

# Advances and Applications in Computational Intelligence: IEEE Press Series on Computational Intelligence and Optimization Volume 18

Computational intelligence (CI) is a field of artificial intelligence that deals with the design and development of intelligent systems. CI systems are typically designed to mimic the cognitive abilities of humans, such as learning, problem-solving, and decision-making.

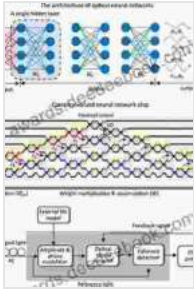
CI has a wide range of applications in various fields, including science and engineering, business and finance, and healthcare and medicine. Some of the most common applications of CI include:

- **Image processing and recognition**
- **Natural language processing**
- **Intelligent control**
- **Data mining**
- **Machine learning**

The theoretical foundations of CI are based on a variety of mathematical and computer science disciplines, including:

**Complex-Valued Neural Networks: Advances and Applications (IEEE Press Series on Computational Intelligence Book 18)**

★★★★★ 4 out of 5



Language	: English
File size	: 11710 KB
Text-to-Speech	: Enabled
Screen Reader	: Supported
Enhanced typesetting	: Enabled
Print length	: 439 pages
Lending	: Enabled



- **Fuzzy logic**
- **Neural networks**
- **Evolutionary computation**
- **Swarm intelligence**

Fuzzy logic is a mathematical theory that deals with the representation and manipulation of imprecise and uncertain information. Neural networks are computational models that are inspired by the structure and function of the human brain. Evolutionary computation is a computational paradigm that is inspired by the process of natural evolution. Swarm intelligence is a computational paradigm that is inspired by the collective behavior of social insects, such as ants and bees.

CI has a wide range of applications in science and engineering, including:

- **Image processing and recognition**
- **Natural language processing**
- **Intelligent control**

- **Data mining**
- **Machine learning**

CI techniques can be used to develop intelligent systems that can perform a variety of tasks, such as:

- **Identifying objects in images**
- **Translating text from one language to another**
- **Controlling robots**
- **Predicting the weather**
- **Diagnosing diseases**

CI has a wide range of applications in business and finance, including:

- **Customer relationship management**
- **Risk management**
- **Fraud detection**
- **Market forecasting**
- **Investment analysis**

CI techniques can be used to develop intelligent systems that can perform a variety of tasks, such as:

- **Identifying the most profitable customers**
- **Assessing the risk of a loan application**

- **Detecting fraudulent transactions**
- **Predicting the future price of a stock**
- **Recommending investment strategies**

CI has a wide range of applications in healthcare and medicine, including:

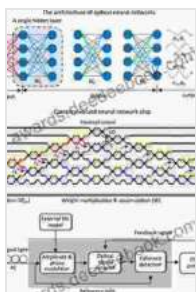
- **Medical diagnosis**
- **Treatment planning**
- **Drug discovery**
- **Patient monitoring**
- **Medical image analysis**

CI techniques can be used to develop intelligent systems that can perform a variety of tasks, such as:

- **Diagnosing diseases based on symptoms**
- **Planning the treatment of a patient based on their medical history**
- **Discovering new drugs**
- **Monitoring patients' vital signs**
- **Analyzing medical images to identify abnormalities**

CI is a powerful tool that has a wide range of applications in various fields. CI systems can be used to solve a variety of problems that are difficult or impossible to solve using traditional methods. As CI continues to develop,

we can expect to see even more innovative and groundbreaking applications of this technology in the years to come.



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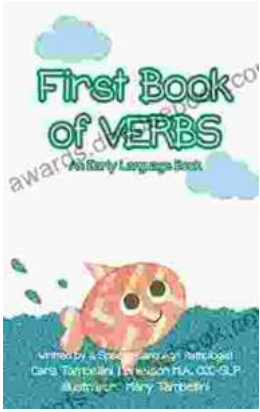
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