2011 IEEE International Symposium on Biomedical Imaging: From Nano to Macro

(ISBI 2011)

Chicago, Illinois, USA
30 March – 2 April 2011

Pages 1-718

IEEE Catalog Number: CFP11BIS-PRT
ISBN: 978-1-4244-4127-3

Table of Contents

WE-PS1a: ULTRASOUND IMAGING

WE-PS1a.1: BLIND DECONVOLUTION OF MEDICAL ULTRASOUND IMAGES USING VARIABLE SPLITTING AND PROXIMAL POINT METHODS 1
Sudipto Dolui, Oleg Michailovich, University of Waterloo, Canada

WE-PS1a.2: QUALITY CONTROL OF FETAL ULTRASOUND IMAGES: DETECTION OF ABDOMEN ANATOMICAL LANDMARKS USING ADABOOST 6
Bahbibi Rahmatullah, Ippokratis Sarris, Aris Papageorghiou, J. Alison Noble, University of Oxford, United Kingdom

WE-PS1a.3: SELECTION OF OPTIMAL TEXTURE DESCRIPTORS FOR RETRIEVING ULTRASOUND MEDICAL IMAGES 10
Abu Sayeed Md. Sohail, Concordia University, Canada; Prabir Bhattacharya, University of Cincinnati, United States; Sudhir P. Mudur, Concordia University, Canada; Srinivasan Krishnamurthy, Royal Victoria Hospital, Canada

WE-PS1a.4: GPU ACCELERATED HIGH INTENSITY ULTRASOUND ACOUSTICAL POWER COMPUTATION 17
Tingting Gu, Hui Tang, Xudong Bao, Southeast University, China; Jean-Louis Dillenseger, Université de Rennes 1, France

WE-PS1a.5: ENHANCED ULTRASOUND IMAGING RESOLUTION WITH 3D OPTICAL PATCH IMAGERY 21
Dan Wang, Andrew Casper, University of Minnesota, United States; Ahmed H. Tewfik, The University of Texas at Austin, United States; Emad Ebbini, University of Minnesota, United States

WE-PS1a.6: RECURSIVE ULTRASONIC TOMOGRAPHIC IMAGING USING PROPAGATION AND BACK-PROPAGATION METHOD 25
Yuanwei Jin, Chengdong Dong, University of Maryland, Eastern Shore, United States; Enyue Lu, Salisbury University, United States

WE-PS1a.7: CHIRP CODING FOR ULTRASOUND IMAGING OF POLYMER-SHELLED MICROBUBBLES 29
Claudia Sciallero, Andrea Trucco, University of Genoa, Italy

WE-PS1a.8: SPATIAL STATISTICS BASED FEATURE DESCRIPTOR FOR RF ULTRASOUND DATA 33
Tassilo Klein, Technische Universität München, Germany; Mattias Hansson, Malmö University, Sweden; Nassir Navab, Technische Universität München, Germany

WE-PS1a.9: COUPLED LEVEL SET APPROACH TO SEGMENT CAROTID ARTERIES FROM 3D ULTRASOUND IMAGES 37
Eranga Ukwatta, Joseph Awad, Aaron Ward, Dan Buchanan, Grace Parraga, Aaron Fenster, Robarts Research Institute, The University of Western Ontario, Canada

WE-PS1a.10: EVALUATION OF SEMIAUTOMATED QUANTIFICATION OF CRANIAL ULTRASOUND IMAGES IN NEWBORNS AS A PREDICTOR OF NEONATAL BEHAVIORAL ASSESSMENT SCALE 41
Elisenda Bonet-Carne, Transmural Biotech S.L., Spain; Violeta Tenorio, Francesc Figueras, Eduard Gratacos, Institut Clinic de Ginecologia, Obstetricia i Neonatologia, Hospital Clinic de Barcelona - Universitat de Barcelona, Spain; Ivan Amat-Roldan, Hospital Clinic de Barcelona - Institut d'Investigacions Biomèdiques August Pi i Sunyer (IDIBAPS), Spain

WE-PS1a.11: AN ALGORITHM FOR EFFICIENT COMPUTATION OF SPATIAL IMPULSE RESPONSE ON THE GPU WITH APPLICATION IN ULTRASOUND SIMULATION 45
Ramtin Shams, The Australian National University, Australia; Florian Luna, Grenoble INP- ENSIMAG, France; Richard Hartley, The Australian National University, Australia

WE-PS1b: IMAGE RECONSTRUCTION

WE-PS1b.1: DISTORTION-OPTIMAL SELF-CALIBRATING PARALLEL MRI BY BLIND INTERPOLATION IN SUBSAMPLED FILTER BANKS 52
Behzad Sharif, Cedars-Sinai Medical Center, United States; Yoram Bresler, University of Illinois, Urbana-Champaign, United States

WE-PS1b.2: REGULARIZED IMAGE RECONSTRUCTION FOR PS MODEL-BASED CARDIOVASCULAR MRI 57
Anthony G. Christodoulou, Bo Zhao, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

WE-PS1b.3: MAGNETIC RESONANCE IMAGE RECONSTRUCTION USING THE ANNIHILATING FILTER METHOD 61
Samuel Deslauriers-Gauthier, Pina Marziliano, Nanyang Technological University, Singapore

WE-PS1b.4: UNIFIED RECONSTRUCTION AND MOTION ESTIMATION IN CARDIAC PERFUSION MRI 65
Sajan Goud Lingala, University of Rochester, United States; Mariappan Nadar, Christophe Chefd'hotel, Li Zhang, Siemens Corporate Research, United States; Mathews Jacob, University of Rochester, United States

WE-PS1b.5: IMPATIENT MRI: ILLINOIS MASSIVELY PARALLEL ACCELERATION TOOLKIT FOR IMAGE RECONSTRUCTION WITH ENHANCED THROUGHPUT IN MRI 69
Xiao-Long Wu, Jiading Gai, Fan Lam, Maojing Fu, Justin Haldar, Yue Zhuo, Zhi-Pei Liang, Wen-Mei Hwu, Bradley Sutton, University of Illinois, Urbana-Champaign, United States

WE-PS1b.6: MOTION COMPENSATION FOR REFERENCE-CONSTRAINED IMAGE RECONSTRUCTION FROM LIMITED DATA 73
Fan Lam, Justin Haldar, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

WE-PS1c: SPARSE IMAGE RECONSTRUCTION

WE-PS1c.1: STRATEGIES FOR UNDERSAMPLING AND RECONSTRUCTING MR DTI DATA 77
Christopher Welsh, Edward Hsu, Edward V. R. DiBella, University of Utah, United States

WE-PS1c.2: COMPRESSIVE SENSING MRI WITH LAPLACIAN SPARSIFYING TRANSFORM 81
Ying Dong, Jim Ji, Texas A&M University, United States

WE-PS1c.3: FAST IMAGE ACQUISITION IN MAGNETIC RESONANCE IMAGING BY CHAOTIC COMPRESSED SENSING 85
Dinh Van Phong, Nguyen Linh-Trung, Tran Duc Tan, Ha Vu Le, Vietnam National University Hanoi, Viet Nam; Minh N. Do, University of Illinois, Urbana-Champaign, United States

WE-PS1c.4: REFERENCE-DRIVEN MR IMAGE RECONSTRUCTION WITH SPARSITY AND SUPPORT CONSTRAINTS 89
Xi Peng, Hui-Qian Du, Fan Lam, S. Derin Babacan, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

WE-PS1c.5: A SPARSE RECONSTRUCTION ALGORITHM FOR PARALLEL SPIRAL MR SPECTROSCOPIC IMAGING 93
Ramin Eslami, Mathews Jacob, University of Rochester, United States

WE-PS1c.6: UNDERSAMPLED FREE BREATHING CARDIAC PERFUSION MRI RECONSTRUCTION WITHOUT MOTION ESTIMATION 97
Ganesh Adluru, Liyong Chen, Edward V. R. DiBella, University of Utah, United States

WE-PS1c.7: COMPRESSED SENSING BASED INTENSITY NON-UNIFORMITY CORRECTION 101
Snehashis Roy, Aaron Carass, Jerry Prince, The Johns Hopkins University, United States

WE-PS1c.8: COMPARISON OF RECONSTRUCTION ALGORITHMS IN COMPRESSED SENSING APPLIED TO BIOLOGICAL IMAGING 105
Yoann Le Montagner, Institut Pasteur / Institut Télécom, France; Elsa D. Angelini, Institut Télécom, France; Jean-Christophe Olivo-Marin, Institut Pasteur, France

WE-PS2a: CLASSIFICATION IN CANCER IMAGING

WE-PS2a.1: EVALUATING SAMPLING STRATEGIES OF DERMOSCOPIC INTEREST POINTS 109
Ning Situ, Tarun Wadhawan, Rui Hu, Keith Lancaster, Xiaojing Yuan, George Zouridakis, University of Houston, United States

WE-PS2a.2: FUSING MICROWAVE RADAR AND MICROWAVE-INDUCED THERMOACOUSTICS FOR BREAST CANCER DETECTION 113
Evgeny Kirshin, Borislav Oreshkin, Guangran Zhu, Milica Popovich, Mark Coates, McGill University, Canada

WE-PS2a.3: GABOR TEXTONS FOR CLASSIFICATION OF GASTROENTEROLOGY IMAGES 117
Farhan Riaz, Faculty of Computer Science, University of Porto, Portugal; Miguel Areia, Portuguese Institute of Oncology, Coimbra, Portugal; Francisco Baldaque, Karolinska Universitessjukhuse, Sweden, Portugal; Mario Dinis Ribeiro, Pedro Pimentel Nunes, Portuguese Institute of Oncology, Porto, Portugal; Miguel Coimbra, Faculty of Computer Science, University of Porto, Portugal

WE-PS2a.4: COLON FOLD CONTOUR ESTIMATION FOR 3D VISUALIZATION OF COLON STRUCTURE FROM 2D COLONOSCOPY IMAGES 121
DongHo Hong, Wallapak Tavanapong, Johnny Wong, Iowa State University, United States; JungHwan Oh, University of Northern Texas, United States; Piet de Groen, Mayo Clinic, United States

WE-PS2a.5: A BOOSTED CLASSIFIER FOR INTEGRATING MULTIPLE FIELDS OF VIEW: BREAST CANCER GRADING IN HISTOPATHOLOGY 125
Ajay Basavanhally, Rutgers University, United States; Shridar Ganesan, The Cancer Institute of New Jersey, United States; Natalie Shih, Carolyn Mies, Michael Feldman, John Tomaszewski, Hospital of the University of Pennsylvania, United States; Anant Madabhushi, Rutgers University, United States

WE-PS2a.6: CHARACTERIZING MORPHOLOGY DIFFERENCES FROM IMAGE DATA USING A MODIFIED FISHER CRITERION 129
Wei Wang, Yilin Mo, Carnegie Mellon University, United States; John A. Ozolek, Children's Hospital of Pittsburgh, United States; Gustavo Kunde Rohde, Carnegie Mellon University, United States

WE-PS2a.7: SKINSCAN: A PORTABLE LIBRARY FOR MELANOMA DETECTION ON HANDHELD DEVICES 133
Tarun Wadhawan, Ning Situ, Keith Lancaster, Xiaojing Yuan, George Zouridakis, University of Houston, United States

