

Pearson Technology Group 0133342514

Fuzzy Logic and Control: Software and Hardware Applications

Instruction Manual

1. INTRODUCTION

This manual provides an overview and guide for the book *Fuzzy Logic and Control: Software and Hardware Applications*. It is designed to assist readers in understanding the book's content, structure, and intended use. This volume explores the state of the art in software and hardware implementations of fuzzy logic and fuzzy control, serving as a comprehensive resource for manufacturing engineers and computer scientists.

2. ABOUT THE BOOK

Authored by Mohammad Jamshidi, Nader Vadiiee, and Timothy Ross, this book is the second in the PH Series on Environmental and Intelligent Manufacturing Systems. It delves into fuzzy set theory, fuzzy logic theory, and fuzzy control theory, presenting their applications across various systems, from air conditioners to computer network security.

2.1 Key Topics Covered

The book offers comprehensive coverage of:

- Set Theory—Fuzzy and Crisp Sets
- Propositional Calculus—Predicate Logic and Fuzzy Logic
- Fuzzy Rule-Based Expert Systems
- Fuzzy Logic Software and Hardware
- A Fuzzy Two-Axis Mirror Controller for Laser Beam Alignment
- Introduction of Fuzzy Sets in Manufacturing Planning
- A Comparison of Crisp and Fuzzy Logic Methods for Screening Engineering & Recognition Techniques
- Using Fuzzy Logic to Automatically Configure a Digital Filter

- Simulation of Traffic Flow and Control Using Fuzzy and Conventional Methods
- A Fuzzy Geometric Pattern Recognition Method with Learning Capability
- Fuzzy Control of Robotic Manipulator
- Use of Fuzzy Logic Control in Electrical Power Generation
- Fuzzy Logic Control of Resin Curing
- Fuzzy Logic Control in Flight Control Systems
- Tuning of Fuzzy Logic Controllers by Parameter Estimation Method

3. NAVIGATING THE CONTENT

To effectively utilize this book, readers are encouraged to:

- Review the table of contents to identify chapters relevant to specific interests or study areas.
- Utilize the index for quick reference to key terms, concepts, and applications discussed throughout the text.
- Pay attention to examples and case studies provided, as they illustrate practical implementations of fuzzy logic and control theories.
- Consider the book as a foundational text for understanding both theoretical aspects and real-world applications in the field.

4. STUDY AND APPLICATION TIPS

For optimal learning and application of the material:

- **Conceptual Understanding:** Focus on grasping the core principles of fuzzy set theory and fuzzy logic before moving to complex control applications.
- **Practical Exercises:** Where applicable, attempt to replicate or extend the examples using software tools to deepen understanding.
- **Cross-Referencing:** Refer to the bibliography for further reading on specific topics of interest.
- **Problem Solving:** Apply the learned concepts to analyze and propose solutions for real-world control problems.

5. PRODUCT IMAGES

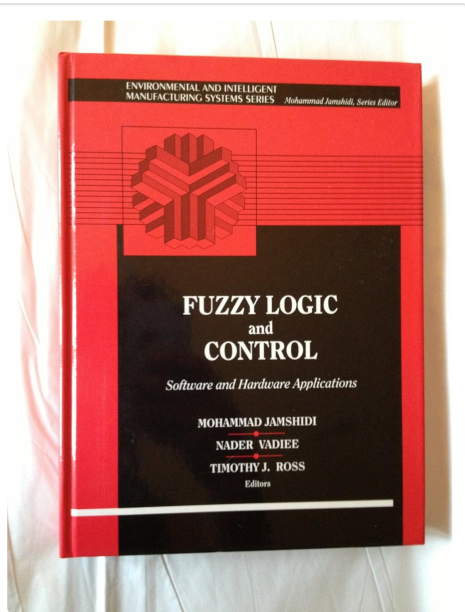


Image 1: Front Cover. This image displays the front cover of the book, featuring the title 'Fuzzy Logic and Control: Software and Hardware Applications' and the names of the editors. The cover design is predominantly red and black.

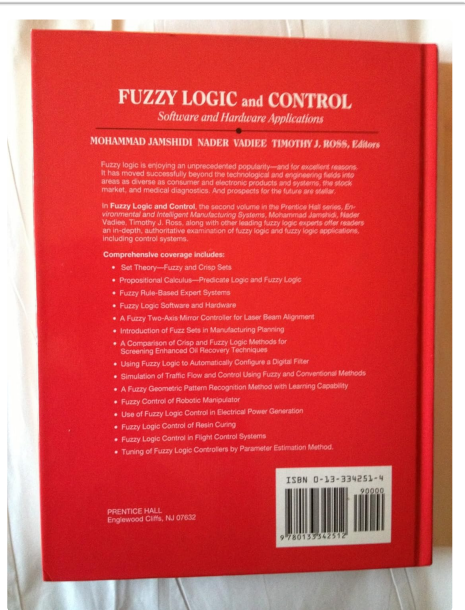


Image 2: Back Cover. This image shows the back cover of the book, which includes a detailed description of the book's content and a comprehensive list of key topics covered within its chapters.

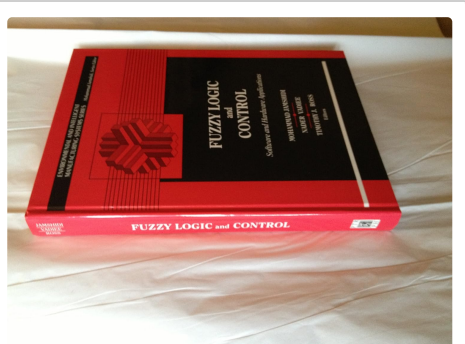


Image 3: Book Spine. This image presents the book spine, showing the title and authors' names printed vertically.

the spine of the book, clearly displaying the title 'Fuzzy Logic and Control' and the names of the editors, making it easy to identify on a bookshelf.

6. SPECIFICATIONS

Attribute	Detail
Publisher	Pearson Technology Group
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Dimensions	7 x 0.94 x 9.25 inches

7. ADDITIONAL RESOURCES

For more information about the authors or related publications, please refer to the publisher's official website or academic resources.

- Mohammad Jamshidi: [Author Profile](#)
- Nader Vadiee: [Author Profile](#)
- Timothy Ross: [Author Profile](#)

8. IMPORTANT INFORMATION

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