

# Table of Contents

<i>List of Figures</i> .....	<i>ix</i>
<i>Notation, Conventions, and Abbreviations</i> .....	<i>xi</i>
<b>Chapter 1 Introduction</b> .....	<b>1</b>
<b>Chapter 2 Self-Tuning Control of Systems with Random Disturbances</b> .....	<b>5</b>
2.1 Introduction .....	5
2.2 The Direct Method of Self-tuning Control .....	7
2.3 Parameter Estimation and Minimum Variance Control .....	14
2.3.1 Parameter Estimation: Principal Algorithms and their Properties .....	14
2.3.2 Remarks on Parameter Estimation under Minimum Variance Control .....	23
2.4 Principal Results on Self-Tuning Control and System Identification .....	26
<b>Chapter 3 Computer Simulations of Self-Tuning Control Algorithms</b> .....	<b>31</b>
3.1 Introduction .....	31
3.2 Pseudo-random disturbance sequences .....	32
3.3 Algorithm implementation .....	34
3.4 Simulation Descriptions .....	35
3.5 Simulation Results .....	39
<b>Chapter 4 Adaptive Control of Systems with Random Disturbances</b> .....	<b>59</b>
4.1 Introduction .....	59

5.2	Example 5.2 (MLS)	89
5.2	Example 5.2 (MLS)	90
5.3	Example 5.3 (MLS)	91
5.3	Example 5.3 (MLS)	92
5.4	Example 5.4 (MLS)	93
5.4	Example 5.4 (MLS)	94
5.5	Example 5.5 (MLS)	95
5.5	Example 5.5 (MLS)	96
5.6	Example 5.6 (Kalman Filter)	97
5.6	Example 5.6 (Kalman Filter)	98
5.7	Example 5.7 (Kalman Filter)	99
5.7	Example 5.7 (Kalman Filter)	100
5.8	Example 5.8 (Kalman Filter)	101
5.9	Example 5.9 (Kalman Filter)	102
6.1	A Multi-Adaptive Controller	105