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Altri autori (Persone)	HaykinSimon S. <1931->
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Nota di contenuto	Adaptive Radar Signal Processing; Contents; Preface; Acknowledgments; Contributors List; 1. Introduction; Experimental Radar Facilities; Organization of the Book; Part I Radar Spectral Analysis; 2. Angle-of-Arrival Estimation in the Presence of Multipath; 2.1 Introduction; 2.2 The Low-Angle Tracking Radar Problem; 2.3 Spectrum Estimation Background; 2.3.1 The Fundamental Equation of Spectrum Estimation; 2.4 Thomson's Multi-Taper Method; 2.4.1 Prolate Spheroidal Wavefunctions and Sequences; 2.5 Test Dataset and a Comparison of Some Popular Spectrum Estimation Procedures 2.5.1 Classical Spectrum Estimation2.5.2 MUSIC and MFBLP; 2.6 Multi-taper Spectrum Estimation; 2.6.1 The Adaptive Spectrum; 2.6.2 The Composite Spectrum; 2.6.3 Computing the Crude, Adaptive, and Composite Spectra; 2.7 F-Test for the Line Components; 2.7.1 Brief Outline of the F-Test; 2.7.2 The Point Regression Single-Line F-Test; 2.7.3 The Integral Regression Single-Line F-Test; 2.7.4 The Point Regression Double-Line F-Test; 2.7.5 The Integral Regression Double-Line F-Test; 2.7.6 Line Component Extraction; 2.7.7 Prewhitening; 2.7.8 Multiple Snapshots

2.7.9 Multiple Snapshot, Single-Line, Point-Regression F-Tests  
2.7.10 Multiple-Snapshot, Double-Line Point-Regression F-Tests; 2.8  
Experimental Data Description for a Low-Angle Tracking Radar Study;  
2.9 Angle-of-Arrival (AOA) Estimation; 2.10 Diffuse Multipath Spectrum  
Estimation; 2.11 Discussion; References; 3. Time-Frequency Analysis of  
Sea Clutter; 3.1 Introduction; 3.2 An Overview of Nonstationary  
Behavior and Time-Frequency Analysis; 3.3 Theoretical Background on  
Nonstationarity; 3.3.1 Multi-taper Estimates; 3.3.2 Spectrum Estimation  
as an Inverse Problem  
3.4 High-Resolution Multi-taper Spectrograms  
3.4.1 Nonstationary  
Quadratic-Inverse Theory; 3.4.2 Multi-taper Estimates of the Loeve  
Spectrum; 3.5 Spectrum Analysis of Radar Signals; 3.6 Discussion;  
3.6.1 Target Detection Rooted in Learning; References; Part II Dynamic  
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4.4 Hybrid AM/FM Model of Sea Clutter; 4.4.1 Radar Return Plots; 4.4.2  
Rayleigh Fading; 4.4.3 Time-Doppler Spectra; 4.4.4 Evidence for  
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Modeling Sea Clutter as a Nonstationary Complex Autoregressive  
Process; 4.5 Discussion; 4.5.1 Nonlinear Dynamics of Sea Clutter; 4.5.2  
Autoregressive Modeling of Sea Clutter; 4.5.3 State-Space Theory;  
4.5.4 Nonlinear Dynamical Approach Versus Classical Statistical  
Approach; 4.5.5 Stochastic Chaos; References  
Appendix A Specifications of the Three Sea-Clutter Sets Used in This  
Chapter

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#### Sommario/riassunto

This collaborative work presents the results of over twenty years of  
pioneering research by Professor Simon Haykin and his colleagues,  
dealing with the use of adaptive radar signal processing to account for  
the nonstationary nature of the environment. These results have  
profound implications for defense-related signal processing and  
remote sensing. References are provided in each chapter guiding the  
reader to the original research on which this book is based.

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