

IAF SPACE SYSTEMS SYMPOSIUM (D1)  
Interactive Presentations - IAF SPACE SYSTEMS SYMPOSIUM (IPB)

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SOFT COMPUTING, INTELLIGENT ROBOTICS AND CONTROL

**Abstract**

Soft computing has emerged as a promising area of research in engineering and science due to its ability to develop approximate models for solving real-world problems. Soft computing techniques have shown significant potential in the field of space robotics, which involves the development and deployment of robots for space exploration missions. The harsh and complex environments in space require robots that can operate autonomously, make decisions based on uncertain and incomplete information, and adapt to changing conditions.

Fuzzy logic-based algorithms have the potential to develop robust control systems that can operate effectively in uncertain environments. Neural networks can be used to train robots to recognize and respond to different stimuli, such as visual or auditory cues, while genetic algorithms can be used to optimize the performance of robotic systems in terms of efficiency and reliability. This technology can also be integrated to serve multiple-connecting systems for example soft computing techniques can help in the development of swarm robotics, which involves the deployment of multiple robots that work together to achieve common objectives.

This paper aims to provide a comprehensive analytical perspective on soft computing techniques and their application in robotics. The analysis demonstrates that soft computing techniques can be suitably applied to solve problems in robotics. Additionally, the paper addresses various issues and challenges associated with this research area to underscore the dominance of soft computing techniques in developing various applications in robotics.