



Symmetry

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Special Issue Reprint

Symmetry/Asymmetry in Fuzzy Control

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This Special Issue explores advances in symmetry and asymmetry in fuzzy control and their roles in smart engineering systems. The articles present new theories and methods, including hybrid schemes, optimization, computational intelligence, machine learning, embedded computing, and digital tools for uncertainty quantification, nonlinear dynamics, and complex engineering tasks. This Reprint includes studies on mathematical aspects of symmetry in fuzzy systems, modern fuzzy control methods, and practical engineering uses, covering robotics, autonomous systems, industrial automation, renewable energy, healthcare, smart sensing, cyber-physical systems, transport, and other areas where reliable operation under uncertainty is needed. Several studies also link fuzzy modeling theory with practical solutions for complex systems, showing how new ideas can support real engineering needs, improve system design, and aid control under uncertain and changing conditions. The research also addresses emerging topics such as explainable artificial intelligence, digital twins, edge computing, distributed decision-making, and adaptive control for connected engineering settings. This Reprint therefore presents current advances and future research directions, demonstrating the ongoing evolution of fuzzy control and its value for next-generation intelligent systems. These contributions reinforce the practical value and flexibility of fuzzy methods in solving present and future engineering challenges across many fields and applications, with clear links between theory, design, use, and future needs.



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