

Fuzzy Logic Applications in Construction Engineering and Management

Fuzzy logic has been expanded to new application areas such as construction engineering and management. Fuzzy logic methodologies are able to model subjective information, handle uncertainty, and address the lack of comprehensive data sets available for modeling in construction engineering and management. In the construction domain, fuzzy logic has been combined with other soft computing techniques to model, simulate, and create advanced dynamic systems. This session will focus on recent advances and applications of fuzzy logic techniques for applications related to planning and scheduling, estimating and bidding, productivity, organization competency, project control, structuring projects, process improvement, risk analysis, and others. In particular, challenges related to applying fuzzy logic in the construction engineering and management domain will be discussed and ideas generated on how to adapt fuzzy logic and fuzzy hybrid techniques to better suit construction applications.

Scope and Topics

The main topics of this special session include, but are not limited to, the application of the following approaches to construction engineering:

- Fuzzy Expert Systems
- Fuzzy Inference Model Prediction
- Soft Computing for Risk Assessment
- Modeling and Simulation of Construction Systems
- Prediction Approaches in Construction Engineering
- Decision Making in Construction Engineering
- Neuro-fuzzy modeling
- Interval Analysis for Construction Systems
- Neuro-fuzzy Inference Systems
- Fuzzy Cognitive Maps
- Fuzzy Reasoning
- Fuzzy Agent Based Modeling
- Fuzzy System Dynamics
- Reliability Analysis
- Risk Analysis and Decision Making
- Uncertainty Propagation
- Performance of Construction Systems
- Construction Productivity and Performance
- Organizational Competency and Performance
- Quality Management
- Project Management and Operations Research

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