WE-PS2a.8: A NOVEL SHAPE-BASED DIAGNOSTIC APPROACH FOR EARLY DIAGNOSIS OF LUNG NODULES 137
Ayman El-Baz, Matthew Nitzken, Eric Vanbogaert, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, United States; Robert Falk, Jewish Hospital, United States; Mohamed Abo El-Ghar, University of Mansoura, United States

WE-PS2a.9: EFFECT OF BREAST DENSITY IN SELECTING FEATURES FOR NORMAL MAMMOGRAM DETECTION 141
Mona Elshinawy, Howard University, United States; Abdel-Hameed Badawy, Wael Abd-Almageed, University of Maryland, United States; Mohamed Chouikha, Howard University, United States

WE-PS2a.10: TEXTURAL FEATURE COMPARISON BETWEEN FFDM AND FILM MAMMOGRAMS 148
Hao Jing, Yongyi Yang, Illinois Institute of Technology, United States; Laura Yarusso, Robert Nishikawa, The University of Chicago, United States

WE-PS2a.11: COMPUTER-AIDED DETECTION OF SCLEROTIC BONE METASTASES IN THE SPINE USING WATERSHED ALGORITHM AND SUPPORT VECTOR MACHINES 152
Tatjana Wiese, Joseph Burns, Jianhua Yao, Ronald Summers, National Institutes of Health, United States

WE-PS2a.12: A SPINNING TANGENT BASED CAD SYSTEM FOR DETECTION OF FLAT LESIONS IN CT COLONOGRAPHY 156
Francis O. Ferraro, University of Rochester; University of Chicago, United States; Emily Kawaler, University of Wisconsin-Madison / University of Chicago, United States; Kenji Suzuki, University of Chicago, United States

WE-PS2a.13: FUSION OF MACHINE INTELLIGENCE AND HUMAN INTELLIGENCE FOR COLONIC POLYP DETECTION IN CT COLONOGRAPHY 160
Shijun Wang, Vishal Anugu, Tan Nguyen, Natalie Rose, Joseph Burns, Matthew McKenna, National Institutes of Health, United States; Nicholas Petrick, Food and Drug Administration, United States; Ronald Summers, National Institutes of Health, United States

WE-PS2a.14: MULTI-MODAL DATA FUSION SCHEMES FOR INTEGRATED CLASSIFICATION OF IMAGING AND NON-IMAGING BIOMEDICAL DATA 165
Pallavi Tiwari, Satish Viswanath, George Lee, Anant Madabhushi, Rutgers University, United States

WE-PS2a.15: EVALUATION OF GEOMETRIC FEATURE DESCRIPTORS FOR DETECTION AND CLASSIFICATION OF LUNG NODULES IN LOW DOSE CT SCANS OF THE CHEST 169
Amal Farag, Asem Ali, James Graham, Aly Farag, Salwa Elshazly, University of Louisville, United States; Robert Falk, Jewish Hospital, United States

WE-PS2a.16: CONCAVITY ANALYSIS FOR REDUCTION OF ILEOCECAL VALVE FALSE POSITIVES IN CTC 173
Xujiong Ye, Greg Slabaugh, Medicsight PLC, United Kingdom

WE-PS2b: BIOLOGICAL IMAGE SEGMENTATION

WE-PS2b.1: TOWARDS ACTIVE SEGMENTATION OF CELL IMAGES 177
Martin Horn, Michael R. Berthold, University of Konstanz, Germany

WE-PS2b.2: A CURVICYLINDRICAL COORDINATE SYSTEM FOR THE VISUALIZATION AND SEGMENTATION OF THE ASCIDIAN TAIL 182
Golnaz Abdollahian, Michael Veeman, William Smith, Bangalore S Manjunath, University of California, Santa Barbara, United States

WE-PS2b.3: LOCAL COMPLEX PHASE BASED LEVEL SET AND ITS APPLICATION TO DIC RED BLOOD CELL SEGMENTATION 187
Taoyi Chen, Harbin Institute of Technology, China; Yong Zhang, IBM Almaden Research Center, United States; Changhong Wang, Zhenshen Qu, Harbin Institute of Technology, China; Maomao Cai, Weber State University, United States; Fei Wang, Tanveer Syeda-Mahmood, IBM Almaden Research Center, United States

WE-PS2b.4: PHOTORECEPTOR DETECTION IN IN-VIVO ADAPTIVE OPTICS IMAGES OF THE RETINA: TOWARDS A SIMPLE INTERACTIVE TOOL FOR THE PHYSICIANS 191
Kevin Loquin, Isabelle Bloch, Telecom ParisTech, France; Kiyoko Nakashima, DHOS/INSERM, France; Rossant Florence, ISEP, France; Michel Paques, DHOS/INSERM, France

WE-PS2b.5: A NOVEL FRAMEWORK FOR AUTOMATED TARGETING OF UNSTAINED LIVING CELLS IN BRIGHT FIELD MICROSCOPY 195
Gabriele Becattini, Leonardo S. Mattos, Darwin G. Caldwell, Italian Institute of Technology, Italy

WE-PS2b.6: AN AUTOMATIC FEATURE BASED MODEL FOR CELL SEGMENTATION FROM CONFOCAL MICROSCOPY VOLUMES 199
Diana Lucia Delibaltov, Pratim Ghosh, Michael Veeman, William Smith, Bangalore S Manjunath, University of California, Santa Barbara, United States

WE-PS2b.7: IMPROVED RED BLOOD CELL COUNTING IN THIN BLOOD SMEARS....204
Heidi Berge, Dale Taylor, Sriram Krishnan, Tania Douglas, University of Cape Town, South Africa

WE-PS2b.8: SPLITTING TOUCHING-CELL CLUSTERS ON HISTOPATHOLOGICAL IMAGES 208
Hui Kong, Metin Gurcan, Kamel Boussaid, The Ohio State University, United States

WE-PS2b.9: QUANTIFICATION OF FRAP EXPERIMENTS IN LIVE CELL IMAGE SEQUENCES BY COMBINING SEGMENTATION AND REGISTRATION 212
Il-Han Kim, Catharina Cadmus, University of Heidelberg / DKFZ Heidelberg, Germany; Andrea C. Pfeifer, Ursula Klingmüller, DKFZ Heidelberg, Germany; Roland Eils, Karl Rohr, University of Heidelberg / DKFZ Heidelberg, Germany

WE-PS2b.10: 3D SEGMENTATION AND QUANTIFICATION OF MOUSE EMBRYONIC STEM CELLS IN FLUORESCENCE MICROSCOPY IMAGES 216
Nathalie Harder, University of Heidelberg / DKFZ Heidelberg, Germany; Megan Bodnar, Cold Spring Harbor Laboratory, United States; Roland Eils, University of Heidelberg / DKFZ Heidelberg, Germany; David Spector, Cold Spring Harbor Laboratory, United States; Karl Rohr, University of Heidelberg / DKFZ Heidelberg, Germany

WE-PS2b.11: AUTOMATED SEGMENTATION OF SYNAPSES IN 3D EM DATA 220
Anna Kreshuk, Christoph N. Straehle, Christoph Sommer, Ullrich Koethe, University of Heidelberg, Germany; Graham Knott, École Polytechnique Fédérale de Lausanne, Switzerland; Fred A. Hamprecht, University of Heidelberg, Germany

WE-PS2c: BIOIMAGE VISUALIZATION AND ANALYSIS PLATFORMS

WE-PS2c.1: CRYO-IMAGING OF 70+GB MICE: IMAGE PROCESSING/VISUALIZATION CHALLENGES AND BIOTECHNOLOGY APPLICATIONS 224
David Wilson, Madhusudhana Gargesha, Case Western Reserve University, United States; Debashish Roy, BioInVision, Inc., United States; Mohammed Qutaish, Ganapathi Krishnamurthi, Kristin Sullivant, Patiwet Wuttisarnwattana, Hong Lu, Benjamin Moore, Christian Anderson, Case Western Reserve University, United States

WE-PS2c.2: ILASTIK: INTERACTIVE LEARNING AND SEGMENTATION TOOLKIT 230
Christoph Sommer, Christoph N. Straehle, Ullrich Koethe, Fred A. Hamprecht, University of Heidelberg, Germany

WE-PS2c.3: ICY: A NEW OPEN-SOURCE COMMUNITY IMAGE PROCESSING SOFTWARE 234
Fabrice de Chaumont, Stéphane Dallongeville, Jean-Christophe Olivo-Marin, Institut Pasteur, France

WE-PS2c.4: AUTOMATED HIGH SPEED STITCHING OF LARGE 3D MICROSCOPIC IMAGES 238
Yang Yu, Hanchuan Peng, Howard Hughes Medical Institute, United States

WE-PS2c.5: INTERACTIVE VISUALIZATION OF RETINAL ASTROCYTE IMAGES 242
Panuakdet Suwannatat, Gabriel Luna, Brian Ruttenberg, Rotem Raviv, Geoffrey Lewis, Steven K. Fisher, Tobias Hollerer, University of California, Santa Barbara, United States

WE-PS3a: DIFFUSION IMAGING

WE-PS3a.2: AN ANALYSIS OF BLOOD-OXYGEN-LEVEL-DEPENDENT SIGNAL PARAMETER ESTIMATION USING PARTICLE FILTERS 250
Micah Chambers, Virginia tech, United States; Christopher Wyatt, Virginia Tech, United States

WE-PS3a.3: MODEL-BASED COMPRESSIVE DIFFUSION TENSOR IMAGING 254
Lingling Pu, Theodore P. Trouard, Lee Ryan, Chuan Huang, Maria I. Altbach, Ali Bilgin, University of Arizona, United States

WE-PS3a.4: A NEW HIGH ORDER TENSOR DECOMPOSITION: APPLICATION TO REORIENTATION. 258
Antoine Grigis, Félix Renard, Vincent Noblet, Christian Heinrich, Fabrice Heitz, Jean-Paul Armspach, University of Strasbourg, France

WE-PS3a.5: DIFFUSION KURTOSIS IMAGING: ROBUST ESTIMATION FROM DW-MRI USING HOMOGENEOUS POLYNOMIALS 262
Angelos Barmpoutis, University of Florida, United States; Jiachen Zhuo, The University of Maryland, United States

WE-PS3a.6: EXTRACTING GEOMETRICAL FEATURES & PEAK FRACTIONAL ANISOTROPY FROM THE ODF FOR WHITE MATTER CHARACTERIZATION 266
Aurobrata Ghosh, Rachid Deriche, INRIA Sophia Antipolis Méditerranée, France

WE-PS3a.7: A SPATIAL REGULARIZATION FRAMEWORK OF ORIENTATION DIFFUSION FUNCTIONS USING TOTAL VARIATION AND WAVELET 272
Yuyuan Ouyang, Yunmei Chen, University of Florida, United States; Ying Wu, NorthShore University HealthSystem, United States

WE-PS3a.8: ATLAS-BASED FIBER CLUSTERING FOR MULTI-SUBJECT ANALYSIS OF HIGH ANGULAR RESOLUTION DIFFUSION IMAGING TRACTOGRAPHY 276
Gautam Prasad, Neda Jahanshad, University of California, Los Angeles School of Medicine, United States; Iman Aganj, University of Minnesota, United States; Christophe Lenglet, University of Minnesota Medical School, United States; Guillermo Sapiro, University of Minnesota, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles School of Medicine, United States

