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Nota di contenuto   Regularization -- New Vector Field Regularization Techniques for Nonrigid Image Registration -- Free-Form Registration Using Mutual Information and Curvature Regularization -- Formulation and Evaluation of Variational Curve Matching with Prior Constraints -- Novel -- Normalized Mutual Information Based PET-MR Registration Using K-Means Clustering and Shading Correction -- Computational Anatomy and Implicit Object Representation: A Level Set Approach -- Constructing Data-Driven Optimal Representations for Iterative Pairwise Non-rigid Registration -- Brain -- Non-rigid Registration of Serial

Intra-operative Images for Automatic Brain Shift Estimation -- Inverse Consistent Image Registration of MR Brain Scans: Handedness in Normal Adult Males -- Simultaneous Population Based Image Alignment for Template Free Spatial Normalisation of Brain Anatomy -- Piecewise Affine -- Piecewise Affine Registration of Biological Images -- Elastic Registration with Partial Data -- Information Theoretic -- Point Similarity Measure Based on Mutual Information -- An Information Theoretic Approach for Non-rigid Image Registration Using Voxel Class Probabilities -- Spatial Information in Entropy-Based Image Registration -- Interventional -- Computerized Atlas-Guided Positioning of Deep Brain Stimulators: A Feasibility Study -- Evaluation of Intensity-Based 2D-3D Spine Image Registration Using Clinical Gold-Standard Data -- Correction of C-Arm Projection Matrices by 3D-2D Rigid Registration of CT-Images Using Mutual Information -- Applications -- Image Registration for Distortion Correction in Diffusion Tensor Imaging -- Rigid Registration of Echoplanar and Conventional Magnetic Resonance Images by Minimizing the Kullback-Leibler Distance -- Non-rigid Spatio-Temporal Alignment of 4D Cardiac MR Images -- Invited Papers -- Digital Anatomy Atlas and Its Registration to MRI, fMRI, PET: The Past Presents a Future -- 2D-3D Registration for Interventional Procedures: A Clinical Perspective -- Posters -- A Comprehensive Approach for Multi-channel Image Registration -- Free Form Deformations Guided by Gradient Vector Flow: A Surface Registration Method in Thoracic and Abdominal PET-CT Applications -- High-Dimensional Multi-modal Image Registration -- A New Technique for Multi-modal 3D Image Registration -- Multimodal Registration Using Patch Algorithm -- FLIRT: A Flexible Image Registration Toolbox -- Narrow Band to Image Registration in the Insight Toolkit -- Non-rigid Registration of Mammograms Obtained with Variable Breast Compression: A Phantom Study -- An Alternating-Constraints Algorithm for Volume-Preserving Non-rigid Registration of Contrast-Enhanced MR Breast Images -- Efficient 3D-3D Vascular Registration Based on Multiple Orthogonal 2D Projections -- Semi-automatic Image Registration of MRI to CT Data of the Prostate Using Gold Markers as Fiducials -- Image Registration for Interventional MRI Guided Procedures: Interpolation Methods, Similarity Measurements, and Applications to the Prostate -- A Protocol for Optimization-Independent Similarity Measure Evaluation -- Medial Node Correspondences towards Automated Registration -- Mouse Brain Spatial Normalization: The Challenge of Sparse Data -- Towards Physically-Sound Registration Using Object-Specific Properties for Regularization -- Characterizing Shape Differences between Phantom Image Populations via Multivariate Statistical Analysis of Inverse Consistent Transformations -- A Gradient-Informed Robust Motion Correction Method for FMRI -- Clinical Applications from Head to Toe Using a Semiautomatic 3D Inter/Intramodality Fusion Technique -- A Parallel Implementation of Non-rigid Registration Using a Volumetric Biomechanical Model.

Sommario/riassunto — The 2nd International Workshop on Biomedical Image Registration (WBIR) was held June 23–24, 2003, at the University of Pennsylvania, Philadelphia. Following the success of the ?rst workshop in Bled, Slovenia, this meeting aimed to once again bring together leading researchers in the area of biomedical image registration to present and discuss recent developments in the ?eld. Thetheory, implementationandapplicationofimageregistrationinmedicine have become major themes in nearly every scienti?c forum dedicated to image processingandanalysis. Thisintenseinterestre?ectsthe?eld'simportantrolein

theconductofabroadandcontinuallygrowingrangeofstudies. Indeed, thete- niques have enabled some of the most exciting contemporary developments in the clinical and research application of medical imaging, including fusion of m- timodality data to assist clinical interpretation; change detection in longitudinal studies; brain shift modeling to improve anatomic localization in neurosurgical procedures; cardiac motion quanti?cation; construction of probabilistic atlases of organ structure and function; and large-scale phenotyping in animal models. WBIR was conceived to provide the burgeoning community of investigators in biomedical image registration an opportunity to share, discuss and stimulate developments in registration research and application at a meeting exclusively devoted to the topic. The format of this year's workshop consisted of invited talks, author presentations and ample opportunities for discussion, the latter including an elegant reception and dinner hosted at the Mutter ¨ Museum. A representation of the best work in the ?eld, selected by peer review from full manuscripts,waspresentedinsingle-tracksessions. Thepapers,whichaddressed the full diversity of registration topics, are reproduced in this volume, along with enlightening essays by some of the invited speakers.