

1. Record Nr.	UNINA9910140461103321
Autore	Ma Lifeng
Titolo	Variance-constrained multi-objective stochastic control and filtering / / Lifeng Ma, Zidong Wang, Yuming Bo
Pubbl/distr/stampa	West Sussex, England : , : John Wiley & Sons, Inc., , 2015 ©2015
ISBN	1-118-92946-2 1-118-92948-9
Descrizione fisica	1 online resource (320 p.)
Collana	Wiley Series in Dynamics and Control of Electromechanical Systems
Disciplina	629.801/51923
Soggetti	Automatic control - Mathematics Stochastic processes
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 and index.
Nota di contenuto	Machine generated contents note: Preface vii Acknowledgements ix List of Abbreviations xi 1 Introduction 1 1.1 Analysis and Synthesis of Nonlinear Stochastic Systems 2 1.1.1 Nonlinear Systems 3 1.1.2 Stochastic Systems 4 1.2 Multi-Objective Control and Filtering with Variance Constraints 5 1.2.1 Covariance Control Theory 5 1.2.2 Multiple Performance Requirements 7 1.2.3 Design Techniques for Nonlinear Stochastic Systems with Variance Constraints 9 1.2.4 A Special Case of Multi-Objective Design: Mixed H2/H1 Control/Filtering 11 1.3 Outline 12 2 Robust H1 Control with Variance Constraints 17 2.1 Problem Formulation 18 2.2 Stability, H1 Performance and Variance Analysis 20 2.2.1 Stability, H1 Performance Analysis 21 2.2.2 Variance Analysis 23 2.3 Robust Controller Design 27 2.4 Numerical Example 30 2.5 Summary 33 3 Robust Mixed H2=H1 Filtering 41 3.1 System Description and Problem Formulation 42 3.2 Algebraic Characterizations for Robust H2=H1 Filtering 44 3.2.1 Robust H2 Filtering 44 3.2.2 Robust H1 Filtering 50 3.3 Robust H2=H1 Filter Design Techniques 51 3.4 An Illustrative Example 60 3.5 Summary 62 4 Filtering with Missing Measurements 63 4.1 Problem Formulation 64 4.2 Stability and Variance Analysis 67 4.3 Robust Filter Design 71 4.4 Numerical Example 75 4.5 Summary 78 5 Robust Fault-Tolerant Control 87 5.1 Problem Formulation 88 5.2 Stability and Variance

Analysis	90
5.3 Robust Controller Design	92
5.4 Numerical Example	98
5.5 Summary	103
6 Robust H2 SMC	105
6.1 The System Model	106
6.2 Robust H2 Sliding Mode Control	107
6.2.1 Switching Surface	107
6.2.2 Performances of the Sliding Motion	108
6.2.3 Computational Algorithm	114
6.3 Sliding Mode Controller	115
6.4 Numerical Example	116
6.5 Summary	118
7 Dissipative Control with Degraded Measurements	125
7.1 Problem Formulation	126
7.2 Stability, Dissipativity and Variance Analysis	129
7.3 Observer-Based Controller Design	134
7.3.1 Solvability of Multi-Objective Control Problem	134
7.3.2 Computational Algorithm	139
7.4 Numerical Example	140
7.5 Summary	142
8 Variance-Constrained H1 Control with Multiplicative Noises	145
8.1 Problem Formulation	146
8.2 Stability, H1 Performance, Variance Analysis	147
8.2.1 Stability	148
8.2.2 H1 performance	150
8.2.3 Variance analysis	152
8.3 Robust State Feedback Controller Design	153
8.4 A Numerical Example	156
8.5 Summary	157
9 Robust Finite-Horizon H1 Control	159
9.1 Problem Formulation	160
9.2 Performance Analysis	162
9.2.1 H1 Performance	162
9.2.2 Variance Analysis	164
9.3 Robust Finite Horizon Controller Design	167
9.4 Numerical Example	171
9.5 Summary	173
10 Finite-Horizon Filtering with Degraded Measurements	177
10.1 Problem Formulation	178
10.2 Performance Analysis	181
10.2.1 H1 Performance Analysis	181
10.2.2 System Covariance Analysis	186
10.3 Robust Filter Design	187
10.4 Numerical Example	190
10.5 Summary	191
11 Mixed H2=H1 Control with Randomly Occurring Nonlinearities: the Finite-Horizon Case	197
11.1 Problem Formulation	199
11.2 H1 Performance	200
11.3 Mixed H2=H1 Controller Design	204
11.3.1 State-Feedback Controller Design	204
11.3.2 Computational Algorithm	207
11.4 Numerical Example	207
11.5 Summary	211
12 Finite-Horizon H2=H1 Control of MJSS with Sensor Failures	213
12.1 Problem Formulation	214
12.2 H1 Performance	216
12.3 Mixed H2=H1 Controller Design	220
12.3.1 Controller Design	220
12.3.2 Computational Algorithm	224
12.4 Numerical Example	224
12.5 Summary	227
13 Finite-Horizon Control with ROSF	229
13.1 Problem Formulation	230
13.2 H1 And Covariance Performances Analysis	234
13.2.1 H1 Performance	234
13.2.2 Covariance Analysis	238
13.3 Robust Finite-Horizon Controller Design	240
13.3.1 Controller Design	240
13.3.2 Computational Algorithm	243
13.4 Numerical Example	243
13.5 Summary	244
14 Finite-Horizon H2=H1 Control with Actuator Failures	247
14.1 Problem Formulation	248
14.2 H1 Performance	251
14.3 Multi-Objective Controller Design	253
14.3.1 Controller Design	253
14.3.2 Computational Algorithm	256
14.4 Numerical Example	257
14.5 Summary	259
15 Conclusions and Future Topics	261
References	263

Sommario/riassunto

"Variance-Constrained Multi-Objective Stochastic Control and Filtering covers the latest research results and presents the state-of-the-art of control and filtering problems while taking multiple design objectives into consideration"--

2. Record Nr.	UNINA9910265959603321
Titolo	Work, environment, health
Pubbl/distr/stampa	Helsinki
ISSN	2489-6810
Descrizione fisica	1 online resource
Soggetti	Medicine, Industrial Industrial hygiene Occupational diseases Occupational Health Services Occupational Medicine Periodical Periodicals.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Periodico
Sommario/riassunto	Reports from the Institute of Occupational Health.