



# ADAPTIVE FILTERS

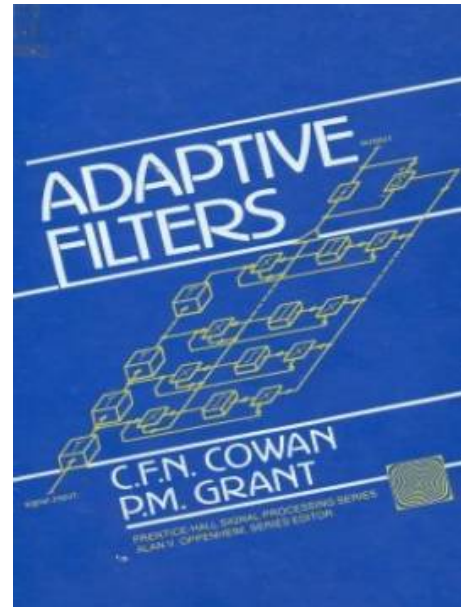
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## SUMMARY

In this up-to-date state of the art book, the authors provide a coherent and Comprehensive introduction to adaptive filtering. They cover basic theory, practical realizations, and applications, such as adaptive equalizers for telecommunications data transmission systems. Practical engineers find this book a good source of information on the practical possibilities of these processors.

This book's key features include ;

- Chapter 2 estimation theory discusses and is followed by two chapters on adaptive finite impulse response and infinite impulse response.
- Chapter 5 covers the theory, design, and application of adaptive lattice filters.
- Chapter 6 deals with signal transformation techniques for adaptive filtering.
- Chapter 7 covers adaptive filter implementations.
- Chapter 8 includes main applications in communications equalization and echo cancellation



Chapter 9 describes such application areas as fast tracking filters for HF and microwave digital radion, linear predictive coding, and maximum-entropy and maximum-likelihood analysis techniques.

## CONTENTS

PREFACE	xiii
ACKNOWLEDGMENTS	xv
ABBREVIATIONS	xvii
SYMBOLS	xix
<b>1 INTRODUCTION TO ADAPTIVE FILTERS</b>	<b>1</b>
Peter M Grant and Colin F. N Cowan	
1.1 Adaptive Processing	1
1.1.1 Adaptive Filters	2
1.1.2 Adaptive Filter Operation	3
1.2 Programmable Filter Designs	4
1.2.1 Recursive Filters	4
1.2.2 Nonrecursive Filters	6
1.2.3 Transform-Based Filters	8
1.3 Optimum Linear Estimation	10
1.4 Adaptive Filters	11
1.4.1 Adaptive Infinite Impulse Response Filters	11
1.4.2 Adaptive Finite Impulse Response Filters	11
1.4.3 Transform-Based Adaptive Filters	12
1.4.4 Hardware Designs	14
<b>2 OPTIMUM ESTIMATION TECHNIQUES</b>	<b>15</b>
Colin F. N. Cowan	
2.1 Introduction	15
2.2 Optimum Nonrecursive (Wiener) Estimation	16
2.2.1 Practical Example of a Wiener Estimator	18
2.3 Optimum Recursive (Kalman) Estimation	21
2.3.1 Scalar Kalman Filter	21
2.3.2 Derivation of the Kalman Gain	24
2.4 Vector Kalman Filter	25
2.4.1 Vector Kalman Filter as a Channel Equalizer	26
2.5 Conclusions	27

3	ADAPTIVE ALGORITHMS FOR FINITE IMPULSE RESPONSE FILTERS	29
	Benjamin Friedlander	
3.1	Introduction	29
3.2	Recursive Least-Squares Algorithm	30
3.2.1	Derivation of the RLS Algorithm	32
3.2.2	Exponentially Weighted RLS	33
3.2.3	Computational Complexity	34
3.2.4	Stochastic Interpretation	35
3.2.5	Asymptotic Accuracy of Least-Squares Estimates	37
3.2.6	Asymptotic Properties of the Adaptive Filter	38
3.2.7	Square-Root Implementation	39
3.2.8	Sliding Window Form of the RLS	40
3.3	Least-Mean-Squares Adaptive Algorithm	41
3.3.1	Iterative Computation of the Optimal Coefficient Vector	42
3.3.2	LMS Algorithm	44
3.3.3	Convergence of the LMS Algorithm	44
3.3.4	Learning Curve	46
3.3.5	Recent Convergence Results	48
3.3.6	LMS Algorithm as a Stochastic Approximation Method	49
3.4	Adaptive Finite Impulse Response Filters with Linear-Phase Characteristics	55
3.4.1	Stochastic Case	55
3.4.2	RLS Algorithm	57
3.4.3	LMS Algorithm	58
4	ADAPTIVE ALGORITHMS FOR INFINITE IMPULSE RESPONSE FILTERS	60
	John R. Treichler	
4.1	Introduction	60
4.1.1	1 General Scope	60
4.1.2	Why Use UR Adaptive Filters?	61
4.1.3	Problem Formulation	62
4.1.4	Implications of Feedback	63
4.2	Minimum Mean-Square-Error Techniques	64
4.2.1	Developing Necessary Conditions for a Solution	64
4.2.2	Solution Techniques	65
4.2.3	Historical Perspective	67
4.3	Techniques Based on Nonlinear Stability Theory	68
4.3.1	Problem Formulation	68
4.3.2	Hyperstable Adaptive Recursive Filter	69
4.3.3	Hyperstability and Adaptive Filtering	72
4.3.4	Simple Hyperstable Recursive Filter	78
4.4	Convergence Analysis	81
4.4.1	Goals of Convergence Analysis	81
4.4.2	Approaches	83
4.4.3	General Conclusions	88
4.5	Limitations in the Use of UR Adaptive Filters	89
4.5.1	Coefficient Sensitivity	89
4.5.2	Inverse Modeling of Non-Minimum-Phase Filters	89
4.5.3	Order Matching	90
4.5.4	Conversion of Stability-Based Techniques to Inverse Modeling	90
4.6	Conclusion	90
5	RECURSIVE LEAST-SQUARES ESTIMATION AND LATTICE FILTERS	91
	Tohn M Turner	
5.1	Introduction	91
5.2	General Lattice Digital Filter Structure	93
5.3	Properties of the Lattice Structure	98
5.3.1	Orthogonalizing Properties	99
5.3.2	Physical Interpretation	102
5.4	Sample Data Estimates of Reflection Coefficients	105
5.4.1	Gradient Estimates of Reflection Coefficients	106
5.5	Recursive Least-Squares Lattice Algorithm	108
5.5.1	Formulation of Recursive Estimates	109
5.5.2	Order-Update Equations	111
5.5.3	Time-Update Equations	113
5.5.4	Exact Least-Squares Lattice Recursions	114
5.5.5	Likelihood Variable	116
5.6	Joint-Process Lattice Filter	117