WE-PS3b: MRI ANALYSIS

WE-PS3b.1: IMAGE FUSION FOR FOLLOWING-UP BRAIN TUMOR EVOLUTION 281
Su Ruan, Université de Rouen, France; Nan Zhang, Qingmin Liao, Tsinghua University, China; Yuemin Zhu, INSA de Lyon, France

WE-PS3b.2: A NEW SYMMETRY-BASED METHOD FOR MID-SAGITTAL PLANE EXTRACTION IN NEUROIMAGES 285
Guilherme Ruppert, University of Campinas, Brazil; Leonid Teverovskiy, Carnegie Mellon University, United States; Chen-Ping Yu, Pennsylvania State University, United States; Alexandre Falcão, University of Campinas, Brazil; Yanxi Liu, Carnegie Mellon University, United States

WE-PS3b.3: PRINCIPAL COMPONENTS REGRESSION: MULTIVARIATE, GENE-BASED TESTS IN IMAGING GENOMICS 289
Derrek Hibar, Jason Stein, Omid Kohannim, Neda Jahanshad, University of California, Los Angeles, United States; Clifford Jack Jr, Mayo Clinic, United States; Michael Weiner, University of California, San Francisco, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles, United States

WE-PS3b.4: INTEGRATED DETECTION NETWORK (IDN) FOR POSE AND BOUNDARY ESTIMATION IN MEDICAL IMAGES 294
Michal Sofka, Kristof Ralovich, Neil Birkbeck, Jingdan Zhang, S. Kevin Zhou, Siemens Corporate Research, United States

WE-PS3b.5: DECODING VISUAL STIMULI USING CLASSIFIER ENSEMBLES WITH OPTIMIZED FEATURE SELECTION 300
Carlos Cabral, Margarida Silveira, Patrícia Figueiredo, Instituto Superior Técnico, Portugal

WE-PS3b.6: DIFFERENTIAL INFORMATION CONTENT IN STAGGERED MULTIPLE SHELL HARDI MEASURED BY THE TENSOR DISTRIBUTION FUNCTION 305
Liang Zhan, University of California, Los Angeles, United States; Alex D. Leow, Community Psychiatry Associates, United States; Iman Aganj, Christophe Lenglet, Guillermo Sapiro, Essa Yacoub, Noam Harel, University of Minnesota, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles, United States

WE-PS3b.7: SURFACE-BASED METHOD TO EVALUATE GLOBAL BRAIN ASYMMETRIES IN HUMAN AND CHIMPANZEE BRAINS 310
Marc Fournier, Benoît Combès, INRIA - National Institute for Research in Computer Science and Control, France; Neil Roberts, Queen's Medical Research Institute, United Kingdom; Simon Keller, University of Münster, Germany; Tim Crow, University of Oxford, United Kingdom; William Hopkins, Yerkes National Primate Research Center, United States; Sylvain Prima, INRIA - National Institute for Research in Computer Science and Control, France

WE-PS3b.8: COMPLEXITY OF CEREBRAL ATROPHY EVALUATION IN RELAPSING-REMITTING MULTIPLE SCLEROSIS CONTEXT 317
Jean-Christophe Souplet, INRIA, France; Mikael Cohen, Christine Lebrun, CHU Nice, France; Nicholas Ayache, Grégoire Malandain, INRIA, France

WE-PS3b.9: TOWARDS A DEEP LEARNING APPROACH TO BRAIN PARCELLATION 321
Noah Lee, Andrew F. Laine, Arno Klein, Columbia University, United States

WE-PS3b.10: ON TESTING HYPOTHESES OF MIXING VECTORS IN THE ICA MODEL USING FASTICA 325
Esa Ollila, Aalto University, Finland; Hyon-Jung Kim, University of Oulu, Finland

WE-PS3b.11: STRUCTURAL ANALYSIS OF THE CEREBRAL CORTEX USING BLIND SOURCE SEPARATION 329
David Wheland, Dimitrios Pantazis, Richard M. Leahy, University of Southern California, United States

WE-PS3b.12: PATHOLOGY-ROBUST MR INTENSITY NORMALIZATION WITH GLOBAL AND LOCAL CONSTRAINTS 333
Ahmet Ekin, Philips Research, Netherlands

WE-PS3b.14: CONSISTENT SULCAL PARCELLATION OF LONGITUDINAL CORTICAL SURFACES 337
Gang Li, Yang Li, Yaping Wang, Dinggang Shen, University of North Carolina at Chapel Hill, United States

WE-PS3b.15: NEURONAL ELECTRICAL ACTIVITY, ENERGY CONSUMPTION AND MITOCHONDRIAL ATP RESTORATION DYNAMICS: A PHYSIOLOGICAL BASED MODEL FOR FMRI 341
Rita Gafaniz, João Miguel Sanches, Institute for Systems and Robotics, Portugal

WE-PS3b.16: QUANTITATIVE COMPARISON OF TRACKING METHODS FOR MOTION ANALYSIS IN TAGGED MRI 345
Ihor Smal, Noemí Carranza-Herrezuelo, Stefan Klein, Wiro Niessen, Erik Meijering, Erasmus MC - University Medical Center Rotterdam, Netherlands

WE-PS3b.17: TRACKING DEVELOPMENTAL CHANGES IN SUBCORTICAL STRUCTURES OF THE PRETERM BRAIN USING MULTI-MODAL MRI 349
Ahmed Serag, Paul Aljabar, Serena Counsell, James Boardman, Joseph V. Hajnal, Daniel Rueckert, Imperial College London, United Kingdom

WE-PS3b.18: INTEGRATING STRUCTURAL AND DIFFUSION MR INFORMATION FOR OPTIC RADIATION LOCALISATION IN FOCAL EPILEPSY PATIENTS 353
Pankaj Daga, University College London, United Kingdom; Gavin Winston, University College London Institute of Neurology, United Kingdom; Marc Modat, M. Jorge Cardoso, University College London, United Kingdom; Jason Stretton, Mark Symms, Andrew W. McEvoy, University College London Institute of Neurology, United Kingdom; David Hawkes, University College London, United Kingdom; John Duncan, University College London Institute of Neurology, United Kingdom; Sebastien Ourselin, University College London, United Kingdom

WE-PS3b.19: BIAS FIELD CORRECTION USING GREY-WEIGHTED DISTANCE TRANSFORM APPLIED ON MR VOLUMES 357
Muhammad Khalid Khan Niazi, Uppsala University, Sweden; Muhammad Talal Ibrahim, Ling Guan, Ryerson University, Canada; Ingela Nystr¨om, Uppsala University, Sweden

WE-PS3b.20: MANA – MULTI SCALE ADAPTIVE NORMALIZED AVERAGING 361
Thobias Romu, Linköping University Hospital, Sweden; Magnus Borga, Olof Dahlqvist Leinhard, Linköping University, Sweden

WE-PS3b.21: SPHERICAL POLAR FOURIER EAP AND ODF RECONSTRUCTION VIA COMPRESSED SENSING IN DIFFUSION MRI 365
Sylvain Merlet, Jian Cheng, Aurobrata Ghosh, Rachid Deriche, INRIA, France

WE-PS3b.22: LAPLACE-BELTRAMI EIGENFUNCTION EXPANSION OF CORTICAL MANIFOLDS 372
Seongho Seo, Seoul National University, Republic of Korea; Moo K. Chung, University of Wisconsin - Madison, United States

WE-PS3b.23: IMPACT OF THE JOINT DETECTION-ESTIMATION APPROACH ON RANDOM EFFECTS GROUP STUDIES IN FMRI 376
Solveig Badillo, Thomas Vincent, Philippe Ciuciu, CEA, France

WE-PS3b.24: CROSS-SECTIONAL ANALYSIS USING VOXEL OR SURFACE BASED CORTICAL THICKNESS METHODS: A COMPARISON STUDY 381
Matthew J. Clarkson, M. Jorge Cardoso, Marc Modat, Gerard R. Ridgway, Kelvin K. Leung, Jonathan D. Rohrer, Nick C. Fox, Sebastien Ourselin, University College London, United Kingdom

WE-OS1: MRI AND TOMOGRAPHY RECONSTRUCTION

WE-OS1.1: REGULARIZED PARALLEL MRI RECONSTRUCTION USING AN ALTERNATING DIRECTION METHOD OF MULTIPLIERS 385
Sathish Ramani, University of Michigan, United States; Jeffrey A. Fessler, The University of Michigan, United States

WE-OS1.2: A KERNEL APPROACH TO PARALLEL MRI RECONSTRUCTION 389
Yuchou Chang, Dong Liang, Leslie Ying, University of Wisconsin - Milwaukee, United States

WE-OS1.3: DYNAMIC MR IMAGE AND FIELDMAP JOINT RECONSTRUCTION 393
ACCOUNTING FOR THROUGH-PLANE FIELDMAP GRADIENTS
Antonios Matakos, Jeffrey A. Fessler, The University of Michigan, United States

WE-OS1.4: BOX SPLINE BASED 3D TOMOGRAPHIC RECONSTRUCTION OF 397
DIFFUSION PROPAGATORS FROM MRI DATA
Wenxing Ye, Sharon Portnoy, Alireza Entezari, Baba Vemuri, Stephen Blackband, University of Florida, United States

WE-OS1.5: GPU-BASED REAL-TIME IMPLEMENTATION OF 3D+T IMAGE 401
RECONSTRUCTION WITH APPLICATION TO CEREBRAL ANGIOGRAPHY
Yuetian Xu, Rami Mangoubi, Mukund Desai, Draper Laboratory, United States; Andrew Copeland, Sanjoy Mitter, Massachusetts Institute of Technology, United States; Adel Malek, Tufts Medical Center, United States

WE-OS2: IMAGE REGISTRATION I

WE-OS2.1: DEFORMABLE IMAGE REGISTRATION OF SLIDING ORGANS USING 407
ANISOTROPIC DIFFUSIVE REGULARIZATION
Danielle F. Pace, Andinet Enquobahrie, Hua Yang, Stephen R. Aylward, Kitware, Inc., United States; Marc Niethammer, University of North Carolina at Chapel Hill, United States

WE-OS2.2: DYNAMIC ONLINE REGISTRATION GUIDED COLLABORATIVE 414
TRACKING OF LUNG TUMOR MOVEMENT IN FLUOROSCOPIC VIDEOS
Baiyang Liu, Rutgers University, United States; Lin Yang, University of Medicine and Dentistry of New Jersey, United States; Casimir Kulikowski, Rutgers University, United States; Leiguang Gong, IBM, United States; David Foran, University of Medicine and Dentistry of New Jersey, United States; Salma Jabbour, Ning Yue, The Cancer Institute of New Jersey, United States

WE-OS2.3: INTERMODAL REGISTRATION OF CTA AND IVUS-VH, AND ITS 419
APPLICATION ON CTA-BASED PLAQUE COMPOSITION ANALYSIS
Zhen Qian, Gustavo Vazquez, Szilard Voros, Piedmont Heart Institute, United States

WE-OS2.4: REGISTRATION-BASED MEASUREMENT OF REGIONAL EXPIRATION 424
VOLUME RATIO USING DYNAMIC 4DCT IMAGING
Kaifang Du, The University of Iowa, United States; Kai Ding, The University of Virginia, United States; Kunlin Cao, John Bayouth, Gary Christensen, Joseph Reinhardt, The University of Iowa, United States

