

1. Record Nr.	UNISALENTO991001073409707536
Autore	Càrpino, Giuseppe
Titolo	La gestione finanziaria e contabile dei comuni : rassegna di schemi e stampati deliberativi : gestione del bilancio, gestione delle spese economali, personale, tesoreria, tributi e tariffe, conto consuntivo ed amministrazione / Giuseppe Càrpino
Pubbl/distr/stampa	Rimini : Maggioli, c1990
ISBN	8838790426
Edizione	[2. ed.]
Descrizione fisica	530 p. ; 24 cm
Collana	Progetto ente locale
Disciplina	352.171
Soggetti	Contabilità comunale
Lingua di pubblicazione	Italiano
Formato	Materiale a stampa
Livello bibliografico	Monografia

2. Record Nr.	UNINA9910821647903321
Titolo	Cognitive communications : distributed artificial intelligence (DAI), regulatory policy & economics, implementation // editors David Grace, Honggang Zhang
Pubbl/distr/stampa	Chichester, West Sussex : , : Wiley, , 2012 [Piscataway, New Jersey] : , : IEEE Xplore, , [2012]
ISBN	1-118-36033-8 1-299-31471-6 1-118-36032-X 1-118-36031-1
Descrizione fisica	1 online resource (501 p.)
Classificazione	TEC041000
Altri autori (Persone)	GraceDavid <1970-> ZhangHonggang <1967->
Disciplina	621.384
Soggetti	Cognitive radio networks Distributed artificial intelligence Telecommunication policy
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	-- List of Figures xiii -- List of Tables xxv -- About the Editors xxvii -- Preface xxix -- PART I INTRODUCTION -- 1 Introduction to Cognitive Communications 3 / David Grace -- 1.1 Introduction 3 -- 1.2 A New Way of Thinking 4 -- 1.3 History of Cognitive Communications 6 -- 1.4 Key Components of Cognitive Communications 8 -- 1.5 Overview of the Rest of the Book 9 -- 1.5.1 Part 2: Wireless Communications 10 -- 1.5.2 Part 3: Application of Distributed Artificial Intelligence 11 -- 1.5.3 Part 4: Regulatory Policy and Economics 12 -- 1.5.4 Part 5: Implementation 13 -- 1.6 Summary and Conclusion 14 -- References 14 -- PART II WIRELESS COMMUNICATIONS -- 2 Cognitive Radio and Networks for Heterogeneous Networking 19 / Haesik Kim and Aarne MEammelEa -- 2.1 Introduction 19 -- 2.1.1 Historical Sketch 19 -- 2.1.2 Cognitive Radio and Networks 21 -- 2.1.3 Heterogeneous Networks 22 -- 2.2 Cognitive Radio for Heterogeneous Networks 26 -- 2.2.1 Channel Sensing and Network Sensing 26 -- 2.2.2 Interference

