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	Titolo	Machine Learning and Interpretation in Neuroimaging [[electronic resource]] : International Workshop, MLINI 2011, Held at NIPS 2011, Sierra Nevada, Spain, December 16-17, 2011, Revised Selected and Invited Contributions / / edited by Georg Langs, Irina Rish, Moritz Grosse-Wentrup, Brian Murphy
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	Disciplina	006.3/1
	Soggetti	Optical data processing Pattern recognition Data mining Mathematical statistics Application software Computer Imaging, Vision, Pattern Recognition and Graphics Pattern Recognition Data Mining and Knowledge Discovery Probability and Statistics in Computer Science Image Processing and Computer Vision Computer Applications
	Lingua di pubblicazione	Inglese
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	Livello bibliografico	Monografia
	Note generali	Bibliographic Level Mode of Issuance: Monograph
	Nota di bibliografia	Includes bibliographical references and author index.
	Nota di contenuto	A Comparative Study of Algorithms for Intra- and Inter-subjects fMRI Decoding -- Beyond Brain Reading: Randomized Sparsity and Clustering to Simultaneously Predict and Identify -- Searchlight Based Feature Extraction -- Looking Outside the Searchlight -- Population Codes Representing Musical Timbre for High-Level fMRI Categorization of Music Genres -- Induction in Neuroscience with Classification: Issues and Solutions -- A New Feature Selection Method Based on Stability Theory – Exploring Parameters Space to Evaluate Classification Accuracy in Neuroimaging Data -- Identification of OCD-Relevant Brain Areas

through Multivariate Feature Selection -- Deformation-Invariant Sparse Coding for Modeling Spatial Variability of Functional Patterns in the Brain -- Decoding Complex Cognitive States Online by Manifold Regularization in Real-Time fMRI -- Modality Neutral Techniques for Brain Image Understanding -- How Does the Brain Represent Visual Scenes? A Neuromagnetic Scene Categorization Study -- Finding Consistencies in MEG Responses to Repeated Natural Speech -- Categorized EEG Neurofeedback Performance Unveils Simultaneous fMRI Deep Brain Activation -- Predicting Clinically Definite Multiple Sclerosis from Onset Using SVM -- MKL-Based Sample Enrichment and Customized Outcomes Enable Smaller AD Clinical Trials -- Pairwise Analysis for Longitudinal fMRI Studies -- Non-separable Spatiotemporal Brain Hemodynamics Contain Neural Information -- The Dynamic Beamformer -- Covert Attention as a Paradigm for Subject-Independent Brain-Computer Interfacing -- The Neural Dynamics of Visual Processing in Monkey Extrastriate Cortex: A Comparison between Univariate and Multivariate Techniques -- Statistical Learning for Resting-State fMRI: Successes and Challenges -- Relating Brain Functional Connectivity to Anatomical Connections: Model Selection -- Information-Theoretic Connectivity-Based Cortex Parcellation -- Inferring Brain Networks through Graphical Models with Hidden Variables -- Pitfalls in EEG-Based Brain Effective Connectivity Analysis -- Data-Driven Modeling of BOLD Drug Response Curves Using Gaussian Process Learning -- Variational Bayesian Learning of Sparse Representations and Its Application in Functional Neuroimaging -- Identification of Functional Clusters in the Striatum Using Infinite Relational Modeling -- A Latent Feature Analysis of the Neural Representation of Conceptual Knowledge -- Real-Time Functional MRI Classification of Brain States Using Markov-SVM Hybrid Models: Peering Inside the rt-fMRI Black Box -- Restoring the Generalizability of SVM Based Decoding in High Dimensional Neuroimage Data.

Sommario/riassunto	Brain imaging brings together the technology, methodology, research questions and approaches of a wide range of scientific fields including physics, statistics, computer science, neuroscience, biology, and engineering. Thus, methodological and technological advances that enable us to obtain measurements, examine relationships across observations, and link these data to neuroscientific hypotheses happen in a highly interdisciplinary environment. The dynamic field of machine learning with its modern approach to data mining provides many relevant approaches for neuroscience and enables the exploration of open questions. This state-of-the-art survey offers a collection of papers from the Workshop on Machine Learning and Interpretation in Neuroimaging, MLINI 2011, held at the 25th Annual Conference on Neural Information Processing, NIPS 2011, in the Sierra Nevada, Spain, in December 2011. Additionally, invited speakers agreed to contribute reviews on various aspects of the field, adding breadth and perspective to the volume. The 32 revised papers were carefully selected from 48 submissions. At the interface between machine learning and neuroimaging the papers aim at shedding some light on the state of the art in this interdisciplinary field. They are organized in topical sections on coding and decoding, neuroscience, dynamcis, connectivity, and probabilistic models and machine learning.