WE-OS2.5: RAPID DFT-BASED VARIATIONAL IMAGE REGISTRATION WITH SLIDING 429
BOUNDARY CONDITIONS
Troy Winkstern, Nathan Cahill, Rochester Institute of Technology, United States

WE-OS3: IMAGE SEGMENTATION METHODS

WE-OS3.1: 3D SEGMENTATION OF RODENT BRAIN STRUCTURES USING ACTIVE VOLUME MODEL WITH SHAPE PRIORS 433

Shaoting Zhang, Junzhou Huang, Mustafa Uzunbas, Rutgers University, United States; Tian Shen, Lehigh University, United States; Foteini Delis, Brookhaven National Laboratory, United States; Xiaolei Huang, Lehigh University, United States; Nora Volkow, Panayotis Thanos, Brookhaven National Laboratory, United States; Dimitris Metaxas, Rutgers University, United States

WE-OS3.2: ATLAS-BASED ARTICULATED SKELETON SEGMENTATION OF SPECT MOUSE DATA 437

Artem Khmelinskii, Martin Baiker, Leiden University Medical Center, Netherlands; Peter Kok, Delft University of Technology, Netherlands; Jan de Swart, Erasmus MC - University Medical Center Rotterdam, Netherlands; Johan Reiber, Leiden University Medical Center, Netherlands; Marion de Jong, Erasmus MC - University Medical Center Rotterdam, Netherlands; Boudewijn Lelieveldt, Leiden University Medical Center, Netherlands

WE-OS3.3: SOFTSTAPLE: TRUTH AND PERFORMANCE-LEVEL ESTIMATION FROM PROBABILISTIC SEGMENTATIONS 441

Neil Weisenfeld, Simon K. Warfield, Children's Hospital of Boston / Harvard Medical School, United States

WE-OS3.4: SEGMENTATION OF OBSTRUCTED AIRWAY BRANCHES IN CT USING AIRWAY TOPOLOGY AND STATISTICAL SHAPE ANALYSIS 447

Benjamin Irving, University College London, United Kingdom; Pierre Goussard, Robert Gie, Stellenbosch University, South Africa; Andrew Todd-Pokropek, Paul Taylor, University College London, United Kingdom

WE-OS3.5: A NEW SEGMENTATION FRAMEWORK FOR INFRARED SPECTROSCOPIC IMAGING USING FREQUENT PATTERN MINING 452

Jin Tae Kwak, Saurabh Sinha, Rohit Bhargava, University of Illinois, Urbana-Champaign, United States

WE-SS1: WAVELETS IN EEG/FMRI

WE-SS1.1: WAVELET-BASED DENOISING AND INDEPENDENT COMPONENT ANALYSIS FOR IMPROVING MULTI-GROUP INFERENCE IN FMRI DATA 456

Siddharth Khullar, Rochester Institute of Technology, United States; Andrew Michael, Mind Research Network, United States; Nicolle Correa, Tulay Adali, University of Maryland, Baltimore County, United States; Stefi Baum, Rochester Institute of Technology, United States; Vince D. Calhoun, Mind Research Network, United States

WE-SS1.2: 3D WAVELET-BASED REGULARIZATION FOR PARALLEL MRI RECONSTRUCTION: IMPACT ON SUBJECT AND GROUP-LEVEL STATISTICAL SENSITIVITY IN FMRI 460

Lotfi Chaari, Université Paris-Est, France; Sébastien Mériaux, Solveig Badillo, Philippe Ciuciu, CEA, France; Jean-Christophe Pesquet, Université Paris-Est, France

WE-SS1.3: IMAGE RECONSTRUCTION FROM MULTIPLE SENSORS USING STEIN'S PRINCIPLE. APPLICATION TO PARALLEL MRI. 465

Alexandru Marin, Caroline Chaux, Jean-Christophe Pesquet, Université Paris-Est, France; Philippe Ciuciu, CEA Saclay, France

WE-SS1.4: ANATOMICALLY ADAPTED WAVELETS FOR INTEGRATED STATISTICAL ANALYSIS OF FMRI DATA 469
Gorkem Ozkaya, Princeton University, United States; Dimitri Van De Ville, École Polytechnique Fédérale de Lausanne, Switzerland

WE-SS1.5: MULTIFRACTAL ANALYSIS OF RESTING STATE NETWORKS IN FUNCTIONAL MRI 473
Philippe Ciuciu, CEA, France; Gaël Varoquaux, INSERM U992 & INRIA Saclay Parietal Team, France; Patrice Abry, ENS Lyon & CNRS UMR5672, France; Moty Almog, CEA, France

TH-PS1a: IMAGE RECONSTRUCTION: OPTICAL, ELECTROMAGNETIC, AND ACOUSTICAL

TH-PS1a.1: LOCAL MULTILAYER ANALYTIC SENSING FOR EEG SOURCE LOCALIZATION: PERFORMANCE BOUNDS AND EXPERIMENTAL RESULTS 479
Djano Kandaswamy, École Polytechnique Fédérale de Lausanne, Switzerland; Thierry Blu, Chinese University of Hong Kong, Hong Kong SAR of China; Laurent Spinelli, Christoph Michel, University Hospital of Geneva, Switzerland; Dimitri Van De Ville, École Polytechnique Fédérale de Lausanne, Switzerland

TH-PS1a.2: FLUORESCENCE-ENHANCED OPTICAL TOMOGRAPHY WITH A RADIATIVE TRANSFER-BASED MODEL 484
Yujie Lu, Eva Sevick-Muraca, Univeristy of Texas Health Science Center-Houston, United States

TH-PS1a.3: STATISTICAL IMAGE RECONSTRUCTION FOR HYBRID FLUORESCENCE OPTICAL TOMOGRAPHY AND POSITRON EMISSION TOMOGRAPHY 488
Guobao Wang, Changqing Li, Simon Cherry, Jinyi Qi, University of California, Davis, United States

TH-PS1a.4: A FAST RECONSTRUCTION ALGORITHM BASED ON PARALLEL COORDINATE DESCENT OPTIMIZATION FOR IN VIVO TOMOGRAPHIC BIOLUMINESCENCE IMAGING 492
Kai Liu, Jie Tian, Xin Yang, Chenghu Qin, Chinese Academy of Sciences, China; Shouping Zhu, Xidian University, China; Dong Han, Ping Wu, Chinese Academy of Sciences, China

TH-PS1a.5: SPATIAL SAMPLING CONSTRAINTS ON BREAST MICROWAVE RADAR SCAN ACQUIRED ALONG CIRCULAR SCAN GEOMETRIES 496
Daniel Flores Tapia, Stephen Pistorius, CancerCare Manitoba, Canada

TH-PS1a.6: FAST ANGIOGRAPHIC OCT IMAGING USING SPARSE REPRESENTATIONS OVER LEARNED DICTIONARIES 500
Ivana Stojanovic, Boston University, United States; Nishant Mohan, Benjamin Vakoc, Massachusetts General Hospital, United States; W. Clem Karl, Boston University, United States

TH-PS1a.7: DIFFERENTIAL GEOMETRIC APPROXIMATION OF THE GRADIENT AND HESSIAN ON A TRIANGULATED MANIFOLD 504
Burak Erem, Dana H. Brooks, Northeastern University, United States

TH-PS1b: MOTION AND FLOW

TH-PS1b.1: ROBUST REAL TIME MOTION ESTIMATION FOR MR-THERMOMETRY 508
Sébastien Roujol, CNRS/Université Bordeaux 2/Université Bordeaux 1, France; Mario Ries, Chrit Moonen, Baudouin Denis de Senneville, CNRS/Université Bordeaux 2, France

TH-PS1b.2: ENDOCARDIUM TRACKING BY FUSING OPTICAL FLOWS IN .....512 STRAIGHTENED IMAGES WITH LEARNING BASED DETECTIONS
Peng Wang, Shaohua Zhou, Murrill Szucs, Siemens, United States

TH-PS1b.3: ONLINE MOTION DETECTION IN HIGH ANGULAR RESOLUTION .....516 DIFFUSION IMAGING
Emmanuel Caruyer, INRIA Sophia Antipolis - Méditerranée, France; Iman Aganj, Christophe Lenglet, Guillermo Sapiro, University of Minnesota, United States; Rachid Deriche, INRIA Sophia Antipolis - Méditerranée, United States

TH-PS1b.4: IMPROVING HARMONIC PHASE IMAGING BY THE WINDOWED .....520 FOURIER TRANSFORM
Lucilio Cordero-Grande, Gonzalo Vegas-Sánchez-Ferrero, Pablo Casaseca-de-la-Higuera, Carlos Alberola-López, University of Valladolid, Spain

TH-PS1b.5: OPTICAL/ACOUSTIC RADIATION IMAGING IN TISSUE-MIMICKING .....524 BLADDER WALL PHANTOMS
O'tega Ejofodomi, Vesna Zderic, Jason Zara, George Washington University, United States

TH-PS1b.6: A FAST AND ROBUST 3D ULTRASOUND STRAIN IMAGING ALGORITHM .....528 FOR FREEHAND SCANNING
Andrew DiBattista, Alison Noble, University of Oxford, United Kingdom

TH-PS1b.7: A STRAIN-BASED ULTRASOUND ELASTOGRAPHY USING PHASE SHIFT .....532 WITH PRIOR ESTIMATES AND MESHFREE SHAPE FUNCTION
Jinwei Yuan, Zhejiang University, China; Heye Zhang, Shenzhen Institutes of Advanced Technology, China; Minhua Lu, Siping Chen, Shenzhen University, China; Huafeng Liu, Zhejiang University, China

TH-PS1b.8: PLANAR DEFORMABLE MOTION ESTIMATION INCORPORATING MASS .....536 CONSERVATION AND IMAGE GRADIENT CONSTANCY
Mohammadreza Negahdar, Amir Amini, University of Louisville, United States

TH-PS1b.9: GEOMETRY-CONSTRAINED CORONARY ARTERIES MOTION .....541 ESTIMATION FROM 2D ANGIOGRAMS - APPLICATION TO INJECTION SIDE RECOGNITION
Alice Lebois, Raoul Florent, Vincent Auvray, Philips Healthcare, France

TH-PS1b.10: IN-VITRO VERIFICATION OF CFD SIMULATIONS FOR PREDICTING .....545 FLOW IN A STENTED ANEURYSM MODEL
Qi Sun, Philips Research / RWTH Aachen University, Germany; Alexandra Groth, Philips Research, Germany; Ignacio Larrabide, Networking Center on Biomedical Research (CIBER-BBN) / Universitat Pompeu Fabra, Spain; Salvatore Cito, Martha Aguila, Universitat Pompeu Fabra / Networking Center on Biomedical Research (CIBER-BBN), Spain; Alejandro F. Frangi, Universitat Pompeu Fabra / Networking Center on Biomedical Research (CIBER-BBN) / Institució Catalana de Recerca i Estudis Avançats, Spain; Vitor Mendes Pereira, Rafik Ouared, Olivier Brina, University Hospital of Geneva, Switzerland; Til Aach, RWTH Aachen University, Germany

