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Nota di contenuto	Image Segmentation -- Searching Learning Strategy with Reinforcement Learning for 3D Medical Image Segmentation -- Comparative Evaluation of Hand-Engineered and Deep-Learned Features for Neonatal Hip Bone Segmentation in Ultrasound -- Unsupervised Quality Control of Image Segmentation based on Bayesian Learning -- One Network To Segment Them All: A General, Lightweight System for Accurate 3D Medical Image Segmentation -- 'Project & Excite' Modules for Segmentation of Volumetric Medical Scans -- Assessing Reliability and Challenges of Uncertainty Estimations for Medical Image

Segmentation -- Learning Cross-Modal Deep Representations for Multi-Modal MR Image Segmentation -- Extreme Points Derived Confidence Map as a Cue For Class-Agnostic Segmentation Using Deep Neural Network -- Hetero-Modal Variational Encoder-Decoder for Joint Modality Completion and Segmentation -- Instance Segmentation from Volumetric Biomedical Images without Voxel-Wise Labeling -- Optimizing the Dice Score and Jaccard Index for Medical Image Segmentation: Theory & Practice -- Dual Adaptive Pyramid Network for Cross-Stain Histopathology Image Segmentation -- HD-Net: Hybrid Discriminative Network for Prostate Segmentation in MR Images -- PHiSeg: Capturing Uncertainty in Medical Image Segmentation -- Neural Style Transfer Improves 3D Cardiovascular MR Image Segmentation on Inconsistent Data -- Supervised Uncertainty Quantification for Segmentation with Multiple Annotations -- 3D Tiled Convolution for Effective Segmentation of Volumetric Medical Images -- Hyper-Pairing Network for Multi-Phase Pancreatic Ductal Adenocarcinoma Segmentation -- Statistical intensity- and shape-modeling to automate cerebrovascular segmentation from TOF-MRA data -- Segmentation of Vessels in Ultra High Frequency Ultrasound Sequences using Contextual Memory -- Accurate Esophageal Gross Tumor Volume Segmentation in PET/CT using Two-Stream Chained 3D Deep Network Fusion -- Mixed-Supervised Dual-Network for Medical Image Segmentation -- Fully Automated Pancreas Segmentation with Two-stage 3D Convolutional Neural Networks -- Globally Guided Progressive Fusion Network for 3D Pancreas Segmentation -- Automatic Segmentation of Muscle Tissue and Inter-muscular Fat in Thigh and Calf MRI Images -- Resource Optimized Neural Architecture Search for 3D Medical Image Segmentation -- Radiomics-guided GAN for Segmentation of Liver Tumor without Contrast Agents -- Liver Segmentation in Magnetic Resonance Imaging via Mean Shape Fitting with Fully Convolutional Neural Networks -- Unsupervised Domain Adaptation via Disentangled Representations: Application to Cross-Modality Liver Segmentation -- Automatic Segmentation of Vestibular Schwannoma from T2-Weighted MRI by Deep Spatial Attention with Hardness-Weighted Loss -- Learning Shape Representation on Sparse Point Clouds for Volumetric Image Segmentation -- Collaborative Multi-agent Learning for MR Knee Articular Cartilage Segmentation -- 3D U2-Net: A 3D Universal U-Net for Multi-Domain Medical Image Segmentation -- Impact of Adversarial Examples on Deep Learning Segmentation Models -- Multi-Resolution Path CNN with Deep Supervision for Intervertebral Disc Localization and Segmentation -- Automatic paraspinal muscle segmentation in patients with lumbar pathology using deep convolutional neural network -- Constrained Domain Adaptation for Segmentation -- Image Registration -- Image-and-Spatial Transformer Networks for Structure-Guided Image Registration -- Probabilistic Multilayer Regularization Network for Unsupervised 3D Brain Image Registration -- A deep learning approach to MR-less spatial normalization for tau PET images -- TopAwaRe: Topology-Aware Registration -- Multimodal Data Registration for Brain Structural Association Networks -- Dual-Stream Pyramid Registration Network -- A Cooperative Autoencoder for Population-Based Regularization of CNN Image Registration -- Conditional Segmentation in Lieu of Image Registration -- On the applicability of registration uncertainty -- DeepAtlas: Joint Semi-Supervised Learning of Image Registration and Segmentation -- Linear Time Invariant Model based Motion Correction (LiMo-Moco) of Dynamic Radial Contrast Enhanced MRI -- Incompressible image registration using divergence-conforming B-splines -- Cardiovascular Imaging -- Direct Quantification for

