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Nota di contenuto	Cover; Digital Signal Processing and Applications; Contents; Preface; 1 Introduction; Background; Objectives; 1.1 The history of digital signal processing; 1.1.1 Measurements and analysis; 1.1.2 Telecommunications; 1.1.3 Audio and television; 1.1.4 Household appliances and toys; 1.1.5 Automotive; 1.2 Digital signal processing basics; 1.2.1 Continuous and discrete signals; 1.2.2 Sampling and reconstruction; 1.2.3 Quantization; 1.2.4 Processing models for discrete-time series; 1.2.4.1 Linear systems; 1.2.4.2 The difference equation model; 1.2.4.3 The state-space model; 1.2.4.4 The convolution model; 1.2.4.5 The transfer function model; 1.2.4.6 The frequency function model; 1.3 Common filters; 1.3.1 Filter architectures; 1.3.1.1 The non-recursive filter; 1.3.1.2 The recursive filter; 1.3.1.3 The lattice filter; 1.3.2 Filter synthesis; 1.3.2.1 Indirect filter synthesis; 1.3.2.2 Direct filter synthesis; 1.4 Digital control systems; 1.4.1 Proportional-integral-derivate controllers; 1.4.2 Advanced controllers; 1.4.2.2 Pole placement controller; Summary; Review questions; Solved problems; 2 The analog-digital interface; Background; Objectives 2.1 System considerations 2.1.1 Encoding and modulation; 2.1.2 Number representation and companding systems; 2.2 Digital-to-analog conversion; 2.2.1 Multiplying digital-to-analog converters;

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4.2.6.2 The Hamming net

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### Sommario/riassunto

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New sections on filter synthesis, control theory and contemporary topics of speech and image recognition  
Full solutions to all questions and exercises in the book  
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