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| Nota di contenuto | INTRODUCTION TO DIGITAL SIGNAL PROCESSING AND FILTER DESIGN; CONTENTS; Preface; 1 Introduction; 1.1 Introduction; 1.2 Applications of DSP; 1.3 Discrete-Time Signals; 1.3.1 Modeling and Properties of Discrete-Time Signals; 1.3.2 Unit Pulse Function; 1.3.3 Constant Sequence; 1.3.4 Unit Step Function; 1.3.5 Real Exponential Function; 1.3.6 Complex Exponential Function; 1.3.7 Properties of $\cos(w(0)n)$; 1.4 |

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 2.1.1 Models of the Discrete-Time System; 2.1.2 Recursive Algorithm; 2.1.3 Convolution Sum; 2.2 z Transform Theory; 2.2.1 Definition; 2.2.2 Zero Input and Zero State Response; 2.2.3 Linearity of the System; 2.2.4 Time-Invariant System; 2.3 Using z Transform to Solve Difference Equations; 2.3.1 More Applications of z Transform; 2.3.2 Natural Response and Forced Response; 2.4 Solving Difference Equations Using the Classical Method; 2.4.1 Transient Response and Steady-State Response; 2.5 z Transform Method Revisited; 2.6 Convolution Revisited
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 5 Finite Impulse Response Filters

Sommario/riassunto

A practical and accessible guide to understanding digital signal processing. Introduction to Digital Signal Processing and Filter Design was developed and fine-tuned from the author's twenty-five years of experience teaching classes in digital signal processing. Following a step-by-step approach, students and professionals quickly master the fundamental concepts and applications of discrete-time signals and systems as well as the synthesis of these systems to meet specifications in the time and frequency domains. Striking the right balance between mathematical derivations and theory, the