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Nota di contenuto	Segmentation -- A Bayesian Neural Net to Segment Images with Uncertainty Estimates and Good Calibration -- Explicit Topological Priors for Deep-Learning Based Image Segmentation Using Persistent Homology -- Semi-Supervised and Task-Driven Data Augmentation -- Classification and Inference -- Analyzing Brain Morphology on the Bag-

of-Features Manifold -- Modeling and Inference of Spatio-Temporal Protein Dynamics Across Brain Networks -- Deep Learning -- InceptionGCN: Receptive Field Aware Graph Convolutional Network for Disease Prediction -- Adaptive Graph Convolution Pooling for Brain Surface Analysis -- On Training Deep 3D CNN Models with Dependent Samples in Neuroimaging -- A Deep Neural Network for Manifold-Valued Data with Applications to Neuroimaging -- Improved Disease Classification in Chest X-rays with Transferred Features from Report Generation -- Reconstruction -- Limited Angle Tomography Reconstruction: Synthetic Reconstruction via Unsupervised Sinogram Adaptation -- Improving Generalization of Deep Networks for Inverse Reconstruction of Image Sequences -- Disease Modeling -- Event-Based Modeling with High-Dimensional Imaging Biomarkers for Estimating Spatial Progression of Dementia -- Shape -- Minimizing Non-Holonomicity: Finding Sheets in Fibrous Structures -- Learning Low-Dimensional Representations of Shape Data Sets with Diffeomorphic Autoencoders -- Diffeomorphic Medial Modeling -- Controlling Meshes via Curvature: Spin Transformations for Pose-Invariant Shape Processing -- Registration -- Local Optimal Transport for Functional Brain Template Estimation -- Unsupervised Deformable Registration for Multi-Modal Images via Disentangled Representations -- Learning Motion -- Real-Time 2D-3D Deformable Registration with Deep Learning and Application to Lung Radiotherapy Targeting -- Deep Modeling of Growth Trajectories for Longitudinal Prediction of Missing Infant Cortical Surfaces -- Functional Imaging -- Integrating Convolutional Neural Networks and Probabilistic Graphical Modeling for Epileptic Seizure Detection in Multichannel EEG -- A Novel Sparse Overlapping Modularized Gaussian Graphical Model for Functional Connectivity Estimation -- White Matter Imaging -- Asymmetry Spectrum Imaging for Baby Diffusion Tractography -- A Fast Fiber k-Nearest-Neighbor Algorithm with Application to Group-Wise White Matter Topography Analysis -- Posters -- 3D Organ Shape Reconstruction from Topogram Images -- A Cross-Center Smoothness Prior for Variational Bayesian Brain Tissue Segmentation -- A Graph Model of the Lungs with MorphologyBased Structure for Tuberculosis Type Classification -- A Longitudinal Model for Tau Aggregation in Alzheimers Disease Based on Structural Connectivity -- Accurate Nuclear Segmentation with Center Vector Encoding -- Bayesian Longitudinal Modeling of Early Stage Parkinsons Disease Using DaTscan Images -- Brain Tumor Segmentation on MRI with Missing Modalities -- Contextual Fibre Growth to Generate Realistic Axonal Packing for Diffusion MRI Simulation -- DeepCenterline: a Multi-task Fully Convolutional Network for Centerline Extraction -- ECKO: Ensemble of Clustered Knockoffs for Robust Multivariate Inference on fMRI Data -- FastReg: Fast Non-Rigid Registration via Accelerated Optimisation on the Manifold of Diffeomorphisms -- Graph Convolutional Nets for Tool Presence Detection in Surgical Videos -- High-Order Oriented Cylindrical Flux for Curvilinear Structure Detection and Vessel Segmentation -- Joint CS-MRI Reconstruction and Segmentation with a Unified Deep Network -- Learning a Conditional Generative Model for Anatomical Shape Analysis -- Manifold Exploring Data Augmentation with Geometric Transformations for Increased Performance and Robustness -- Multifold Acceleration of Diffusion MRI via Deep Learning Reconstruction from Slice-Undersampled Data -- Riemannian Geometry Learning for Disease Progression Modelling -- Semi-Supervised Brain Lesion Segmentation with an Adapted Mean Teacher Model -- Shrinkage Estimation on the Manifold of Symmetric Positive-Definite Matrices with Applications to Neuroimaging -- Simultaneous

Spatial-temporal Decomposition of Connectome-Scale Brain Networks by Deep Sparse Recurrent Auto-Encoders -- Ultrasound Image Representation Learning by Modeling Sonographer Visual Attention -- A Coupled Manifold Optimization Framework to Jointly Model the Functional Connectomics and Behavioral Data Spaces -- A Geometric Framework for Feature Mappings in Multimodal Fusion of Brain Image Data -- A Hierarchical Manifold Learning Framework for High-Dimensional Neuroimaging Data -- A Model for Elastic Evolution on Foliated Shapes -- Analyzing Mild Cognitive Impairment Progression via Multi-view Structural Learning -- New Graph-Blind Convolutional Network for Brain Connectome Data Analysis -- CIA-Net: Robust Nuclei Instance Segmentation with Contour-Aware Information Aggregation -- Data-Driven Model Order Reduction For Diffeomorphic Image Registration -- DGR-Net: Deep Groupwise Registration of Multispectral Images -- Efficient Interpretation of Deep Learning Models Using Graph Structure and Cooperative Game Theory: Application to ASD Biomarker Discovery -- Generalizations of Ripleys K-Function with Application to Space Curves -- Group Level MEG/EEG Source Imaging via Optimal Transport: Minimum Wasserstein Estimates -- InSpect: INtegrated SPECTral Component Estimation and Mapping for Multi-Contrast Microstructural MRI -- Joint Inference on Structural and Diffusion MRI for Sequence-Adaptive Bayesian Segmentation of Thalamic Nuclei with Probabilistic Atlases -- Learning-Based Optimization of the Under-Sampling Pattern in MRI -- Melanoma Recognition via Visual Attention -- Nonlinear Markov Random Fields Learned via Backpropagation -- Robust Biophysical Parameter Estimation with a Neural Network Enhanced Hamiltonian Markov Chain Monte Carlo Sampler -- SHAMANN: Shared Memory Augmented Neural Networks -- Signet Ring Cell Detection With a Semi-supervised Learning Framework -- Spherical U-Net on Cortical Surfaces: Methods and Applications -- Variational Autoencoder with Truncated Mixture of Gaussians for Functional Connectivity Analysis.

Sommario/riassunto

This book constitutes the proceedings of the 26th International Conference on Information Processing in Medical Imaging, IPMI 2019, held at the Hong Kong University of Science and Technology, Hong Kong, China, in June 2019. The 69 full papers presented in this volume were carefully reviewed and selected from 229 submissions. They were organized in topical sections on deep learning and segmentation; classification and inference; reconstruction; disease modeling; shape, registration; learning motion; functional imaging; and white matter imaging. The book also includes a number of post papers. .