

Fuzzy Hybrid Computing in Construction Engineering and Management

Theory and Applications

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About the Book

This book provides an introduction to fuzzy logic and surveys emerging research trends and the application of state-of-the-art fuzzy hybrid computing techniques in the field of construction engineering and management. Authors cover the theory and implementation of fuzzy hybrid computing methodologies for arithmetic, optimization, machine learning, multi-criteria decision-making, simulation, cognitive maps and data modelling. The practical application of these techniques to solve real-world problems across a wide range of construction engineering and management issues is also demonstrated and discussed.

The completion of effectively planned, executed and controlled construction projects is dependent on numerous interacting factors and human activities, both of which introduce vagueness and subjective uncertainty into already complex processes. While expert knowledge is an essential component of effective decision-making, analysis and consideration of expert knowledge expressed in linguistic terms remains a challenging aspect of construction engineering and management.

Fuzzy logic, which has applications in many disciplines, has the potential to address certain challenges inherent in construction engineering and management, in part because of its strengths in modelling human reasoning, dealing with subjective uncertainty and computing with linguistic terms. However, fuzzy logic alone has a number of limitations that can only be overcome by its integration with other, complementary methodologies, together leading to advanced and powerful fuzzy hybrid computing techniques.

This book is of particular interest to students, researchers and practitioners who want to learn about the latest developments in fuzzy hybrid computing in construction engineering and management.



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