Mitigation 27 -- 2.2.3 Power Control 31 -- 2.3 Applying Cognitive Networks to Heterogeneous Networks 37 -- 2.3.1 Network Policy for Coexistence of Different Networks 37 -- 2.3.2 Cooperation Mechanisms 39 -- 2.3.3 Network Resource Allocation 41 -- 2.3.4 Self-Organization Mechanisms 44 -- 2.3.5 Handover Mechanisms 45 -- 2.4 Performance Evaluation 47 -- 2.5 Conclusion 50 -- References 50 -- 3 Channel Assignment and Power Allocation Algorithms in Multi-Carrier-Based Cognitive Radio Environments 53 / Musbah Shaat and Faouzi Bader -- 3.1 Introduction 53 -- 3.2 The Orthogonal Frequency-Division Multiplexing (OFDM) Transmission Scheme 54 -- 3.2.1 Why OFDM is Appropriate for CR 55 -- 3.3 Resource Management in Non-Cognitive OFDM Environments 56 -- 3.3.1 Single User OFDM Systems 56 -- 3.3.2 Multiple User OFDM Systems (OFDMA) 57 -- 3.3.3 Resource Allocation Algorithms in Non-Cognitive OFDM Systems 58 -- 3.4 Resource Management in OFDM-Based Cognitive Radio Systems 58 -- 3.4.1 Algorithms Dealing with In-Band Interference 59. 3.4.2 Algorithms Dealing with Mutual Interference 60 -- 3.4.3 System Model 61 -- 3.4.4 Problem Formulation 63 -- 3.4.5 Resource Management in Downlink OFDM-Based CR Systems 64 -- 3.4.6 Resource Management in Uplink OFDM-Based CR Systems 76 -- 3.5 Conclusions 88 -- References 89 -- 4 Filter Bank Techniques for Multi-Carrier Cognitive Radio Systems 93 / Yun Cui, Zhifeng Zhao, Rongpeng Li, Guangchao Zhang and Honggang Zhang -- 4.1 Introduction 93 -- 4.2 Basic Features of Filter Banks-Based Multi-Carrier Techniques 94 -- 4.2.1 Introduction to the Filter Bank System 95 -- 4.2.2 The Polyphase Structure of Filter Banks 96 -- 4.2.3 Basic Structure of Filter Banks-Based Multi-Carrier Systems 97 -- 4.3 Adaptive Threshold Enhanced Filter Bank for Spectrum Detection in IEEE 802.22 98 -- 4.3.1 Multi-Stage Analysis Filter Banks for Spectrum Detection 99 -- 4.3.2 Complexity and Detection Precision Analysis 101 -- 4.3.3 Spectrum Detection in IEEE 802.22 103 -- 4.3.4 Power Estimation with Adaptive Threshold 106 -- 4.4 Transform Decomposition for Spectrum Interleaving in Multi-Carrier Cognitive Radio Systems 108 -- 4.4.1 FFT Pruning in Cognitive Radio Systems 108 -- 4.4.2 Transform Decomposition for General DFT 110 -- 4.4.3 Improved Transform Decomposition Method for DFT with Sparse Input Points 111 -- 4.4.4 Numerical Results and Computational Complexity Analysis 114 -- 4.5 Remaining Problems in Filter Banks-Based Multi-Carrier Systems 115 -- 4.6 Summary and Conclusion 117 -- References 117 -- 5 Distributed Clustering of Cognitive Radio Networks: A Message-Passing Approach 119 / Kareem E. Baddour, Oktay Ureten and Tricia J. Willink -- 5.1 Introduction 119 -- 5.1.1 Inter-Node Collaboration in Decentralized Cognitive Networks 119 -- 5.1.2 Scalability Issues and Overhead Costs 120 -- 5.1.3 Self-Organization Based on Distributed Clustering 120 -- 5.2 Clustering Techniques for Cognitive Radio Networks 122 -- 5.3 A Message-Passing Clustering Approach Based on Affinity Propagation 124 -- 5.4 Case Studies 126. 5.4.1 Clustering Based on Local Spectrum Availability 127 -- 5.4.2 Sensor Selection for Cooperative Spectrum Sensing 132 -- 5.5 Implementation Challenges 138 -- 5.6 Conclusions 140 -- References 140 -- PART III APPLICATION OF DISTRIBUTED ARTIFICIAL INTELLIGENCE -- 6 Machine Learning Applied to Cognitive Communications 145 / Aimilia Bantouna, Kostas Tsagkaris, Vera Stavroulaki, Panagiotis Demestichas and Giorgos Poullos -- 6.1 Introduction 145 -- 6.2 State of the Art 146 -- 6.3 Learning Techniques 148 -- 6.3.1 Bayesian Statistics 148 -- 6.3.2 Supervised Neural Networks (NNs) 150 -- 6.3.3 Self-Organizing Maps (SOMs): An Unsupervised Neural Network 153 -- 6.3.4 Reinforcement Learning
--

