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Autore	Kolossa Antonio
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Descrizione fisica	1 online resource (XXIV, 127 p. 42 illus., 20 illus. in color.)
Disciplina	519
Soggetti	Neural networks (Computer science)
	Biomedical engineering
	Neurosciences
	Biomathematics
	Computer simulation
	Mathematical Models of Cognitive Processes and Neural Networks
	Biomedical Engineering and Bioengineering
	Physiological, Cellular and Medical Topics
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Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Basic Principles of ERP Research, Surprise, and Probability Estimation -- Introduction to Model Estimation and Selection Methods -- A New Theory of Trial-by-Trial P300 Amplitude Fluctuations -- Bayesian Inference and the Urn-Ball Task -- Summary and Outlook.
Sommario/riassunto	This authored monograph supplies empirical evidence for the Bayesian brain hypothesis by modeling event-related potentials (ERP) of the human electroencephalogram (EEG) during successive trials in cognitive tasks. The employed observer models are useful to compute probability distributions over observable events and hidden states, depending on which are present in the respective tasks. Bayesian model selection is then used to choose the model which best explains the ERP amplitude fluctuations. Thus, this book constitutes a decisive step towards a better understanding of the neural coding and computing of probabilities following Bayesian rules. The target audience primarily

comprises research experts in the field of computational neurosciences, but the book may also be beneficial for graduate students who want to specialize in this field. .