TH-PS1c: IMAGE REGISTRATION I

TH-PS1c.1: ATLAS CONSTRUCTION FROM HIGH ANGULAR RESOLUTION DIFFUSION IMAGING DATA REPRESENTED BY GAUSSIAN MIXTURE FIELDS 549
Guang Cheng, Baba Vemuri, Min-Sig Hwang, Dena Howland, John Forder, University of Florida, United States

TH-PS1c.2: PROBABILISTIC NON-RIGID REGISTRATION OF PROSTATE IMAGES: MODELING AND QUANTIFYING UNCERTAINTY 553
Petter Risholm, Andriy Fedorov, Jennifer Pursley, Kemal Tuncali, Robert Cormack, William M. Wells, Harvard Medical School, United States

TH-PS1c.3: IMAGE REGISTRATION USING AN EXTENDABLE QUADRATIC REGULARISER 557
Andrew Melbourne, University College London, United Kingdom; Nathan Cahill, Rochester Institute of Technology, United States; Christine Tanner, David Hawkes, University College London, United Kingdom

TH-PS1c.4: IMAGE REGISTRATION FOR ABDOMINAL DYNAMIC CONTRAST-ENHANCED MAGNETIC RESONANCE IMAGES 561
Anthony Lausch, Mehran Ebrahimi, Anne Martel, University of Toronto, Canada

TH-PS1c.5: TISSUE BLOCK MRI FOR SLICE ORIENTATION-INDEPENDENT REGISTRATION OF DIGITAL HISTOLOGY IMAGES TO EX VIVO MRI OF THE PROSTATE 566
Eli Gibson, University of Western Ontario, Canada; Cathie Crukley, Lawson Health Research Institute, Canada; José A Gómez, Madeleine Moussa, Glenn Bauman, Aaron Fenster, Aaron D Ward, University of Western Ontario, Canada

TH-PS1c.6: IMPACT OF RF INHOMOGENEITY CORRECTION ON IMAGE REGISTRATION OF MICRO MRI RODENT BRAIN IMAGES 570
Janaki raman Rangarajan, Dirk Loeckx, Greetje Vande Velde, Tom Dresselaers, Uwe Himmelreich, Frederik Maes, Paul Suetens, Katholieke Universiteit Leuven, Belgium

TH-PS1c.7: MULTI-FEATURE INFORMATION-THEORETIC IMAGE REGISTRATION: APPLICATION TO GROUPWISE REGISTRATION OF PERFUSION MRI EXAMS 574
Sameh Hamrouni, Nicolas Rougon, Institut TELECOM/TELECOM SudParis, France; Françoise Prêteux, Mines ParisTech, France

TH-PS1c.8: A MODEL OF TUMOUR INDUCED BRAIN DEFORMATION AS BIO-PHYSICAL PRIOR FOR NON-RIGID IMAGE REGISTRATION 578
Andreas Mang, Stefan Becker, Alina Toma, Tina Anne Schuetz, Jan Kuechler, Volker Tronnier, Matteo M. Bonsanto, Thorsten M. Buzug, University of Lübeck, Germany

TH-PS1c.9: DEFORMATION MODELS FOR REGISTERING MR AND 3D ULTRASOUND BREAST IMAGES 582
Christine Tanner, ETH Zürich, Switzerland; Nico Karssemeijer, Radboud University Nijmegen Medical Center, Netherlands; Gábor Székely, ETH Zürich, Switzerland

TH-PS1c.10: THE EFFECTIVENESS OF GEOMETRY FEATURES ON MULTI-RESOLUTION DIFFEOMORPHIC DEMONS REGISTRATION IN THE IMPLEMENTATION OF HUMAN CORTEX SURFACE PARCELLATION 586
Wen Li, the University of Iowa, United States; Luis Ibanez, Kitware, Inc., United States; Nancy Andreasen, Vincent Magnotta, the University of Iowa, United States

TH-PS1c.11: EFFICIENT SYMMETRIC AND INVERSE-CONSISTENT DEFORMABLE REGISTRATION THROUGH INTERLEAVED OPTIMIZATION 590
Christoph Guetter, Hui Xue, Christophe Chefd'hotel, Jens Guehring, Siemens Corporate Research, United States

TH-PS1c.12: DIFFUSION WEIGHTED IMAGING DISTORTION CORRECTION USING HYBRID MULTIMODAL IMAGE REGISTRATION 594
Huanxiang Lu, University of Bern, Switzerland; Philippe C. Cattin, University of Basel, Switzerland; Lutz-Peter Nolte, Mauricio Reyes, University of Bern, Switzerland

TH-PS1c.13: GROUPWISE REGISTRATION OF BREAST DCE-MR IMAGES FOR ACCURATE TUMOR MEASUREMENT 598
Minjeong Kim, Guorong Wu, Dinggang Shen, University of North Carolina at Chapel Hill, United States

TH-PS2a: IMAGE SEGMENTATION

TH-PS2a.1: RECONSTRUCTING THE THREE-DIMENSIONAL SURFACE OF A BRANCHING AND MERGING BIOLOGICAL STRUCTURE FROM A STACK OF COPLANAR CONTOURS 602
Jasmine Burguet, Institut National de la Recherche Agronomique, France; Philippe Mailly, Centre National de la Recherche Scientifique, France; Yves Maurin, Philippe Andrey, Institut National de la Recherche Agronomique, France

TH-PS2a.2: AUTOMATIC SEGMENTATION OF THE LEFT-VENTRICULAR CAVITY AND ATRIUM IN 3D ULTRASOUND USING GRAPH CUTS AND THE RADIAL SYMMETRY TRANSFORM 606
Radford Juang, Elliot McVeigh, The Johns Hopkins University, United States; Beatrice Hoffmann, Johns Hopkins Hospital, United States; David Yuh, Philippe Burlina, The Johns Hopkins University, United States

TH-PS2a.3: AUTOMATICAL VESSEL WALL DETECTION IN INTRAVASCULAR CORONARY OCT 610
Kai-Pin Tung, Wen-Zhe Shi, Ranil de Silva, Eddie Edwards, Daniel Rueckert, Imperial College London, United Kingdom

TH-PS2a.4: ACTIVE CONTOUR FOR OVERLAP RESOLUTION USING WATERSHED BASED INITIALIZATION (ACOREW): APPLICATIONS TO HISTOPATHOLOGY 614
Sahirzeeshan Ali, Anant Madabhushi, Rutgers University, United States

TH-PS2a.5: MARKER-CONTROLLED WATERSHED SEGMENTATION OF NUCLEI IN H&E STAINED BREAST CANCER BIOPSY IMAGES 618
Mitko Veta, André Huisman, Max A. Viergever, Paul J. van Diest, Josien P.W. Pluim, University Medical Center Utrecht, Netherlands

TH-PS2a.6: AUTOMATED SEGMENTATION AND ALIGNMENT OF MITOTIC NUCLEI FOR KYMOGRAPH VISUALISATION 622
Simon Li, University of Oxford, United Kingdom; James Wakefield, University of Exeter, United Kingdom; J. Alison Noble, University of Oxford, United Kingdom

TH-PS2a.7: CONVEX SPATIO-TEMPORAL SEGMENTATION OF THE ENDOCARDIUM IN ULTRASOUND DATA USING DISTRIBUTION AND SHAPE PRIORS 626
Mattias Hansson, Ketut Fundana, Malmö University, Sweden; Sami Brandt, Oulu University, Finland; Petri Gudmundsson, Malmö University, Sweden

TH-PS2a.8: IMPLICIT ACTIVE CONTOURS FOR ULTRASOUND IMAGES 630
SEGMENTATION DRIVEN BY PHASE INFORMATION AND LOCAL MAXIMUM LIKELIHOOD
Ahror Belaid, Djamal Boukerroui, Université de Technologie de Compiègne, France; Yves Maingourd, CHU Amiens, France; Jean François Lerallut, Université de Technologie de Compiègne, France

TH-PS2a.9: FULLY AUTOMATIC SEGMENTATION OF WRIST BONES FOR 636
ARTHRITIS PATIENTS
Martin Koch, Friedrich-Alexander-University Erlangen-Nuremberg, Germany; Alexander Schwing, ETH Zürich, Switzerland; Dorin Comaniciu, Siemens Corporate Research, United States; Marc Pollefeys, ETH Zürich, Switzerland

TH-PS2a.10: RETINAL VESSEL WIDTH MEASUREMENTS BASED ON A 641
GRAPH-THEORETIC METHOD
Xiayu Xu, Meindert Niemeijer, Qi Song, Mona Garvin, Joseph Reinhardt, Michael Abramoff, The University of Iowa, United States

TH-PS2a.11: MULTIVIEW MYOCARDIAL SEGMENTATION IN ECHOCARDIOGRAPHIC 645
IMAGES USING A PIECEWISE PARAMETRIC SHAPE PRIOR
Thomas Dietenbeck, CREATIS, France; Martino Alessandrini, ARCES, Italy; Daniel Barbosa, Creatis / Cardiovascular Imaging & Dynamics, Belgium; Jan D'hooge, Cardiovascular Imaging & Dynamics, Belgium; Denis Friboulet, Olivier Bernard, CREATIS, France

TH-PS2a.12: SEGMENTATION OF 3D RF ECHOCARDIOGRAPHY USING A JOINT 649
SPATIO-TEMPORAL PREDICTOR AND SIGNAL INTENSITY MODEL
Paul Pearlman, Hemant Tagare, Ben Lin, Albert Sinusas, James S. Duncan, Yale University, United States

TH-PS2a.13: QUANTITATIVE COMPARISON OF AUTOMATED PET VOLUME 653
DELINEATION METHODOLOGIES USING SIMULATED TUMOR LESIONS
Jose George, KU Leuven, Belgium; Kathleen Vunckx, Sabine Tejpar, Christophe Deroose, Johan Nuyts, Dirk Loeckx, Paul Suetens, Katholieke Universiteit Leuven, Belgium

TH-PS2a.14: AUTOMATIC BATCH-INVARIANT COLOR SEGMENTATION OF 657
HISTOLOGICAL CANCER IMAGES
Sonal Kothari, Georgia Institute of Technology, United States; John H. Phan, Richard A. Moffitt, Todd H. Stokes, Shelby E. Hassberger, Georgia Institute of Technology / Emory University, United States; Qaiser Chaudry, Georgia Institute of Technology, United States; Andrew N. Young, Emory University, United States; May D. Wang, Georgia Institute of Technology / Emory University, United States

TH-PS2a.15: SEGMENTATION OF DIABETIC MACULAR EDEMA IN FLUORESCEIN 661
ANGIOGRAMS
Maha El-Shahawy, Nile University, Egypt; Ahmed El-Antably, Cairo University, Egypt; Nermin Fawzy, Khaled Samir, Mustafa Hunter, Dar El-Oyoun Hospital, Egypt; Ahmed Fahmy, Nile University, Egypt

TH-PS2a.16: SEGMENTATION OF CHOROIDAL NEOVASCULARIZATION LESIONS IN 665
FLUORESCEIN ANGIOGRAMS USING PARAMETRIC MODELING OF THE INTENSITY VARIATION
Ahmed Fahmy, Walid Abdelmoula, Nile University, Egypt; Ahmed Mahfouz, University of Delft, Netherlands; Syed Shah, Rochester University, United States

