第一图书网, tushu007.com

<<通信系统>>

图书基本信息

书名：<<通信系统>>

13位ISBN编号：9787121102325

10位ISBN编号：7121102323

出版时间：2012-11

出版时间：电子工业出版社

作者：西蒙·赫金

页数：816

版权说明：本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问：http://www.tushu007.com

第一图书网, tushu007.com

<<通信系统>>

内容概要

本书对通信系统的基础理论和关键环节进行了深入分析，力图让学生在讨论中领会通信的精髓。全书首先给出通信系统的梗概及需要研究的关键技术，接着分章详细讨论了随机过程、连续波调制、脉冲调制、基带脉冲传输、信号空间分析、带通数字传输、扩频调制、多用户无线通信、信息论基础和差错控制编码等，各章都附有大量的习题，便于学生实践。
本书强调通信理论的统计基础，并给出了用MATIAB模拟的8个计算机实验，这些实验几乎覆盖了各章节的主要内容，形成了独特的通信理论“软件实验室”。

本书可作为高等院校通信类、信息类、电子类、计算机类等专业高年级本科生的教材，也可供有关技术，科研和管理人员参考。

第一图书网, tushu007.com

作者简介

Simon Haykin，IEEE会士，毕业于英国伯明翰大学电子工程系。
加拿大McMaster大学电子与计算机工程系教授，通信研究实验室主任。
研究方向包括非线性动力学、神经网络和自适应滤波器及其应用。

第一图书网, tushu007.com

<<通信系统>>

书籍目录

BACKGROUND AND PREVIEW 1. The Communication Process 2. Primary Communication Resources 3. Sources of Information 4. Communication Networks 5. Communication Channels 6. Modulation Process 7. Analog and Digital Types of Communication 8. Shannons Information Capacity Theorem 9. A Digital Communication Problem 10. Historical Notes Notes and References CHAPTER 1 Random Processes 1.1 Introduction 1.2 Mathematical Definition of a Random Process 1.3 Stationary Processes 1.4 Mean, Correlation, and Covariance Functions 1.5 Ergodic Processes 1.6 Transmission of a Random Process Through a Linear Time-Invariant Filter 1.7 Power Spectral Density 1.8 Gaussian Process 1.9 Noise 1.10 Narrowband Noise 1.11 Representation of Narrowband Noise in Terms of In-phase and Quadrature Components 1.12 Representation of Narrowband Noise in Terms of Envelope and Phase Components 1.13 Sine Wave Plus Narrowband Noise 1.14 Computer Experiments: Flat-Fading Channel 1.15 Summary and Discussion Notes and References Problems CHAPTER 2 Continuous-Wave Modulation 2.1 Introduction 2.2 Amplitude Modulation 2.3 Linear Modulation Schemes 2.4 Frequency Translation 2.5 Frequency-Division Multiplexing 2.6 Angle Modulation 2.7 Frequency Modulation 2.8 Nonlinear Effects in FM Systems 2.9 Superheterodyne Receiver 2.10 Noise in CW Modulation Systems 2.11 Noise in Linear Receivers using Coherent Detection 2.12 Noise in AM Receivers using Envelope Detection 2.13 Noise in FM Receivers 2.14 Computer Experiments: Phase-Locked Loop 2.15 Summary and Discussion Notes and References Problems CHAPTER 3 Pulse Modulation 3.1 Introduction 3.2 Sampling Process 3.3 Pulse-Amplitude Modulation 3.4 Other Forms of Pulse Modulation 3.5 Bandwidth-Noise Trade-off 3.6 Quantization Process 3.7 Pulse-Code Modulation 3.8 Noise Considerations in PCM Systems 3.9 Time-Division Multiplexing 3.10 Digital Multiplexers 3.11 Virtues, Limitations, and Modifications of PCM 3.12 Delta Modulation 3.13 Linear Prediction 3.14 Differential Pulse-Code Modulation 3.15 Adaptive Differential Pulse-Code Modulation 3.16 Computer Experiment: Adaptive Delta Modulation 3.17 MPEG Audio Coding Standard 3.18 Summary and Discussion Notes and References Problems CHAPTER 4 Baseband Pulse Transmission 4.1 Introduction 4.2 Matched Filter 4.3 Error Rate Due to Noise 4.4 Intersymbol Interference 4.5 Nyquists Criterion for Distortionless Baseband Binary Transmission 4.6 Correlative-Level Coding 4.7 Baseband M-ary PAM Transmission 4.8 Digital Subscriber Lines 4.9 Optimum Linear Receiver 4.10 Adaptive Equalization 4.11 Computer Experiments: Eye Patterns 4.12 Summary and Discussion Notes and References Problems CHAPTER 5 Signal-Space Analysis 5.1 Introduction 5.2 Geometric Representation of Signals 5.3 Conversion of the Continuous AWGN Channel into a Vector Channel 5.4 Likelihood Functions 5.5 Coherent Detection of Signals in Noise: Maximum Likelihood Decoding 5.6 Correlation Receiver 5.7 Probability of Error 5.8 Summary and Discussion Notes and References Problems CHAPTER 6 Passband Digital Transmission 6.1 Introduction 6.2 Passband Transmission Model 6.3 Coherent Phase-Shift Keying 6.4 Hybrid Amplitude/Phase Modulation Schemes 6.5 Coherent Frequency-Shift Keying 6.6 Detection of Signals with Unknown Phase 6.7 Noncoherent Orthogonal Modulation 6.8 Noncoherent Binary Frequency-Shift Keying 6.9 Differential Phase-Shift Keying 6.10 Comparison of Digital Modulation Schemes Using a Single Carrier 6.11 Voiceband Modems 6.12 Multichannel Modulation 6.13 Discrete Multitone 6.14 Synchronization 6.15 Computer Experiments: Carrier Recovery and Symbol Timing 6.16 Summary and Discussion Notes and References Problems CHAPTER 7 Spread-Spectrum Modulation 7.1 Introduction 7.2 Pseudo-Noise Sequences 7.3 A Notion of Spread Spectrum 7.4 Direct-Sequence Spread Spectrum with Coherent Binary Phase-Shift Keying 7.5 Signal-Space Dimensionality and Processing Gain 7.6 Probability of Error 7.7 Frequency-Hop Spread Spectrum 7.8 Computer Experiments: Maximal-Length and Gold Codes 7.9 Summary and Discussion Notes and References Problems CHAPTER 8 Multiuser Radio Communications 8.1 Introduction 8.2 Multiple-Access Techniques 8.3 Satellite Communications 8.4 Radio Link Analysis 8.5 Wireless Communications 8.6 Statistical Characterization of Multipath Channels 8.7 Binary Signaling over a Rayleigh

