

1. Record Nr.	UNINA9910818223603321
Autore	Dragotti Pier Luigi
Titolo	Distributed source coding : theory, algorithms, and applications // Pier Luigi Dragotti, Michael Gastpar
Pubbl/distr/stampa	Amsterdam ; ; Boston : , : Academic Press/Elsevier, , [2009] ©2009
ISBN	1-282-28683-8 9786612286834 0-08-092274-0
Descrizione fisica	1 online resource (359 p.)
Disciplina	621.382/16 22 621.38216
Soggetti	Data compression (Telecommunication) Multisensor data fusion Coding theory Electronic data processing - Distributed processing
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	Front Cover; Distributed Source Coding; Copyright Page; Table of Contents; List of Contributors; Introduction; Part I: Theory; Chapter 1. Foundations of Distributed Source Coding; 1.1 Introduction; 1.2 Centralized Source Coding; 1.2.1 Lossless Source Coding; 1.2.2 Lossy Source Coding; 1.2.3 Lossy Source Coding for Sources with Memory; 1.2.4 Some Notes on Practical Considerations; 1.3 Distributed Source Coding; 1.3.1 Lossless Source Coding; 1.3.2 Lossy Source Coding; 1.3.3 Interaction; 1.4 Remote Source Coding; 1.4.1 Centralized; 1.4.2 Distributed: The CEO Problem 1.5 Joint Source-channel Coding Acknowledgments; Appendix A: Formal Definitions and Notations; A.1 Notation; A.1.1 Centralized Source Coding; A.1.2 Distributed Source Coding; A.1.3 Remote Source Coding; References; Chapter 2. Distributed Transform Coding; 2.1 Introduction; 2.2 Foundations of Centralized Transform Coding; 2.2.1 Transform Coding Overview; 2.2.2 Lossless Compression; 2.2.3 Quantizers; 2.2.4 Bit Allocation; 2.2.5 Transforms; 2.2.6 Linear Approximation; 2.3 The

Distributed Karhunen--Loeve Transform; 2.3.1 Problem Statement and Notation; 2.3.2 The Two-terminal Scenario
2.3.3 The Multiterminal Scenario and the Distributed KLT Algorithm
2.4 Alternative Transforms; 2.4.1 Practical Distributed Transform Coding with Side Information; 2.4.2 High-rate Analysis of Source Coding with Side Information at Decoder; 2.5 New Approaches to Distributed Compression with FRI; 2.5.1 Background on Sampling of 2D FRI Signals; 2.5.2 Detailed Example: Coding Scheme for Translating a Bi-level Polygon; 2.6 Conclusions; References; Chapter 3. Quantization for Distributed Source Coding; 3.1 Introduction; 3.2 Formulation of the Problem; 3.2.1 Conventions
3.2.2 Network Distributed Source Coding
3.2.3 Cost, Distortion, and Rate Measures; 3.2.4 Optimal Quantizers and Reconstruction Functions; 3.2.5 Example: Quantization of Side Information; 3.3 Optimal Quantizer Design; 3.3.1 Optimality Conditions; 3.3.2 Lloyd Algorithm for Distributed Quantization; 3.4 Experimental Results; 3.5 High-rate Distributed Quantization; 3.5.1 High-rate WZ Quantization of Clean Sources; 3.5.2 High-rate WZ Quantization of Noisy Sources; 3.5.3 High-rate Network Distributed Quantization; 3.6 Experimental Results Revisited; 3.7 Conclusions; References
Chapter 4. Zero-error Distributed Source Coding
4.1 Introduction; 4.2 Graph Theoretic Connections; 4.2.1 VLZE Coding and Graphs; 4.2.2 Basic Definitions and Notation; 4.2.3 Graph Entropies; 4.2.4 Graph Capacity; 4.3 Complementary Graph Entropy and VLZE Coding; 4.4 Network Extensions; 4.4.1 Extension 1: VLZE Coding When Side Information May Be Absent; 4.4.2 Extension 2: VLZE Coding with Compound Side Information; 4.5 VLZE Code Design; 4.5.1 Hardness of Optimal Code Design; 4.5.2 Hardness of Coding with Length Constraints; 4.5.3 An Exponential-time Optimal VLZE Code Design Algorithm
4.6 Conclusions

Sommario/riassunto

The advent of wireless sensor technology and ad-hoc networks has made DSC a major field of interest. Edited and written by the leading players in the field, this book presents the latest theory, algorithms and applications, making it the definitive reference on DSC for systems designers and implementers, researchers, and graduate students. This book gives a clear understanding of the performance limits of distributed source coders for specific classes of sources and presents the design and application of practical algorithms for realistic scenarios. Material covered includes the use of
