

1. Record Nr.	UNINA9910827985803321
Autore	Hansler E (Eberhard)
Titolo	Acoustic echo and noise control : a practical approach // Eberhard Haensler, Gerhard Schmidt
Pubbl/distr/stampa	Hoboken, N.J., : Wiley-Interscience, c2004
ISBN	1-280-27283-X 9786610272839 0-470-31483-4 0-471-67839-2 0-471-67840-6
Edizione	[1st ed.]
Descrizione fisica	1 online resource (474 p.)
Collana	Adaptive and learning systems for signal processing, communications, and control
Altri autori (Persone)	SchmidtGerhard
Disciplina	621.382/24
Soggetti	Echo suppression (Telecommunication) Acoustical engineering
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 (p. 423-440) and index.
Nota di contenuto	List of Figures -- List of Tables -- Preface -- Acknowledgments -- Abbreviations and Acronyms -- Part I: Basics -- 1 Introduction -- 1.1 Some History -- 1.2 Overview of the Book -- 2 Acoustic Echo and Noise Control Systems -- 2.1 Notation -- 2.2 Applications -- 3 Fundamentals -- 3.1 Signals -- 3.2 Acoustic Echoes -- 3.3 Standards -- Part II: Algorithms -- 4 Error Criteria and Cost Functions -- 4.1 Error Criteria for Adaptive Filters -- 4.2 Error Criteria for Filter Design -- 4.3 Error Criteria for Speech Processing and Control Purposes -- 5 Wiener Filter -- 5.1 Time-Domain Solution -- 5.2 Frequency-Domain Solution -- 6 Linear Prediction -- 6.1 Normal Equations -- 6.2 Levinson{Durbin Recursion -- 7 Algorithms for Adaptive Filters -- 7.1 The Normalized Least Mean Square Algorithm -- 7.2 The Affine Projection Algorithm -- 7.3 The Recursive Least Squares Algorithm -- 7.4 The Kalman Algorithm -- Part III: Acoustic Echo and Noise Control -- 8 Traditional Methods for Stabilization of Electroacoustic Loops -- 8.1 Adaptive Line Enhancement -- 8.2 Frequency Shift -- 8.3 Controlled Attenuation -- 9 Echo Cancellation -- 9.1 Processing Structures -- 9.2 Stereophonic and

Multichannel Echo Cancellation -- 10 Residual Echo and Noise Suppression -- 10.1 Basics -- 10.2 Suppression of Residual Echoes -- 10.3 Suppression of Background Noise -- 10.4 Combining Background Noise and Residual Echo Suppression -- 11 Beamforming -- 11.1 Basics -- 11.2 Characteristics of Microphone Arrays -- 11.3 Fixed Beamforming -- 11.4 Adaptive Beamforming -- Part IV: Control and Implementation Issues -- 12 System Control-Basic Aspects -- 12.1 Convergence versus Divergence Speed -- 12.2 System Levels for Control Design -- 13 Control of Echo Cancellation Systems -- 13.1 Pseudooptimal Control Parameters for the NLMS Algorithm -- 13.2 Pseudooptimal Control Parameters for the Affine Projection Algorithm -- 13.3 Summary of Pseudooptimal Control Parameters -- 13.4 Detection and Estimation Methods -- 13.5 Detector Overview and Combined Control Methods.

14 Control of Noise and Echo Suppression Systems -- 14.1 Estimation of Spectral Power Density of Background Noise -- 14.2 Musical Noise -- 14.3 Control of Filter Characteristics -- 15 Control for Beamforming -- 15.1 Practical Problems -- 15.2 Step-size Control -- 16 Implementation Issues -- 16.1 Quantization Errors -- 16.2 Number Representation Errors -- 16.3 Arithmetical Errors -- 16.4 Fixed Point versus Floating Point -- 16.5 Quantization of Filter Taps -- Part V: Outlook and Appendixes -- 17 Outlook -- Appendix A: Subband Impulse Responses -- A.1 Consequences for Subband Echo Cancellation -- A.2 Transformation -- A.3 Concluding Remarks -- Appendix B: Filterbank Design -- B.1 Conditions for Approximately Perfect Reconstruction -- B.2 Filter Design Using a Product Approach -- B.3 Design of Prototype Lowpass Filters -- B.4 Analysis of Prototype Filters and the Filterbank System -- References -- Index.

Sommario/riassunto

Authors are well known and highly recognized by the "acoustic echo and noise community." Presents a detailed description of practical methods to control echo and noise. Develops a statistical theory for optimal control parameters and presents practical estimation and approximation methods.
