizes an inverse model of the process. The actual process response is determined by a setpoint generator. For linear systems it can be proved that the controlled system is asymptotically stable in the sense of Liapunov. Compared with more standard model reference configurations this system has a superior performance. It is fast, robust and relatively insensitive for noisy measurements. Simulations with an arbitrary second–order process and with a model of a typical fourth–order mechatronics process demonstrate this.