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Nota di contenuto	Preface; Contents; Chapter 1 Complete Quadratic Lyapunov-Krasovskii Functional: Limitations, Computational Efficiency, and Convergence Keqin Gu; 1. Introduction; 2. Complete Quadratic Lyapunov-Krasovskii Functional; 3. Discretized Lyapunov Functional Method; 4. Coupled Differential-difference Equations; 5. Miscellaneous Issues; 5.1. Computational Efficiency; 5.2. Convergence Issue for Multiple Neutral Delays; 5.3. Lyapunov-Krasovskii Functionals Containing State Derivatives; 6. SOS Method; 7. Conclusions and Perspectives; References Chapter 2 Recent Approaches for the Numerical Solution of State-dependent Delay Differential Equations with Discontinuities Alfredo Bellen1. Introduction; 2. Weak Solutions; 3. Regularization Techniques; 4. Comparing Regularizations; References; Chapter 3 Engineering Applications of Time-periodic Time-delayed Systems Gabor Stepan; 1. Introduction; 2. Delayed Mathieu Equation; 3. Semi-discretization Method for Periodic DDEs; 4. Engineering Applications; 4.1. Modeling and Stability of Milling Operations; 4.2. Cutting with Varying Spindle Speed 4.3. Act-and-wait Control of Force Controlled Robots5. Conclusions;

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2.4. Combined Excitations of Harmonic Function and One Kind of above Random Processes2.4.1. Internal Resonance Only; 2.4.2. External Resonance Only; 2.4.3. Both Internal and External Resonances; 3. Stochastic Dynamics of Quasi Integrable Hamiltonian Systems with Time-delayed Feedback Control; 3.1. Response; 3.2. Stochastic Stability; 3.3. Stochastic Bifurcation; 3.4. First Passage Failure; 3.4.1. Gaussian White Noise Excitation; 4. Stochastic Optimal Control of Quasi Integrable Hamiltonian Systems with Time-delayed Feedback Control; 4.1. Response Minimization Control; 4.2. Stabilization

4.3. Minimax Optimal Bounded Control

Sommario/riassunto

Analysis and control of time-delayed systems have been applied in a wide range of applications, ranging from mechanical, control, economic, to biological systems. Over the years, there has been a steady stream of interest in time-delayed dynamic systems, this book takes a snap shot of recent research from the world leading experts in analysis and control of dynamic systems with time delay to provide a bird's eye view of its development. The topics covered in this book include solution methods, stability analysis and control of periodic dynamic systems with time delay, bifurcations, stochastic
