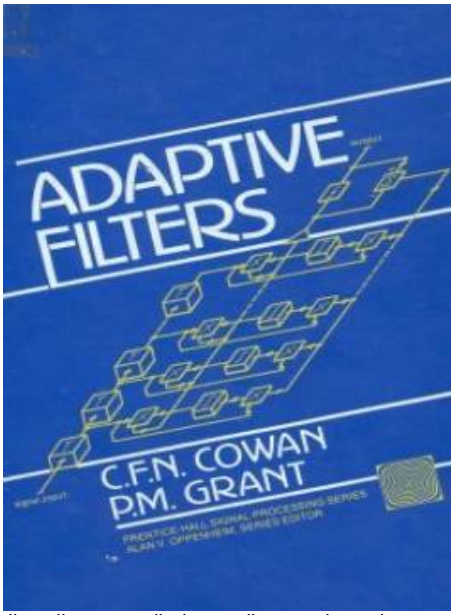
ADAPTIVE FILTERS

C.F.N. COWAN
P.M. GRANT



SUMMARY

In this up-to-date state of the art book, the authors provide a coherent and Comprehensive introduction to adaptive filtering. They coyer 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

TOP

Applications of adaptive filters include multichannel noise reduction, radar/sonar signal processing, channel equalization for cellular mobile phones, echo cancellation, and low delay speech coding. This chapter begins with a study of the state-space Kalman filter. In Kalman theory a state equation models the dynamics of the signal generation process, and an observation equation models the channel distortion and additive noise. Then we consider recursive least square (RLS) error adaptive filters. General discussion on how adaptive filters work, list of adaptive filter algorithms in DSP System Toolbox, convergence performance, and details on few common applications.Â Overview of Adaptive Filters and Applications. On this page. Adaptive Filters in DSP System Toolbox. Least Mean Squares (LMS) Based FIR Adaptive Filters. Recursive Least Squares (RLS) Based FIR Adaptive Filters. Affine Projection (AP) FIR Adaptive Filters. FIR Adaptive Filters in the Frequency Domain (FD).