

Spectrum and Power Allocation in Cognitive Radio Systems

Part of the Advances in Wireless Technologies and Telecommunication Book Series

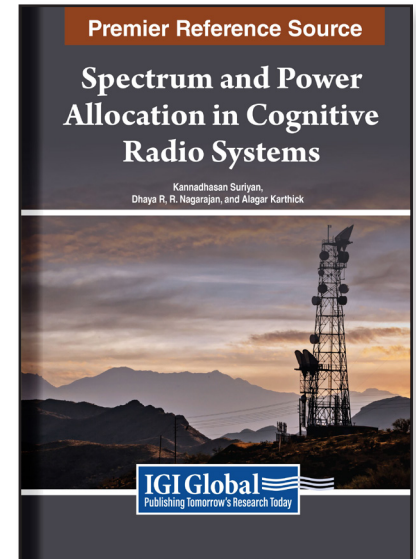
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Description:

As wireless services rapidly expand, the inefficient use of limited spectrum resources poses a critical challenge. The conventional approach to spectrum allocation, based on fixed assignments, could be more effective in meeting the escalating demand for wireless devices and systems. Cognitive radio technology offers a transformative solution by reimagining the spectrum as a multidimensional space, enabling opportunistic access to underutilized bands. However, the field of cognitive radio is still in its early stages, needing more in-depth analyses and descriptions of crucial processes.

Spectrum and Power Allocation in Cognitive Radio Systems addresses this pressing need by offering a comprehensive guide for academic scholars, researchers, and industry professionals. This book delves into cognitive radio technology's foundations, organization, and challenges, providing insights into dynamic spectrum access, networking protocols, hardware architecture, and emerging applications. It presents advanced topics such as spectrum sensing algorithms, cooperative spectrum sensing, and multi-user access, offering practical solutions to enhance spectrum efficiency.

By exploring the latest advancements and best practices, **Spectrum and Power Allocation in Cognitive Radio Systems** equips readers with the knowledge to overcome the challenges in designing cognitive radios and networks. It serves as a valuable resource for understanding the complexities of cognitive radio technology, enabling scholars and professionals to make informed decisions in spectrum management and allocation. With its comprehensive approach, this book is poised to shape the future of wireless communication networks.



ISBN: 9798369328934

Pages: 300

Copyright: 2024

Release Date: June, 2024

Hardcover: \$255.00

E-Book: \$255.00

**Hardcover +
E-Book:** \$305.00

Topics Covered:

- Architectures and Building Blocks of Cognitive Radio Networks
- Challenges and Issues in Designing Cognitive Radios and Cognitive Radio Networks
- Cognitive Medium Access Control, Interference Management, and Modeling
- Dynamic Spectrum Access/Management
- Dynamic Spectrum Sharing
- Energy-Efficient Cognitive Radio Communications and Networking
- Hardware Architecture and Implementations
- Machine Learning Techniques for Cognitive Radio Systems
- Modeling and Performance Evaluation
- Networking Protocols for Cognitive Radio
- Next Generation of Cognitive Networks
- Privacy and Security of Cognitive Spectrum-Agile Networks
- Quality of Service Provisioning in Cognitive Radio Networks

Subject: Media & Communications

Classification: Edited Reference

Readership Level: Advanced-Academic Level
(Research Recommended)

Research Suitable for: Advanced Undergraduate Students; Graduate Students; Researchers; Academicians; Professionals; Practitioners

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