5.6	Summit Access Lattice Filter	111
5.7	Square-Root Normalized Least-Squares Lattice	120
5.8	Computational Complexity and CORDIC Arithmetic	123
5.8.1	CORDIC Arithmetic	124
5.8.2	Lattice Filtering by Rotations	126
5.9	Simulations and Applications	129
5.10	Comments and Conclusions	143
<b>6</b>	<b>FREQUENCY-DOMAIN ADAPTIVE FILTERING</b>	<b>145</b>
	Earl R. Ferrara, Jr	
6.1	Introduction	145
6.2	Frequency-Domain Adaptive Filter Based on Circular Convolution	146
6.3	Algorithms for General Adaptive Filtering	152
6.3.1	Fast LMS Adaptive Filter	152
6.3.2	Unconstrained Frequency-Domain LMS Adaptive Filter	157
6.4	Channel Equalization	160
6.4.1	Isolated Pulse Equalization	160
6.4.2	Random Data Sequence Equalization	164
6.5	Transmultiplexer Adaptive Filter	164
6.6	Convergence Rate Improvement	172
6.7	Summary	176
6.8	Appendix: Linear versus Circular Convolution	177
<b>7</b>	<b>SURVEY OF ANALOG AND DIGITAL ADAPTIVE FILTER REALIZATIONS</b>	<b>180</b>
	Colin F. N. Cowan and Peter M Grant	
7.1	Introduction	180
7.2	Digital Implementations	181
7.2.1	Classical Digital Design	181
7.2.2	Digital Adaptive Filters Using Simplified Algorithms	187
7.2.3	Digital Adaptive Filters Using Memory Access Techniques	190
7.2.4	Distributed Arithmetic Adaptive Filters	190
7.2.5	Residue Number Systems	195
7.3	Analog Sampled-Data Adaptive Filters	199
7.3.1	Charge-Coupled-Device Implementations	199
7.3.2	Monolithic CCD Adaptive Filter	206
7.4	High-Bandwidth Adaptive Filters Using Surface Acoustic Wave Devices	210
7.5	Future Designs Using VLSI Technology	214
<b>8</b>	<b>ADAPTIVE FILTERS IN TELECOMMUNICATIONS</b>	<b>216</b>
	Peter F. Adams	
8.1	Introduction	216
8.2	Data Transmission	217
8.2.1	Linear Distortions in Telephony Networks	218
8.2.2	Speech-Band Equalizers	224
8.2.3	Echo Cancellation for Speech-Band Data Transmission	232
8.3	Digital Transmission over Local Networks	241
8.3.1	Echo Cancellation for WAL2 Transmission	244
8.3.2	Baseband Transmission	248
8.4	Echo Cancellation for Telephony	252
8.4.1	Network Echo Cancelers	252
8.4.2	Terminal Echo Cancelers	254
8.5	Other Telecommunications-Related Applications	255
<b>9</b>	<b>OTHER ADAPTIVE FILTER APPLICATIONS</b>	<b>257</b>
	Peter M. Grant	
9.1	Introduction	257
9.2	Adaptive Estimation	258
9.2.1	Inverse System Modeling	258
9.2.2	Direct System Modeling	264
9.3	Spectral Estimation	266
9.3.1	Introduction	266
9.3.2	Spectral Line Enhancement	270
9.3.3	Speech Processing	272

9.4	Adaptive Array Processing	276
9.4.1	Bearing Estimation	277
9.5	Summary	282

REFERENCES	283
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INDEX	303
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[TOP](#)

The term adaptive filter implies changing the characteristic of a filter in some automated fashion to obtain the best possible signal quality in spite of changing signal/system conditions. Adaptive filters are usually associated with the broader topic of statistical signal processing. The operation of signal filtering by definition implies extracting something desired from a signal containing both desired and undesired components. 28 chapter 3. applications of adaptive filters. Echo canceller. Figure 3.11. Hopefully, the adapting filter will restore that property by removing the distortion or interference! Example 4.1: the Constant-Modulus Algorithm (CMA). Certain communication modulation schemes, such as PSK and FSK, transmit a sinusoid of a constant analytic magnitude. Only the frequency or phase change with time. The constant modulus algorithm tries to drive the output signal to one having a constant amplitude