157 -- 6.4 Advantages and Disadvantages of Applying Machine Learning to Cognitive Radio Networks	158 -- 6.5 Conclusions
159 -- Acknowledgement	160 -- References
160 -- 7 Reinforcement Learning for Distributed Power Control and Channel Access in Cognitive Wireless Mesh Networks	163 / Xianfu Chen, Zhifeng Zhao and Honggang Zhang
-- 7.1 Introduction	163 -- 7.2 Applying Reinforcement Learning to Distributed Power Control and Channel Access
165 -- 7.2.1 Conjecture-Based Multi-Agent Q-Learning for Distributed Power Control in CogMesh	165 -- 7.2.2 Learning with Dynamic Conjectures for Opportunistic Spectrum Access in CogMesh
176 -- 7.3 Future Challenges	191 -- 7.4 Conclusions
192 -- References	192 -- 8 Reinforcement Learning-Based Cognitive Radio for Open Spectrum Access
195 / Tao Jiang and David Grace	-- 8.1 Open Spectrum Access
195 -- 8.2 Reinforcement Learning-Based Spectrum Sharing in Open Spectrum Bands	196 -- 8.2.1 Learning Model
196 -- 8.2.2 Basic Algorithms	200 -- 8.2.3 Performance
200 -- 8.3 Exploration Control and Efficient Exploration for Reinforcement Learning-Based Cognitive Radio	208 -- 8.3.1 Exploration Control Techniques for Cognitive Radios
208 -- 8.3.2 Efficient Exploration Techniques and Learning Efficiency for Cognitive Radios	218 -- 8.4 Conclusion
229 -- References	230 -- 9 Learning Techniques for Context Diagnosis and Prediction in Cognitive Communications
231 / Aimilia Bantouna, Kostas Tsagkaris, Vera Stavroulaki, Giorgos Poullos and Panagiotis Demestichas.	
9.1 Introduction	231 -- 9.2 Prediction
232 -- 9.2.1 Building Knowledge: Learning Network Capabilities and User Preferences/Behaviours	232 -- 9.2.2 Application to Context Diagnosis and Prediction: The Case of Congestion
248 -- 9.3 Future Problems	253 -- 9.4 Conclusions
254 -- References	255 -- 10 Social Behaviour in Cognitive Radio
257 / Husheng Li	-- 10.1 Introduction
257 -- 10.2 Social Behaviour in Cognitive Radio	258 -- 10.2.1 Cooperation Formation
258 -- 10.2.2 Channel Recommendations	261 -- 10.3 Social Network Analysis
267 -- 10.3.1 Model of Recommendation Mechanism	267 -- 10.3.2 Interacting Particles
268 -- 10.3.3 Epidemic Propagation	273 -- 10.4 Conclusions
281 -- References	281 -- PART IV REGULATORY POLICY AND ECONOMICS
-- 11 Regulatory Policy and Economics of Cognitive Radio for Secondary Spectrum Access	285 / Maziar Nekovee and Peter Anker
-- 11.1 Introduction	285 -- 11.2 Spectrum Regulations: Why and How?
286 -- 11.3 Overview of Regulatory Bodies and Their Inter-Relation	287 -- 11.3.1 ITU
287 -- 11.3.2 CEPT/ECC	288 -- 11.3.3 European Union
289 -- 11.3.4 ETSI	290 -- 11.3.5 National Spectrum Management Authority
291 -- 11.4 Why Secondary Spectrum Access?	291 -- 11.5 Candidate Bands for Secondary Access
293 -- 11.5.1 Terrestrial Broadcasting Bands	294 -- 11.5.2 Radar Bands
294 -- 11.5.3 IMT Bands	295 -- 11.5.4 Military Bands
296 -- 11.6 Regulatory and Policy Issues	296 -- 11.6.1 UK Regulatory Environment
300 -- 11.6.2 US Regulatory Environment	301 -- 11.6.3 European Regulatory Environment
302 -- 11.6.4 Regulatory Environments Elsewhere	303 -- 11.7 Technology Enablers and Options for Secondary Sharing
304 -- 11.7.1 Cognitive Radio	304 -- 11.7.2 Technology Options for Secondary Access
306 -- 11.8 Economic Impact and Business Opportunities of SSA	308 -- 11.8.1 Stakeholders and Economic of SSA
309 -- 11.8.2 Use Cases and Business Models	310 -- 11.9 Outlook
313 -- 11.10 Conclusions	314 -- Acknowledgements
315 -- References	315 -- PART V IMPLEMENTATION
-- 12 Cognitive Radio Networks in TV White Spaces	321 / Maziar Nekovee and Dave Wisely.
12.1 Introduction	321 -- 12.2 Research and Development Challenges

