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Nota di contenuto	""Cover ""; ""Title Page ""; ""Contents ""; ""Preface ""; ""Chapter 1. Introduction And Motivations ""; ""1.1. Introduction: automatic control and optimization ""; ""1.2. Motivations to use metaheuristic algorithms ""; ""1.3. Organization of the book ""; ""Chapter 2. Symbolic Regression "" ""2.1. Identification problematic and brief state of the art "" """"2.2. Problem statement and modeling "" ""2.2.1. Problem statement ""; ""2.2.2. Problem modeling ""; ""2.3. Ant colony optimization "" ""; ""2.3.1. Ant colony social behavior ""; "" ""2.3.2. Ant colony optimization "" ""2.3.3. Ant colony for the identification of nonlinear functions with unknown structure "" """"2.4. Numerical results ""; ""2.4.1. Parameter settings ""; ""2.4.2. Experimental results "" ""; ""2.5. Discussion ""; ""2.5.1. Considering real variables "" ""; ""2.5.2. Local minima "" ""2.5.3. Identification of nonlinear dynamical systems "" """"2.6. A note on genetic algorithms for symbolic regression "" ""; ""2.7. Conclusions ""; ""Chapter 3. Pid Design Using

Particle Swarm Optimization  
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""; ""3.2. Controller tuning: a hard  
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frequency domain specifications  
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## Sommario/riassunto

The classic approach in Automatic Control relies on the use of simplified models of the systems and reformulations of the specifications. In this framework, the control law can be computed using deterministic algorithms. However, this approach fails when the system is too complex for its model to be sufficiently simplified, when the designer has many constraints to take into account, or when the goal is not only to design a control but also to optimize it. This book presents a new trend in Automatic Control with the use of metaheuristic algorithms. These kinds of algorithm can optimize any cr