TH-PS2a.17: LOCAL ATLAS SELECTION AND PERFORMANCE ESTIMATION IN MULTI-ATLAS BASED SEGMENTATION 669
Thomas Langerak, Uulke van der Heide, Alexis Kotte, Floris Berendsen, Josien P.W. Pluim, University Medical Center Utrecht, Netherlands

TH-PS2a.18: SEGMENTATION OF ANATOMICAL BRANCHING STRUCTURES BASED ON TEXTURE FEATURES AND GRAPH CUT 673
Tatyana Nuzhnaya, Erkang Cheng, Haibin Ling, Temple University, United States; Despina Kontos, Predrag R. Bakic, University of Pennsilvania, United States; Vasileios Megalooikonomou, Temple University, United States

TH-PS2b: CLASSIFICATION: VASCULATURE, RETINA, LIVER

TH-PS2b.1: FEATURE EXTRACTION AND WALL MOTION CLASSIFICATION OF 2D STRESS ECHOCARDIOGRAPHY WITH RELEVANCE VECTOR MACHINES 677
Kiryl Chykeyuk, David A Clifton, J. Alison Noble, University of Oxford, United Kingdom

TH-PS2b.2: SPLAT FEATURE CLASSIFICATION: DETECTION OF THE PRESENCE OF LARGE RETINAL HEMORRHAGES 681
Li Tang, Meindert Niemeijer, Michael Abramoff, University of Iowa Hospitals and Clinics, United States

TH-PS2b.3: COMPARISON OF CLASSIFIER PERFORMANCE FOR INFORMATION FUSION IN AUTOMATED DIABETIC RETINOPATHY SCREENING 685
Meindert Niemeijer, Michael Abramoff, The University of Iowa, United States; Niranjan Joshi, Sir Michael Brady, University of Oxford, United Kingdom

TH-PS2b.4: MULTISCALE ANALYSIS REVISITED: DETECTION OF DRUSEN AND VESSEL IN DIGITAL RETINAL IMAGES 689
Yuanjie Zheng, Hongzhi Wang, Jue Wu, University of Pennsylvania, United States; Jianbin Gao, University of Electronic Science and Technology of China, China; James C. Gee, University of Pennsylvania, United States

TH-PS2b.5: EXTRACTION OF VASCULAR SYSTEM IN RETINA IMAGES USING AVERAGED ONE-DEPENDENCE ESTIMATORS AND ORIENTATION ESTIMATION IN HIDDEN MARKOV RANDOM FIELDS 693
Gyorgy Kovacs, Andras Hajdu, University of Debrecen, Hungary

TH-PS2b.6: A CONTENT-BASED 3D SHAPE RETRIEVAL SYSTEM FOR ABDOMINAL AORTIC ANEURYSM RUPTURE RISK PREDICTION 697
Hong Zhang, Carnegie Mellon University, United States; Hua Zhong, Spotlight Medical Inc., United States; Ender Finol, Carnegie Mellon University, United States

TH-PS2b.7: SPATIO-TEMPORAL ANALYSIS FOR AUTOMATIC CONTRAST INJECTION DETECTION ON ANGIOGRAPHY DURING TRANS-CATHETER AORTIC VALVE IMPLANTATION 702
Wei You, Rui Liao, Michelle Yan, Siemens Corporate Research, United States; Matthias John, Siemens, Germany

TH-PS2b.8: CHRONIC LIVER DISEASE STAGING CLASSIFICATION BASED ON ULTRASOUND, CLINICAL AND LABORATORIAL DATA 707
Ricardo Ribeiro, Institute for Systems and Robotics / Instituto Superior Técnico / Escola Superior de Tecnologia da Saúde de Lisboa, Portugal; Rui Marinho, José Velosa, Fernando Ramalho, Faculdade de Medicina da Universidade de Lisboa, Portugal; João Miguel Sanches, Institute for Systems and Robotics / Instituto Superior Técnico, Portugal

TH-PS2c: CLASSIFICATION IN HISTOLOGY AND CYTOLOGY

TH-PS2c.1: COMPARISON OF SPARSE CODING AND KERNEL METHODS FOR HISTOPATHOLOGICAL CLASSIFICATION OF GLIOBASTOMA MULTIFORME 711
Ju Han, Hang Chang, Lawrence Berkeley National Laboratory, United States; Leandro Loss, Kai Zhang, LBNL, United States; Fredrick L. Baehner, Joe Gray, Paul Spellman, Bahram Parvin, Lawrence Berkeley National Laboratory, United States

TH-PS2c.2: CASCADED MULTI-CLASS PAIRWISE CLASSIFIER (CASCAMPA) FOR NORMAL, CANCEROUS, AND CANCER CONFOUNDER CLASSES IN PROSTATE HISTOLOGY 715
Scott Doyle, Rutgers University, United States; Michael Feldman, John Tomaszewski, Natalie Shih, University of Pennsylvania, United States; Anant Madabhushi, Rutgers University, United States

TH-PS2c.3: FAST CELL DETECTION IN HIGH-THROUGHPUT IMAGERY USING GPU-ACCELERATED MACHINE LEARNING 719
David Mayerich, University of Illinois, Urbana-Champaign, United States; Jaerock Kwon, Kettering University, United States; Aaron Panchal, Westmont College, United States; John Keyser, Yoonsuck Choe, Texas A&M University, United States

TH-PS2c.4: STATISTICAL COLOR TEXTURE DESCRIPTORS FOR HISTOLOGICAL IMAGES ANALYSIS 724
Nicolas Herve, Institut Pasteur, France; Aude Servais, Eric Thervet, Necker Hospital, France; Jean-Christophe Olivo-Marin, Vannary Meas-Yedid, Institut Pasteur, France

TH-PS2c.5: SPHERICAL BESSEL FILTER FOR 3D OBJECT DETECTION 728
Henrik Skibbe, University of Freiburg, Germany; Marco Reisert, University Medical Center Freiburg, Germany; Olaf Ronneberger, Hans Burkhardt, University of Freiburg, Germany

TH-PS2c.6: OUT-OF-SAMPLE EXTRAPOLATION USING SEMI-SUPERVISED MANIFOLD LEARNING (OSE-SSL): CONTENT-BASED IMAGE RETRIEVAL FOR PROSTATE HISTOLOGY GRADING 734
Rachel Sparks, Anant Madabhushi, Rutgers University, United States

TH-PS3a: MAGNETIC RESONANCE IMAGING AND SPECTROSCOPY: METHODOLOGY

TH-PS3a.1: MODELING FOURIER TRANSFORM INFRARED SPECTROSCOPIC IMAGING OF PROSTATE AND BREAST CANCER TISSUE SPECIMENS 738
Rohith Reddy, Brynmor Davis, Paul Scott Carney, Rohit Bhargava, Univeristy of Illinois, United States

TH-PS3a.2: DICHROMATE AS A STAIN FOR MR MICROSCOPY 742
Ian Rowland, University of Wisconsin - Madison, United States

TH-PS3a.3: A TASK-BASED APPROACH TO PARAMETRIC IMAGING WITH DYNAMIC CONTRAST ENHANCED MRI 746
Muhammad Salman Haleem, Illinois Institute of Technology, United States; Masoom A. Haider, University Health Network, Canada; Imam Samil Yetik, Illinois Institute of Technology, United States

TH-PS3a.4: NUMERICAL OPTIMIZATION OF INTRA-OPERATIVE RF COIL FOR OPEN VERTICAL-FIELD MRGFUS USING HYBRID MOM/FDTD METHOD 750
Xuegang Xin, Di Wang, Jijun Han, Yanqiu Feng, Qianjin Feng, Wufan Chen, Southern Medical University, China

TH-PS3a.5: COMPARISON OF TRANSVERSE AND SPIN-LATTICE RELAXATION BASED ELECTRON PARAMAGNETIC RESONANCE OXYGEN IMAGES 754
Boris Epel, Howard J. Halpern, University of Chicago, United States

TH-PS3a.6: DETECTING CEREBRAL MICROBLEEDS IN 7.0 T MR IMAGES USING THE RADIAL SYMMETRY TRANSFORM 758
Hugo J. Kuijf, Jeroen de Bresser, Geert Jan Biessels, Max A. Viergever, Koen L. Vincken, University Medical Center Utrecht, Netherlands

TH-PS3a.7: NOVEL VECTOR BEAMFORMERS FOR EEG SOURCE IMAGING.....762
Hung Dang, Kwong Ng, James Kroger, New Mexico State University, United States

TH-PS3a.8: EVALUATION OF RECEIVE-ONLY SINGLE COIL AND FOUR-ELEMENT PHASED ARRAY FOR RODENT BRAIN IMAGING AT 11.7 T 767
Flora Ip, J. Wosik, K. Nesteruk, University of Houston, United States; T. Duong, UTHSCSA, United States

TH-PS3a.9: A LABVIEW-BASED OPERATING SYSTEM FOR PARALLEL TRANSMIT SYSTEMS 771
Katherine Moody, Neal Hollingsworth, Texas A&M University, United States; Jon-Fredrik Nielsen, Douglas Noll, University of Michigan, United States; Steve Wright, Mary McDougall, Texas A&M University, United States

TH-PS3a.10: AN EIGHT CHANNEL TRANSMIT SYSTEM FOR TRANSMIT SENSE AT 3T.....775
Neal Hollingsworth, Katherine Moody, Texas A&M University, United States; Jon-Fredrik Nielsen, Douglas Noll, University of Michigan, United States; Mary McDougall, Steve Wright, Texas A&M University, United States

TH-PS3a.11: A STATISTICAL FRAMEWORK FOR BIOMARKER IDENTIFICATION OF BIOPSIES USING HR-MAS HSQC SPECTROSCOPY 779
Akram Belghith, Christophe Collet, Jean-Paul Armspach, University of Strasbourg, France

TH-PS3a.12: GPU-BASED MOTION CORRECTION OF CONTRAST-ENHANCED LIVER MRI SCANS: AN OPENCL IMPLEMENTATION 783
Jihun Oh, Georgia Institute of Technology, United States; Diego Martin, Emory University, United States; Oskar Skrinjar, Georgia Institute of Technology, United States

TH-PS3a.13: SIMULATING CONVECTION-ENHANCED DELIVERY IN THE PUTAMEN USING PROBABILISTIC TRACTOGRAPHY 787
Do P.M. Tromp, Nagesh Adluru, Andrew L. Alexander, Marina E. Emborg, University of Wisconsin, United States

TH-PS3a.15: SPATIAL PRIORS FOR PERFUSION AND TRANSIT TIME ESTIMATION IN PASL-MRI 791
Nuno Santos, Instituto Superior Técnico / Siemens S.A., Portugal; João Miguel Sanches, Patrícia Figueiredo, Instituto Superior Técnico, Portugal

TH-PS3a.16: PARALLEL MAGNETIC RESONANCE IMAGING WITH LOCALIZED ARRAYS AND SINC INTERPOLATION (PILARS) 795
Shuo Feng, Jim Ji, Texas A&M University, United States

TH-PS3a.17: HANDLING WHITE-MATTER ANISOTROPY IN BEM FOR THE EEG FORWARD PROBLEM 799
Emmanuel Olivi, Theodore Papadopoulo, Maureen Clerc, INRIA, France

