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Passing Through a Hypothetical Retention Reservoir"; "3.1 Preface"; "3.2 FIS (Fuzzy Inference System) a Control System Using the Mamdani Controller"; "3.3 A Control System Using the Takagi-Sugeno (ANFIS) Controller"; "3.4 A Control System for a Retention Reservoir Using Fuzzy Controllers in a Hierarchical Configuration"; "3.5 Summary"; "References"  
"4 Control of a Flood Wave Passage Through the Dobczyce Reservoir (Poland) Using Fuzzy Controllers""4.1 Preface"; "4.2 Control According to a Classic Control Rule"; "4.3 Control of Outflow from the Reservoir Using a Mamdani Fuzzy Controller Type A"; "4.4 Control Using a Mamdani Fuzzy Controller Type B"; "4.5 Summary"; "5 Fuzzy Controllers Operating Flood Wave Passage Through a Hypothetical Cascade of Retention Reservoirs"; "5.1 Preface"; "5.2 Upper Reservoir, FIS (Fuzzy Inference System)"; "5.3 Lower Reservoir, FIS (Fuzzy Inference System)"  
"5.4 Control System Using Fuzzy Controllers""5.5 Summary"; "Reference"; "6 Using Fuzzy Controllers in Tracking the Vector of Controlled Trajectories in a Multi-reservoir Water-Management System"; "6.1 Preface"; "6.2 Optimisation Model"; "6.2.1 Implementation of Simulation and Specification of Results for a Hypothetical Scenario of Events"; "6.2.2 Summary"; "6.3 An Online Control System for an Optimisation Model Using Mamdani Structure (Type A) Controllers"; "6.3.1 Introduction"; "6.3.2 FIS (Fuzzy Inference System)"  
"6.3.3 Control System Using Mamdani Fuzzy Controllers Type A, SISO""6.3.4 Conclusions Concerning the Use of Mamdani Controllers in Structure A"; "6.4 An Online Control System for an Optimisation Model Using Controllers in the Mamdani Structure (Type B) (MISO)"; "6.4.1 Introduction"; "6.4.2 FIS (Fuzzy Inference System)"; "6.4.3 Control System Using Type B Mamdani Controllers"; "6.4.4 Conclusions Concerning the Use of Mamdani Controllers in Structure B"; "6.5 An Online Control System for an Optimisation Model Using Controllers in the Takagi-Sugeno Structure (Types C and D)"  
"6.5.1 Introduction"

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## Sommario/riassunto

This book is intended for engineers, technicians and people who plan to use fuzzy control in more or less developed and advanced control systems for manufacturing processes, or directly for executive equipment. Assuming that the reader possesses elementary knowledge regarding fuzzy sets and fuzzy control, by way of a reminder, the first parts of the book contain a reminder of the theoretical foundations as well as a description of the tools to be found in the Matlab/Simulink environment in the form of a toolbox. The major part of the book presents applications for fuzzy controllers in control systems for various manufacturing and engineering processes. It presents seven processes and problems which have been programmed using fuzzy controllers. The issues discussed concern the field of Environmental Engineering. Examples are the control of a flood wave passing through a hypothetical, and then the real Dobczyce reservoir in the Raba River, which is located in the upper Vistula River basin in Southern Poland, the control and water management in a cascade of reservoirs, a broadly defined combustion process model, modern water heating systems and many other.

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