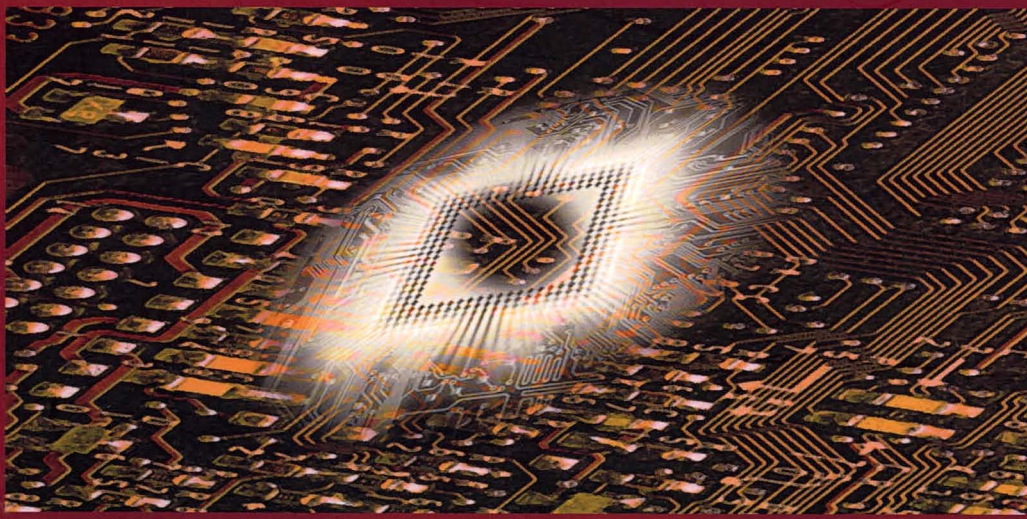
COMPUTATIONAL INTELLIGENCE IN ROBUST CONTROL

Theory and Applications



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Theory and Applications

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Chapter 2

REAL-CODED MOGA FOR INTELLIGENT CONTROL OF A FLEXIBLE MANOEUVRING SYSTEM

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Abstract

This chapter describes the implementation of real-coded multi-objective genetic algorithm (RCMOGA) for intelligent control of a flexible manoeuvring system. One of the main underpinning of the intelligent control is the ability to use biological intelligence to perform control task and achieved automation. RCMOGA is used to reduce system vibration as well as to meet several design objectives and associated goal as demanded in a practical application. The optimisation technique determines a set of solutions for the amplitudes and corresponding time locations of impulses on an extra sensitive (EI) command shaping as well as gain parameters for the PID controller. The effectiveness of the proposed technique is assessed both in the time domain and the frequency domain. Moreover, a comparative