Coronary Artery Stenosis Using Multiview Learning -- Bayesian Optimization on Large Graphs via a Graph Convolutional Generative Model: Application in Cardiac Model Personalization -- Discriminative Coronary Artery Tracking via 3D CNN in Cardiac CT Angiography -- Multi-modality Whole-Heart and Great Vessel Segmentation in Congenital Heart Disease using Deep Neural Networks and Graph Matching -- Harmonic Balance Techniques in Cardiovascular Fluid Mechanics -- Deep learning within a priori temporal feature spaces for large-scale dynamic MR image reconstruction: Application to 5-D cardiac MR Multitasking -- k-t NEXT: Dynamic MR Image Reconstruction Exploiting Spatio-temporal Correlations -- Model-based reconstruction for highly accelerated first-pass perfusion cardiac MRI -- Learning Shape Priors for Robust Cardiac MR Segmentation from Multi-view images -- Right Ventricle Segmentation in Short-Axis MRI Using A Shape Constrained Dense Connected U-net -- Self-Supervised Learning for Cardiac MR Image Segmentation by Anatomical Position Prediction -- A Fine-Grain Error Map Prediction and Segmentation Quality Assessment Framework for Whole-Heart Segmentation -- Cardiac Segmentation from LGE MRI Using Deep Neural Network Incorporating Shape and Spatial Priors -- Curriculum semi-supervised segmentation -- A Multi-modal Network for Cardiomyopathy Death Risk Prediction with CMR Images and Clinical Information -- 3D Cardiac Shape Prediction with Deep Neural Networks: Simultaneous Use of Images and Patient Metadata -- Discriminative Consistent Domain Generation for Semi-supervised Learning -- Uncertainty-aware Self-ensembling Model for Semi-supervised 3D Left Atrium Segmentation -- MSU-Net: Multiscale Statistical U-Net for Real-time 3D Cardiac MRI Video Segmentation -- The Domain Shift Problem of Medical Image Segmentation and Vendor-Adaptation by Unet-GAN -- Cardiac MRI Segmentation with Strong Anatomical Guarantees -- Decompose-and-Integrate Learning for Multi-class Segmentation in Medical Images -- Missing Slice Imputation in Population CMR Imaging via Conditional Generative Adversarial Nets -- Unsupervised Standard Plane Synthesis in Population Cine MRI via Cycle-Consistent Adversarial Networks -- Data Efficient Unsupervised Domain Adaptation for Cross-Modality Image Segmentation -- Recurrent Aggregation Learning for Multi-View Echocardiographic Sequences Segmentation -- Echocardiography View Classification Using Quality Transfer Star Generative Adversarial Networks -- Dual-view Joint Estimation of Left Ventricular Ejection Fraction with Uncertainty Modelling in Echocardiograms -- Frame Rate Up-Conversion in Echocardiography Using a Conditioned Variational Autoencoder and Generative Adversarial Model -- Annotation-Free Cardiac Vessel Segmentation via Knowledge Transfer from Retinal Images -- DeepAAA: clinically applicable and generalizable detection of abdominal aortic aneurysm using deep learning -- Texture-based classification of significant stenosis in CCTA multi-view images of coronary arteries -- Fourier Spectral Dynamic Data Assimilation: Interlacing CFD with 4D flow MRI -- Quality Control-Driven Image Segmentation Towards Reliable Automatic Image Analysis in Large-Scale Cardiovascular Magnetic Resonance Aortic Cine Imaging -- HFA-Net: 3D Cardiovascular Image Segmentation with Asymmetrical Pooling and Content-Aware Fusion -- Spectral CT based training dataset generation and augmentation for conventional CT vascular segmentation -- Context-Aware Inductive Bias Learning for Vessel Border Detection in Multi-modal Intracoronary Imaging -- Growth, Development, Atrophy and Progression -- Neural parameters estimation for brain tumor growth modeling -- Learning-Guided Infinite Network Atlas Selection for Predicting Longitudinal Brain

Network Evolution from a Single Observation -- Deep Probabilistic Modeling of Glioma Growth -- Surface-Volume Consistent Construction of Longitudinal Atlases for the Early Developing Brains -- Variational Autoencoder for Regression: Application to Brain Aging Analysis -- Early Development of Infant Brain Complex Network -- Revealing Developmental Regionalization of Infant Cerebral Cortex Based on Multiple Cortical Properties -- Continually Modeling Alzheimer's Disease Progression via Deep Multi-Order Preserving Weight Consolidation -- Disease Knowledge Transfer across Neurodegenerative Diseases.

Sommario/riassunto

The six-volume set LNCS 11764, 11765, 11766, 11767, 11768, and 11769 constitutes the refereed proceedings of the 22nd International Conference on Medical Image Computing and Computer-Assisted Intervention, MICCAI 2019, held in Shenzhen, China, in October 2019. The 539 revised full papers presented were carefully reviewed and selected from 1730 submissions in a double-blind review process. The papers are organized in the following topical sections: Part I: optical imaging; endoscopy; microscopy. Part II: image segmentation; image registration; cardiovascular imaging; growth, development, atrophy and progression. Part III: neuroimage reconstruction and synthesis; neuroimage segmentation; diffusion weighted magnetic resonance imaging; functional neuroimaging (fMRI); miscellaneous neuroimaging. Part IV: shape; prediction; detection and localization; machine learning; computer-aided diagnosis; image reconstruction and synthesis. Part V: computer assisted interventions; MIC meets CAI. Part VI: computed tomography; X-ray imaging.