1. Record Nr. UNINA9910484709703321

Autore	Kasabov Nikola K
Titolo	Time-Space, Spiking Neural Networks and Brain-Inspired Artificial Intelligence / / by Nikola K. Kasabov
Pubbl/distr/stampa	Berlin, Heidelberg : , : Springer Berlin Heidelberg : , : Imprint : Springer, , 2019
ISBN	3-662-57715-1
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (742 pages)
Collana	Springer Series on Bio- and Neurosystems, , 2520-8535 ; ; 7
Disciplina	005.117
Soggetti	Computational intelligence Bioinformatics Neurosciences Robotics Automation Pattern perception
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Sommario/riassunto	Spiking neural networks (SNN) are biologically inspired computational models that represent and process information internally as trains of spikes. This monograph book presents the classical theory and applications of SNN, including original author’s contribution to the area. The book introduces for the first time not only deep learning and deep knowledge representation in the human brain and in brain-inspired SNN, but takes that further to develop new types of AI systems, called in the book brain-inspired AI (BI-AI). BI-AI systems are illustrated on: cognitive brain data, including EEG, fMRI and DTI; audio-visual data; brain-computer interfaces; personalized modelling in bio-neuroinformatics; multisensory streaming data modelling in finance, environment and ecology; data compression; neuromorphic hardware implementation. Future directions, such as the integration of multiple modalities, such as quantum-, molecular- and brain information processing, is presented in the last chapter. The book is a research book for postgraduate students, researchers and practitioners across

wider areas, including computer and information sciences, engineering, applied mathematics, bio- and neurosciences.