324 -- 12.2.1 Geolocation Databases	324 -- 12.2.2 Sensing	327 --
12.2.3 Beacons	330 -- 12.2.4 Physical Layer	330 -- 12.2.5 System
Issues	331 -- 12.2.6 Devices	335 -- 12.3 Regulation and
Standardization	335 -- 12.3.1 Regulation	335 -- 12.3.2
Standardization	338 -- 12.4 Quantifying Spectrum Opportunities	343
-- 12.5 Commercial Use Cases	346 -- 12.6 Conclusions	354 --
Acknowledgement	355 -- References	355 -- 13 Cognitive Femtocell
Networks	359 / Faisal Tariq and Laurence S. Dooley	-- 13.1
Introduction	359 -- 13.2 Femtocell Network Architecture	361 -- 13.2.1
Underlay and Overlay Architectures for Femtocell Networks	362 --	
13.2.2 Home Femtocell and Enterprise Femtocell	366 -- 13.2.3 Access	
Mechanism: Closed, Open and Hybrid Access	369 -- 13.2.4 Possible	
Operating Spectrum	371 -- 13.3 Interference Management Strategies	372 -- 13.3.1
Cross-Tier Interference Management	373 -- 13.3.2	
Intra-Tier Interference Management	376 -- 13.4 Self Organized	
Femtocell Networks (SOFN)	381 -- 13.4.1 Self-Configuration	383 --
13.4.2 Self-Optimization	383 -- 13.4.3 Self-Healing and Self-	
Protection	388 -- 13.5 Future Research Directions	388 -- 13.5.1
Green Femtocell Networks	388 -- 13.5.2 Communication Hub for Smart	
Homes	389 -- 13.5.3 MIMO-Based Interference Alignment for	
Femtocell Networks	389 -- 13.5.4 Enhanced FFR	390 -- 13.5.5
CoMP-Based Femtocell Network	391 -- 13.5.6 Holistic Approach to SOFN	391
-- 13.6 Conclusion	391 -- References	391 -- 14 Cognitive Acoustics:
A Way to Extend the Lifetime of Underwater Acoustic Sensor Networks	395 / Lu Jin, Defeng (David) Huang, Lin Zou and Angela Ying Jun Zhang	-- 14.1
The Concept of Cognitive Acoustics	395 -- 14.2 Underwater	
Acoustic Communication Channel	397 -- 14.2.1 Propagation Delay	397
-- 14.2.2 Severe Attenuation	397 -- 14.2.3 Ambient Noise	398 -- 14.3
Some Distinct Features of Cognitive Acoustics	401 -- 14.3.1 Purposes	
of Deployment	401 -- 14.3.2 Grey Space	402 -- 14.3.3
Cost of Field Measurement and System Deployment	402.	
14.4 Fundamentals of Reinforcement Learning	402 -- 14.4.1 Markov	
Decision Process	402 -- 14.4.2 Reinforcement Learning	403 -- 14.4.3
Q-Learning	403 -- 14.5 An Application Scenario: Underwater Acoustic	
Sensor Networks	404 -- 14.5.1 System Description	404 -- 14.5.2
State Space, Action Set and Transition Probabilities	406 -- 14.5.3 Reward	
Function	407 -- 14.5.4 Routing Protocol Discussion	409 -- 14.6
Numerical Results	410 -- 14.7 Conclusion	414 -- Acknowledgements
414 -- References	414 -- 15 CMOS RF Transceiver Considerations for	
DSA	417 / Mark S. Oude Alink, Eric A.M. Klumperink, Andre B.J.	
Kokkeler, Gerard J.M. Smit and Bram Nauta	-- 15.1 Introduction	417 --
15.1.1 Terminology	418 -- 15.1.2 Transceivers for DSA: More than an	
ADC and DAC	420 -- 15.1.3 Flexible Software-Defined Transceiver	421
-- 15.1.4 Why CMOS Transceivers?	421 -- 15.2 DSATransceiver	
Requirements	421 -- 15.3 Mathematical Abstraction	423 -- 15.4
Filters	426 -- 15.4.1 Integrated Filters	426 -- 15.4.2
External Filters	427 -- 15.5 Receiver Considerations and Implementation	428 --
15.5.1 Sub-Sampling Receiver	429 -- 15.5.2 Heterodyne Receivers	430
-- 15.5.3 Direct-Conversion Receivers	432 -- 15.6 Cognitive Radio	
Receivers	436 -- 15.6.1 Wideband RF-Section	436 -- 15.6.2
No External RF-Filterbank	437 -- 15.6.3 Wideband Frequency Generation	447 -- 15.7
Transmitter Considerations and Implementation	449 --	
15.8 Cognitive Radio Transmitters	451 -- 15.8.1 Improving	
Transmitter Linearity	451 -- 15.8.2 Reducing Harmonic Components	452 -- 15.8.3
The Polyphase Multipath Technique	453 -- 15.9	
Spectrum Sensing	456 -- 15.9.1 Analogue Windowing	458 -- 15.9.2
Channelized Receiver	459 -- 15.9.3 Crosscorrelation Spectrum Sensing	459 -- 15.9.4
Improved Image and Harmonic Rejection Using		

---

Sommario/riassunto

"This book discusses in-depth the concept of distributed artificial intelligence (DAI) and its application to cognitive communications. In this book, the authors present an overview of cognitive communications, encompassing both cognitive radio and cognitive networks, and also other application areas such as cognitive acoustics. The book also explains the specific rationale for the integration of different forms of distributed artificial intelligence into cognitive communications, something which is often neglected in many forms of technical contributions available today. Furthermore, the chapters are divided into four disciplines: wireless communications, distributed artificial intelligence, regulatory policy and economics and implementation. The book contains contributions from leading experts (academia and industry) in the field. Key Features: Covers the broader field of cognitive communications as a whole, addressing application to communication systems in general (e.g. cognitive acoustics and Distributed Artificial Intelligence (DAI) Illustrates how different DAI based techniques can be used to self-organise the radio spectrum Explores the regulatory, policy and economic issues of cognitive communications in the context of secondary spectrum access Discusses application and implementation of cognitive communications techniques in different application areas (e.g. Cognitive Femtocell Networks (CFN) Written by experts in the field from both academia and industry Cognitive Communications will be an invaluable guide for research community (PhD students, researchers) in the areas of wireless communications, and development engineers involved in the design and development of mobile, portable and fixed wireless systems., wireless network design engineer. Undergraduate and postgraduate students on elective courses in electronic engineering or computer science, and the research and engineering community will also find this book of interest. "--

---