第一图书网, tushu007.com

Fading Channel 8.8 TDMA and CDMA Wireless Communication Systems 8.9 Source Coding of Speech for Wireless Communications 8.10 Adaptive Antenna Arrays for Wireless Communications 8.11 Summary and Discussion Notes and References Problems CHAPTER 9 Fundamental Limits in Information Theory 9.1 Introduction 9.2 Uncertainty, Information, and Entropy 9.3 Source-Coding Theorem 9.4 Data Compaction 9.5 Discrete Memoryless Channels 9.6 Mutual Information 9.7 Channel Capacity 9.8 Channel-Coding Theorem 9.9 Differential Entropy and Mutual Information for Continuous Ensembles 9.10 Information Capacity Theorem 9.11 Implications of the Information Capacity Theorem 9.12 Information Capacity of Colored Noise Channel 9.13 Rate Distortion Theory 9.14 Data Compression 9.15 Summary and Discussion Notes and References Problems CHAPTER 10 Error-Control Coding 10.1 Introduction 10.2 Discrete-Memoryless Channels 10.3 Linear Block Codes 10.4 Cyclic Codes 10.5 Convolutional Codes 10.6 Maximum Likelihood Decoding of Convolutional Codes 10.7 Trellis-Coded Modulation 10.8 Turbo Codes 10.9 Computer Experiment: Trubo Decoding 10.10 Low-Density Parity-Check Codes 10.11 Irregular Codes 10.12 Summary and Discussion Notes and References Problems APPENDIX 1 Probability Theory APPENDIX 2 Representation of Signals and Systems APPENDIX 3 Bessel Functions APPENDIX 4 Confluent Hypergeometric Functions APPENDIX 5 Cryptography APPENDIX 6 Tables GLOSSARY BIBLIOGRAPHY INDEX

第一图书网, tushu007.com

<<通信系统>>

版权说明

本站所提供下载的PDF图书仅提供预览和简介，请支持正版图书。

更多资源请访问:http://www.tushu007.com