TH-PS3b: BRAIN CONNECTIVITY

TH-PS3b.1: A SWARM TRACKING APPROACH FOR STOCHASTIC WHITE MATTER TRACTOGRAPHY 803
Yuanjing Feng, Peter Savadjiev, Yogesh Rathi, Meina Quan, Harvard Medical School, United States; Zhejin Wang, Zhejiang University of Technology, China; Carl Fredrik Westin, Harvard Medical School, United States

TH-PS3b.2: STRUCTURAL CONNECTIVITY VIA THE TENSOR-BASED MORPHOMETRY 808
Seung-Goo Kim, Seoul National University, Republic of Korea; Moo K. Chung, Jamie L. Hanson, University of Wisconsin - Madison, United States; Brian B. Avants, James C. Gee, University of Pennsylvania, United States; Richard J. Davidson, Seth D. Pollak, University of Wisconsin - Madison, United States

TH-PS3b.3: TDF-TRACT: PROBABILISTIC TRACTOGRAPHY USING THE TENSOR DISTRIBUTION FUNCTION 812
Johnson GadElkarim, University of Illinois, Chicago, United States; Liang Zhan, University of California, Los Angeles, United States; Shaolin Yang, Aifeng Zhang, University of Illinois, Chicago, United States; Lori Altshuler, University of California, Los Angeles, United States; Melissa Lamar, Olu Ajilore, University of Illinois, Chicago, United States; Paul M Thompson, University of California, Los Angeles, United States; Anand Kumar, Alex D. Leow, University of Illinois, Chicago, United States

TH-PS3b.4: FINE GRANULARITY PARCELLATION OF GYRUS VIA FIBER SHAPE AND CONNECTIVITY BASED FEATURES 817
Dajiang Zhu, the University of Georgia, United States; Kaiming Li, Northwestern Polytechnical University, China; Fan Deng, the University of Georgia, United States; Degang Zhang, Northwestern Polytechnical University, China; Xi Jiang, Hanbo Chen, the University of Georgia, United States; Lei Guo, Northwestern Polytechnical University, China; Stephen Miller, Tianming Liu, the University of Georgia, China

TH-PS3b.5: 3D ELASTIC REGISTRATION IMPROVES HARDI-DERIVED FIBER ALIGNMENT AND AUTOMATED TRACT CLUSTERING 822
Yan Jin, Yonggang Shi, Neda Jahanshad, University of California, Los Angeles, United States; Iman Aganj, Guillermo Sapiro, University of Minnesota, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles, United States

TH-PS3b.6: ASSESSING GRAPH MODELS FOR DESCRIPTION OF BRAIN NETWORKS 827
Yixuan Yuan, Lei Guo, Peili Lv, Xintao Hu, Degang Zhang, Junwei Han, Northwestern Polytechnical University, China; Li Xie, Zhejiang University, China; Tianming Liu, University of Georgia, United States

TH-PS3b.7: HIERARCHICAL CLUSTERING OF THE GENETIC CONNECTIVITY MATRIX REVEALS THE NETWORK TOPOLOGY OF GENE ACTION ON BRAIN MICROSTRUCTURE: AN N=531 TWIN STUDY 832
Ming-Chang Chiang, Marina Barysheva, University of California, Los Angeles, United States; Katie Mcmahon, Greig de Zubicaray, Kori Johnson, University of Queensland, Australia; Nicholas Martin, Queensland Institute of Medical Research, Australia; Arthur W. Toga, University of California, Los Angeles, United States; Margaret Wright, Queensland Institute of Medical Research, Australia; Paul M Thompson, University of California, Los Angeles, United States

TH-PS3b.8: EVALUATION OF CONNECTIVITY MEASURES AND ANATOMICAL FEATURES FOR STATISTICAL BRAIN NETWORKS 836
Anand Joshi, Shantanu Joshi, University of California, Los Angeles, United States; Moriah Thomason, Stanford University, United States; Ivo Dinov, Arthur W. Toga, University of California, Los Angeles, United States

TH-PS3b.9: DISCRIMINATIVE PERSISTENT HOMOLOGY OF BRAIN NETWORKS 841
Hyekyoung Lee, Seoul National University, Republic of Korea; Chung Moo, Biostatistics and Medical Informatics/University of Wisconsin, United States; Hyejin Kang, Bung-Nyun Kim, Seoul National University, Republic of Korea; Dong Soo Lee, Seoul National University Hospital, Republic of Korea

TH-PS3b.10: AUTOMATED DETECTION OF WHITE MATTER FIBER BUNDLES 845
Ralph Suarez, Children's Hospital of Boston / Harvard Medical School, United States; Olivier Commowick, INRIA Rennes - Bretagne Atlantique, VISAGES Team, France; Xavier Tomas Fernandez, Sanjay Prabhu, Simon K. Warfield, Children's Hospital of Boston / Harvard Medical School, United States

TH-PS3b.11: INFERENCE OF FUNCTIONAL CONNECTIVITY FROM DIRECT AND INDIRECT STRUCTURAL BRAIN CONNECTIONS 849
Fani Deligianni, Emma Robinson, Christian Beckmann, David Sharp, David Edwards, Daniel Rueckert, Imperial College London, United Kingdom

TH-PS3b.12: CHARACTERIZATION OF THE DEFAULT MODE FUNCTIONAL CONNECTIVITY IN NORMAL AGING AND ALZHEIMER'S DISEASE: AN APPROACH COMBINING ENTROPY-BASED AND GRAPH THEORETICAL MEASUREMENTS 853
Paule J Toussaint, Sofiane Maiz, David Coynel, Arnaud Messé, Vincent Perlbarg, Marie-Odile Habert, Habib Benali, Laboratoire d'Imagerie Fonctionnelle, LINeM, INSERM, UPMC, UMR_S 678, France

TH-OS1: MRI ANALYSIS

TH-OS1.1: SPATIOTEMPORAL DENOISING OF MR SPECTROSCOPIC IMAGING DATA BY LOW-RANK APPROXIMATIONS 857
Hien Nguyen, University of Illinois, Urbana-Champaign, United States; Xi Peng, Wuhan University, United States; Minh N. Do, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

TH-OS1.2: ANALYSIS OF MRI DATA OF PATIENTS WITH ADPKD FOR THE VOLUME OF THE KIDNEYS AND OF THE ENCLOSED CYSTS 861
Stathis Hadjidemetriou, Wilfried Reichardt, Juergen Hennig, University Medical Center Freiburg, Germany; Martin Buechert, MR Development and Application Center, Germany

TH-OS1.3: AUTOMATED DETECTION OF FOCAL CORTICAL DYSPLASIA LESIONS ON T1-WEIGHTED MRI USING VOLUME-BASED DISTRIBUTIONAL FEATURES 865
Chin-Ann Yang, Mostafa Kaveh, University of Minnesota, United States; Bradley Erickson, Mayo Clinic, United States

TH-OS1.4: EXPLOITING HIERARCHY IN STRUCTURAL BRAIN NETWORKS.....871
Fani Deligianni, Emma Robinson, David Sharp, David Edwards, Daniel Rueckert, Daniel Alexander, Imperial College London, United Kingdom

TH-OS1.5: A REPOSITORY OF MR MORPHOMETRY DATA IN ALZHEIMER'S 875
DISEASE AND MILD COGNITIVE IMPAIRMENT
Rolf A. Heckemann, The Neurodis Foundation, France; Shiva Keihaninejad, University College London, United Kingdom; Paul Aljabar, Katherine R. Gray, Imperial College London, United Kingdom; Casper Nielsen, University College London, United Kingdom; Daniel Rueckert, Joseph V. Hajnal, Imperial College London, United Kingdom; Alexander Hammers, The Neurodis Foundation, France

TH-OS2: ULTRASOUND IMAGING

TH-OS2.1: 3D FLOW RECONSTRUCTION FROM MULTIPLE REGISTERED ECHO 879
DOPPLER VIEWS
Alberto Gomez, King's College London, United Kingdom; John Simpson, NHS Trust, United Kingdom; Cheng Yao, Tobias Schaeffter, Graeme Penney, King's College London, United Kingdom

TH-OS2.2: COMPARISON OF ALGORITHMS FOR ESTIMATING ULTRASOUND 883
ATTENUATION WHEN PREDICTING CERVICAL REMODELING IN A RAT
MODEL
Timothy Bigelow, Iowa State University, United States; Yassin Labyed, Los Alamos National Laboratory, United States; Barbra McFarlin, University of Illinois, Chicago, United States; Ellora Sen-Gupta, William O'Brien, Jr., University of Illinois, Urbana-Champaign, United States

TH-OS2.3: NAKAGAMI IMAGING WITH SMALL WINDOWS.....887
Aymeric Larrue, Alison Noble, University of Oxford, United Kingdom

TH-OS2.4: SURFACE PARAMETERISATION OF THE UTERO/PLACENTAL INTERFACE 891
USING 3D POWER DOPPLER ULTRASOUND
Gordon Stevenson, Sally Collins, Lawrence Impey, Alison Noble, University of Oxford, United Kingdom

TH-OS2.5: CONTINUOUS-DOMAIN ARMA MODELING FOR ULTRASOUND TISSUE 895
CHARACTERIZATION
Simona Maggio, Martino Alessandrini, Nicolò Speciale, Università di Bologna, Italy; Olivier Bernard, CREATIS-LRMN, France; Didier Vray, Olivier Basset, CREATIS - CNRS, France; Michael Unser, École Polytechnique Fédérale de Lausanne, Switzerland

TH-OS3: BIOLOGICAL MICROSCOPY

TH-OS3.1: SPATIALLY-VARIANT LUCY-RICHARDSON DECONVOLUTION FOR 899
MULTIVIEW FUSION OF MICROSCOPICAL 3D IMAGES
Maja Temerinac-Ott, Olaf Ronneberger, Roland Nitschke, Wolfgang Driever, Hans Burkhardt, Albert Ludwigs Universität Freiburg, Germany

TH-OS3.2: WAVEFRONT SENSING FOR ABERRATION MODELING IN 905
FLUORESCENCE MACROSCOPY
Praveen Pankajakshan, Institut Pasteur, France; Alain Dieterlen, Université de Haute-Alsace, France; Gilbert Engler, INRA, France; Zvi Kam, Weizmanna Institute of Science, Israel; Laure Blanc-Féraud, Josiane Zerubia, INRIA/CNRS/UNS, France; Jean-Christophe Olivo-Marin, Institut Pasteur, France

TH-OS3.3: RESTORING ARTIFACT-FREE MICROSCOPY IMAGE SEQUENCES.....909
Zhaozheng Yin, Takeo Kanade, Carnegie Mellon University, United States

TH-OS3.4: FAST VIRTUAL DESTAINING OF IMMUNOCYTOLOGICAL SPECIMENS 914
André Bell, David Friedrich, Kraisorn Chaisaowong, RWTH Aachen University, Germany; Till Braunschweig, Ruth Knüchel-Clarke, University Hospital Aachen, Germany; Til Aach, RWTH Aachen University, Germany

TH-OS3.5: STOCHASTIC 3-D SIGNAL RECONSTRUCTION FROM NOISY 918
PROJECTION DATA FOR HETEROGENEOUS INSTANCES OF OBJECTS IN ELECTRON MICROSCOPY IMAGERY
Yili Zheng, Lawrence Berkeley National Laboratory, United States; Qiu Wang, Peter Doerschuk, Cornell University, United States

