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Nota di contenuto	Introduction -- Linear Difference Equations -- Nonlinear Difference Equations -- Stability and Chaotic Behaviors of Difference Equations -- Control of Difference Equations -- Applications to Neural Networks and Machine Learning -- Conclusions.
Sommario/riassunto	This book presents in-depth explanations of well-known and recognized behaviors of neural networks in machine learning. In addition, the author provides novel technical analyses of behaviors of discrete-time dynamical systems modeled as difference equations. These analyses and their outcomes are closely related to models of very

well-known neural networks such as Long Short-Term Memory (LSTM) and Gated Recurrent Unit (GRU) neural networks, which are widely used in machine learning and artificial intelligence (AI) applications. The author also discusses difference equations and their relevance to neural networks, machine learning, and AI. In addition, this book: Includes characterizations of difference equations and technical prospectives of discrete-time systems Provides new insights into the dynamical behaviors of some of the most popular neural networks used in machine learning Discusses novel technical analyses of discrete-time dynamical systems modeled as difference equations.