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Altri autori (Persone)	LarminatPhilippe de
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Nota di contenuto	Analysis and Control of Linear Systems; Table of Contents; Preface; Part 1. System Analysis; Chapter 1. Transfer Functions and Spectral Models; 1.1. System representation; 1.2. Signal models; 1.2.1. Unit-step function or Heaviside step function U(t); 1.2.2. Impulse; 1.2.3. Sine-wave signal; 1.3. Characteristics of continuous systems; 1.4. Modeling of linear time-invariant systems; 1.4.1. Temporal model, convolution, impulse response and unit-step response; 1.4.2. Causality; 1.4.3. Unit-step response; 1.4.4. Stability; 1.4.5. Transfer function; 1.4.6. Causality, stability and transfer function 1.4.7. Frequency response and harmonic analysis1.5. Main models; 1.5.1. Integrator; 1.5.2. First order system; 1.5.3. Second order system; 1.6. A few reminders on Fourier and Laplace transforms; 1.6.1. Fourier transform; 1.6.2. Laplace transform; 1.6.3. Properties; 1.6.4. Laplace transforms of ordinary causal signals; 1.6.5. Ordinary Fourier transforms; 1.7. Bibliography; Chapter 2. State Space Representation; 2.1. Reminders on the systems; 2.1.1. Internal representation of determinist systems: the concept of state; 2.1.2. Equations of state and

equations of measurement for continuous systems
2.1.3. Case of linear systems2.1.4. Case of continuous and invariant linear systems; 2.2. Resolving the equation of state; 2.2.1. Free state; 2.2.2. Forced state; 2.2.3. Particular case of linear and invariant systems; 2.2.4. Calculation method of the transition matrix eA(t-t 0); 2.2.5. Application to the modeling of linear discrete systems; 2.3. Scalar representation of linear and invariant systems; 2.3.1. State passage - transfer; 2.3.2. Change of basis in the state space; 2.3.3. Transfer passage - state; 2.3.4. Scalar representation of invariant and linear discrete systems
2.4. Controllability of systems2.4.1. General definitions; 2.4.2. Controllability of linear and invariant systems; 2.4.3. Canonic representation of partially controllable systems; 2.4.4. Scalar representation of partially controllable systems; 2.5. Observability of systems; 2.5.1. General definitions; 2.5.2. Observability of linear and invariant systems; 2.5.3. Case of partially observable systems; 2.5.4. Case of partially controllable and partially observable systems; 2.6. Bibliography; Chapter 3. Discrete-Time Systems; 3.1. Introduction; 3.2. Discrete signals: analysis and manipulation
3.2.1. Representation of a discrete signal3.2.2. Delay and lead operators; 3.2.3. z-transform; 3.3. Discrete systems (DLTI); 3.3.1. External representation; 3.3.2. Internal representation; 3.3.3. Representation in terms of operator; 3.3.4. Transfer function and frequency response; 3.3.5. Time response of basic systems; 3.4. Discretization of continuous-time systems; 3.4.1. Discretization of analog signals; 3.4.2. Transfer function of the discretized system; 3.4.3. State representation of the discretized system; 3.4.4. Frequency responses of the continuous and discrete system
3.4.5. The problem of sub-sampling

Sommario/riassunto

Automation of linear systems is a fundamental and essential theory. This book deals with the theory of continuous-state automated systems.