1. Record Nr. UNINA9910974689503321

Titolo	New directions in statistical signal processing : from systems to brain / / edited by Simon Haykin ... [et al.]
Pubbl/distr/stampa	Cambridge, Mass., : MIT Press, c2007
ISBN	9786612096372 9780262292795 0262292793 9781282096370 1282096370 9780262256315 0262256312 9781429418737 1429418737
Edizione	[1st ed.]
Descrizione fisica	1 online resource (544 p.)
Collana	Neural information processing series
Altri autori (Persone)	HaykinSimon S. <1931->
Disciplina	612.8/2
Soggetti	Neural networks (Neurobiology) Neural networks (Computer science) Signal processing - Statistical methods Neural computers
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references (p. [465]-508) and index.
Nota di contenuto	Modeling the mind : from circuits to systems / Suzanna Becker -- Empirical statistics and stochastic models for visual signals / David Mumford -- ; The machine cocktail party problem / Simon Haykin, Zhe Chen -- Sensor adaptive signal processing of biological nanotubes (ion channels) at macroscopic and nano scales / Vikram Krishnamurthy -- Spin diffusion : a new perspective in magnetic resonance imaging / Timothy R. Field -- What makes a dynamical system computationally powerful? / Robert Legenstein, Wolfgang Maass -- ; A variational principle for graphical models / Martin J. Wainwright, Michael I. Jordan -- Modeling large dynamical systems with dynamical consistent neural networks / Hans-Georg Zimmermann ... [et al.] -- Diversity in

communication : from source coding to wireless networks / Suhas N. Diggavi -- Designing patterns for easy recognition : information transmission with low-density parity-check codes / Frank R. Kschischang, Masoud Ardakani -- Turbo processing / Claude Berrou, Charlotte Langlais, Fabrice Seguin -- Blind signal processing based on data geometric properties / Konstantinos Diamantaras -- Game-theoretic learning / Geoffrey J. Gordon -- Learning observable operator models via the efficient sharpening algorithm / Herbert Jaeger ... [et al.].

Sommario/riassunto

Signal processing and neural computation have separately and significantly influenced many disciplines, but the cross-fertilization of the two fields has begun only recently. Research now shows that each has much to teach the other, as we see highly sophisticated kinds of signal processing and elaborate hierachical levels of neural computation performed side by side in the brain. In New Directions in Statistical Signal Processing, leading researchers from both signal processing and neural computation present new work that aims to promote interaction between the two disciplines. The book's 14 chapters, almost evenly divided between signal processing and neural computation, begin with the brain and move on to communication, signal processing, and learning systems. They examine such topics as how computational models help us understand the brain's information processing, how an intelligent machine could solve the "cocktail party problem" with "active audition" in a noisy environment, graphical and network structure modeling approaches, uncertainty in network communications, the geometric approach to blind signal processing, game-theoretic learning algorithms, and observable operator models (OOMs) as an alternative to hidden Markov models (HMMs).