

Abstract

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Mechatronic design is the integrated design of a mechanical system and its embedded control system. In order to make proper choices early in the design stage, tools are required that support modelling and simulation of physical systems—together with the controllers— with parameters that are directly related to the real-world system. Such software tools are becoming available now. Components in various physical domains (e.g. mechanical or electrical) can easily be selected from a library and combined into a 'process' that can be controlled by block-diagram-based (digital) controllers. A few examples will be discussed that show the use of such a tool in various stages of the design. The examples include a typical mechatronic system with a .exible transmission, a mobile robot, and an industrial linear motor with a neural-network-based learning feed-forward controller that compensates for cogging.

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