

1. Record Nr.	UNINA9911019369703321
Autore	Chu Wai C. <1967->
Titolo	Speech coding algorithms : foundation and evolution of standardized coders / / Wai C. Chu
Pubbl/distr/stampa	Hoboken, N.J., : J. Wiley, 2003
ISBN	9786610542109 9781280542107 1280542101 9780470302668 0470302666 9780471668879 0471668877 9780471668855 0471668850
Descrizione fisica	1 online resource (584 p.)
Disciplina	621.382/2
Soggetti	Speech processing systems Coding theory Algorithms
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	"A Wiley-Interscience publication."
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	SPEECH CODING ALGORITHMS; CONTENTS; PREFACE; Acknowledgments; ACRONYMS; NOTATION; 1 INTRODUCTION; 1.1 Overview of Speech Coding; 1.2 Classification of Speech Coders; 1.3 Speech Production and Modeling; 1.4 Some Properties of the Human Auditory System; 1.5 Speech Coding Standards; 1.6 About Algorithms; 1.7 Summary and References; 2 SIGNAL PROCESSING TECHNIQUES; 2.1 Pitch Period Estimation; 2.2 All-Pole and All-Zero Filters; 2.3 Convolution; 2.4 Summary and References; Exercises; 3 STOCHASTIC PROCESSES AND MODELS; 3.1 Power Spectral Density; 3.2 Periodogram; 3.3 Autoregressive Model 3.4 Autocorrelation Estimation 3.5 Other Signal Models; 3.6 Summary and References; Exercises; 4 LINEAR PREDICTION; 4.1 The Problem of

Linear Prediction; 4.2 Linear Prediction Analysis of Nonstationary Signals; 4.3 Examples of Linear Prediction Analysis of Speech; 4.4 The Levinson-Durbin Algorithm; 4.5 The Leroux-Gueguen Algorithm; 4.6 Long-Term Linear Prediction; 4.7 Synthesis Filters; 4.8 Practical Implementation; 4.9 Moving Average Prediction; 4.10 Summary and References; Exercises; 5 SCALAR QUANTIZATION; 5.1 Introduction; 5.2 Uniform Quantizer; 5.3 Optimal Quantizer
5.4 Quantizer Design Algorithms5.5 Algorithmic Implementation; 5.6 Summary and References; Exercises; 6 PULSE CODE MODULATION AND ITS VARIANTS; 6.1 Uniform Quantization; 6.2 Nonuniform Quantization; 6.3 Differential Pulse Code Modulation; 6.4 Adaptive Schemes; 6.5 Summary and References; Exercises; 7 VECTOR QUANTIZATION; 7.1 Introduction; 7.2 Optimal Quantizer; 7.3 Quantizer Design Algorithms; 7.4 Multistage VQ; 7.5 Predictive VQ; 7.6 Other Structured Schemes; 7.7 Summary and References; Exercises; 8 SCALAR QUANTIZATION OF LINEAR PREDICTION COEFFICIENT; 8.1 Spectral Distortion
8.2 Quantization Based on Reflection Coefficient and Log Area Ratio8.3 Line Spectral Frequency; 8.4 Quantization Based on Line Spectral Frequency; 8.5 Interpolation of LPC; 8.6 Summary and References; Exercises; 9 LINEAR PREDICTION CODING; 9.1 Speech Production Model; 9.2 Structure of the Algorithm; 9.3 Voicing Detector; 9.4 The FS1015 LPC Coder; 9.5 Limitations of the LPC Model; 9.6 Summary and References; Exercises; 10 REGULAR-PULSE EXCITATION CODERS; 10.1 Multipulse Excitation Model; 10.2 Regular-Pulse-Excited-Long-Term Prediction; 10.3 Summary and References; Exercises
11 CODE-EXCITED LINEAR PREDICTION11.1 The CELP Speech Production Model; 11.2 The Principle of Analysis-by-Synthesis; 11.3 Encoding and Decoding; 11.4 Excitation Codebook Search; 11.5 Postfilter; 11.6 Summary and References; Exercises; 12 THE FEDERAL STANDARD VERSION OF CELP; 12.1 Improving the Long-Term Predictor; 12.2 The Concept of the Adaptive Codebook; 12.3 Incorporation of the Adaptive Codebook to the CELP Framework; 12.4 Stochastic Codebook Structure; 12.5 Adaptive Codebook Search; 12.6 Stochastic Codebook Search; 12.7 Encoder and Decoder; 12.8 Summary and References; Exercises
13 VECTOR SUM EXCITED LINEAR PREDICTION

Sommario/riassunto

Speech coding is a highly mature branch of signal processing deployed in products such as cellular phones, communication devices, and more recently, voice over internet protocolThis book collects many of the techniques used in speech coding and presents them in an accessible fashionEmphasizes the foundation and evolution of standardized speech coders, covering standards from 1984 to the presentThe theory behind the applications is thoroughly analyzed and proved
