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Collana	Symbols of our country
Disciplina	598.943
Soggetti	Bald eagle United States Seal Juvenile literature
Lingua di pubblicazione	Inglese
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Nota di contenuto

front cover; copyright; table of contents; front matter; Preface; What's on the CD-ROM?; body; 1 The Basics; 1.1 Control Systems; 1.2 Anatomy of a Control System; 1.3 Closed Loop Control; 1.4 Controllers; 1.5 About This Book; 2 Z Transforms; 2.1 Signals and Systems; 2.2 Difference Equations; 2.3 The Z Transform; 2.4 The Inverse Z Transform; 2.5 Some Z Transform Properties; 2.6 Transfer Functions; 2.7 Stability in the Z Domain; 2.8 Frequency Response; 2.9 Conclusion; 3 Performance; 3.1 Tracking; 3.2 Frequency Response; 3.3 Disturbance Rejection; 3.4 Conclusion; 4 Block Diagrams
4.1 The Language of Blocks
4.2 Analyzing Systems with Block Diagrams;
4.3 Conclusion; 5 Analysis; 5.1 Root Locus; 5.2 Bode Plots; 5.3 Nyquist Plots; 5.4 Conclusion; 6 Design; 6.1 Controllers, Filters and Compensators; 6.2 Compensation Topologies; 6.3 Types of Compensators; 6.4 Design Flow; 6.5 Conclusion; 7 Sampling Theory; 7.1 Sampling; 7.2 Aliasing; 7.3 Reconstruction; 7.4 Orthogonal Signals and Power; 7.5 Random Noise; 7.6 Nonideal Sampling; 7.7 The Laplace Transform; 7.8 z Domain Models; 7.9 Conclusion; 8 Nonlinear Systems; 8.1 Characteristics of Nonlinear Systems; 8.2 Some Nonlinearities
8.3 Linear Approximation
8.4 Nonlinear Compensators; 8.5 Conclusion; 9 Measuring Frequency Response; 9.1 Overview; 9.2 Measuring in Isolation; 9.3 In-Loop Measurement; 9.4 Real-World Issues; 9.5 Software; 9.6 Other Methods; 10 Software Implications; 10.1 Data Types; 10.2 Quantization; 10.3 Overflow; 10.4 Resource Issues; 10.5 Implementation Examples; 10.6 Conclusion; 11 Afterword; 11.1 Tools; 11.2 Bibliography; back matter; About the Author; Index; CD-ROM License Agreement

Sommario/riassunto

Many embedded engineers and programmers who need to implement basic process or motion control as part of a product design do not have formal training or experience in control system theory. Although some projects require advanced and very sophisticated control systems expertise, the majority of embedded control problems can be solved without resorting to heavy math and complicated control theory. However, existing texts on the subject are highly mathematical and theoretical and do not offer practical examples for embedded designers. This book is different; it presents mathematical background wi