TH-OS4: DIFFUSION IMAGING

TH-OS4.1: OPTIMIZED WORKFLOW FOR DIFFUSION KURTOSIS IMAGING OF 922
NEWBORNS
Maryna Kudzinava, University of Antwerp, Belgium; Dirk Poot, University Medical Center Rotterdam, Netherlands; Annemarie Plaisier, Children´s Hospital Erasmus MC-Sophia, Netherlands; Jan Sijbers, University of Antwerp, Belgium

TH-OS4.2: FAST PARAMETRIZED VOLUMETRIC DTI TRACT PARCELLATION 927
Hon Pong Ho, Catherine Harwood, Lawrence Staib, Yale University, United States

TH-OS4.3: COMPARISON OF THE COMPLETE FOURIER DIRECT MRI WITH 931
EXISTING DIFFUSION WEIGHTED MRI METHODS
Alpay Özcan, Washington University in Saint Louis, United States

TH-OS4.4: EXACT INTEGRATION OF DIFFUSION ORIENTATION DISTRIBUTION 935
FUNCTIONS FOR GRAPH-BASED DIFFUSION MRI ANALYSIS
Brian G. Booth, Ghassan Hamarneh, Simon Fraser University, Canada

TH-OS4.5: SEX DIFFERENCES IN THE HUMAN CONNECTOME: 4-TESLA HIGH 939
ANGULAR RESOLUTION DIFFUSION IMAGING (HARDI) TRACTOGRAPHY IN 234 YOUNG ADULT TWINS
Neda Jahanshad, University of California, Los Angeles, United States; Iman Aganj, Christophe Lenglet, University of Minnesota, United States; Anand Joshi, Yan Jin, Marina Barysheva, University of California, Los Angeles, United States; Katie McMahon, Greig de Zubicaray, Nicholas Martin, University of Queensland, Australia; Margaret Wright, Queensland Institute of Medical Research, Australia; Arthur W. Toga, University of California, Los Angeles, United States; Guillermo Sapiro, University of Minnesota, United States; Paul M Thompson, University of California, Los Angeles, United States

TH-OS5: IMAGE RECONSTRUCTION: OPTICAL, ELECTROMAGNETIC, AND ACOUSTICAL

TH-OS5.1: MULTISLICE EX VIVO THERMOACOUSTIC IMAGING OF PORCINE 944
KIDNEYS
Michael Roggenbuck, Jared Catenacci, Sarah Patch, University of Wisconsin - Milwaukee, United States

TH-OS5.2: PARAMETRIC LEVEL-SET APPROACH FOR HYPERSPECTRAL DIFFUSE OPTICAL TOMOGRAPHY 949
Fridrik Larusson, Sergio Fantini, Eric L. Miller, Tufts University, United States

TH-OS5.3: MICROWAVE TOMOGRAPHY FOR BONE IMAGING 956
Amir Golnabi, Paul Meaney, Shireen Geimer, Tian Zhou, Keith Paulsen, Dartmouth College, United States

TH-OS5.4: A PRIMAL-DUAL RECONSTRUCTION ALGORITHM FOR FLUORESCENCE AND BIOLUMINESCENCE TOMOGRAPHY 960
Jean-Charles Baritaux, Michael Unser, Swiss Institute of Technology of Lausanne, Switzerland

TH-OS5.5: DEVELOPMENT OF A VARIATIONAL BAYESIAN EXPECTATION MAXIMIZATION (VBEM) METHOD FOR MODEL INVERSION OF MULTI-AREA E/MEG MODEL 964
Abbas Babajani-Feremi, Kourosh Jafari-Khouzani, Hamid Soltanian-Zadeh, Henry Ford Health System, United States

TH-OS6: IMAGE SEGMENTATION

TH-OS6.1: AN EFFICIENT SEGMENTATION METHOD FOR ULTRASOUND IMAGES BASED ON A SEMI-SUPERVISED APPROACH AND PATCH-BASED FEATURES 969
Anca Ciurte, Technical University of Cluj-Napoca, Romania; Nawal Houhou, École Polytechnique Fédérale de Lausanne, Switzerland; Sergiu Nedevschi, Technical University of Cluj-Napoca, Romania; Alessia Pica, Lausanne University Hospital (CHUV), Switzerland; Francis Munier, Ophthalmic Hospital Jules Gonin, Switzerland; Jean-Philippe Thiran, École Polytechnique Fédérale de Lausanne, Switzerland; Xavier Bresson, City University of Hong Kong, Hong Kong SAR of China; Meritxell Bach Cuadra, École Polytechnique Fédérale de Lausanne, Switzerland

TH-OS6.2: HIERARCHICAL MARKOV RANDOM FIELDS FOR MAST CELL SEGMENTATION IN ELECTRON MICROSCOPIC RECORDINGS 973
Margret Keuper, Thorsten Schmidt, Marta Rodriguez-Franco, Albert Ludwigs Universität Freiburg, Germany; Wolfgang Schamel, Albert Ludwigs Universität Freiburg / Max-Planck Institute for Immunobiology, Germany; Thomas Brox, Hans Burkhardt, Olaf Ronneberger, Albert Ludwigs Universität Freiburg, Germany

TH-OS6.3: A GEODESIC VOTING METHOD FOR THE SEGMENTATION OF TUBULAR TREE AND CENTERLINES 979
Youssef Rouchdy, Telecom ParisTech, France; Laurent Cohen, CEREMADE, Paris Dauphine, France

TH-OS6.4: FAST AUTOMATED SEGMENTATION OF FEMORAL HEADS IN FLUOROSCOPIC X-RAY IMAGES 984
Lei Wang, Fraunhofer MEVIS, Germany; Michael Kohnen, Stryker Leibinger GmbH, Germany; Ola Friman, Horst Karl Hahn, Fraunhofer MEVIS, Germany

TH-OS6.5: LANDMARK-BASED SEGMENTATION OF LUNGS WHILE HANDLING PARTIAL CORRESPONDENCES USING SPARSE GRAPH-BASED PRIORS 989
Ahmed Besbes, Nikos Paragios, Ecole Centrale de Paris, France

TH-OS7: CELL TRACING AND TRACKING

TH-OS7.1: PATH2PATH: HIERARCHICAL PATH-BASED ANALYSIS FOR NEURON MATCHING 996
Saurav Basu, Barry Condron, Scott T. Acton, University of Virginia, United States

TH-OS7.2: A RAPID 2-D CENTERLINE EXTRACTION METHOD BASED ON TENSOR VOTING 1000
Zhe Leng, Julie Korenberg, University of Utah, United States; Badrinath Roysam, Rensselaer Polytechnic Institute, United States; Tolga Tasdizen, University of Utah, United States

TH-OS7.3: RELIABLE CELL TRACKING BY GLOBAL DATA ASSOCIATION 1004
Ryoma Bise, Zhaozheng Yin, Takeo Kanade, Carnegie Mellon University, United States

TH-OS7.4: SIMULTANEOUS TRACKING OF CELL NUCLEI AND CONDUIT PARAMETERS FROM TIME-LAPSE CONFOCAL MICROSCOPY IMAGES 1011
Lee-Ling Ong, Singapore-MIT Alliance for Research and Technology Centre, Singapore; Marcelo H Ang, National University of Singapore, Singapore; H. Harry Asada, Massachusetts Institute of Technology, United States

TH-OS7.5: LOW FRAME RATE CELL TRACKING: A DELAUNAY GRAPH MATCHING APPROACH 1015
Yuxi Chen, Pedro Quelhas, Aurelio Campilho, University of Porto, Portugal

TH-OS8: FUNCTIONAL MRI AND ANALYSIS I

TH-OS8.1: ORDER DETECTION FOR FMRI ANALYSIS: JOINT ESTIMATION OF DOWNSAMPLING DEPTH AND ORDER BY INFORMATION THEORETIC CRITERIA 1019
Xi-Lin Li, Sai Ma, University of Maryland, Baltimore County, United States; Vince D. Calhoun, The Mind Research Network and The University of New Mexico, United States; Tulay Adali, University of Maryland, Baltimore County, United States

TH-OS8.2: A SPATIO-TEMPORAL SUPPORT VECTOR MACHINE SEARCHLIGHT FOR FMRI ANALYSIS 1023
A. Ravishankar Rao, Rahul Garg, Guillermo Cecchi, IBM T. J. Watson Research Center, United States

TH-OS8.3: A DATA-DRIVEN SPATIALLY ADAPTIVE SPARSE GENERALIZED LINEAR MODEL FOR FUNCTIONAL MRI ANALYSIS 1027
Kangjoo Lee, Sungho Tak, Jong Chul Ye, KAIST, Republic of Korea

TH-OS8.4: HIERARCHICAL AND GRAPHICAL ANALYSIS OF FMRI NETWORK CONNECTIVITY IN HEALTHY AND SCHIZOPHRENIC GROUPS 1031
Sai Ma, University of Maryland, Baltimore County, United States; Tom Eichele, University of Bergen, Norway; Nicolle Correa, University of Maryland, Baltimore County, United States; Vince D. Calhoun, The Mind Research Network and The University of New Mexico, United States; Tulay Adali, University of Maryland, Baltimore County, United States

TH-OS8.5: CONSTRUCTION AND EVALUATION OF A QUANTITATIVE ARTERIAL SPIN LABELING BRAIN PERFUSION TEMPLATE AT 3T 1035
Jan Petr, National Institute for Research in Computer Science and Control, France; Jean-Christophe Ferre, Elise Bannier, Helene Raoult, Jean-Yves Gauvrit, University Hospital of Rennes, France; Christian Barillot, National Institute for Research in Computer Science and Control, France

TH-SS1a: COMPRESSIVE SENSING FOR BIOMEDICAL IMAGING I

TH-SS1a.1: PRACTICAL PARALLEL IMAGING COMPRESSED SENSING MRI: SUMMARY OF TWO YEARS OF EXPERIENCE IN ACCELERATING BODY MRI OF PEDIATRIC PATIENTS 1039
SS Vasanawala, Stanford University, United States; M. J. Murphy, University of California, Berkeley, United States; M. T. Alley, Stanford University, United States; P. Lai, GE Healthcare, United States; K. Keutzer, University of California, Berkeley, United States; J. M. Pauly, Stanford University, United States; M. Lustig, University of California, Berkeley, United States

TH-SS1a.2: SMOOTH SAMPLING TRAJECTORIES FOR SPARSE RECOVERY IN MRI.....1044
Rebecca Willett, Duke University, United States

TH-SS1a.3: L0-COMPRESSED SENSING FOR PARALLEL DYNAMIC MRI USING SPARSE BAYESIAN LEARNING 1048
Hong Jung, HuiSu Yoon, Jong Chul Ye, KAIST, Republic of Korea

TH-SS1a.4: LOW-RANK APPROXIMATIONS FOR DYNAMIC IMAGING 1052
Justin Haldar, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

TH-SS1a.5: FREQUENCY EXTRAPOLATION BY NONCONVEX COMPRESSIVE SENSING 1056
Rick Chartrand, Los Alamos National Laboratory, United States; Emil Y. Sidky, Xiaochuan Pan, University of Chicago, United States

TH-OS9: FLOW IMAGING

TH-OS9.1: VARIATIONAL ENHANCEMENT AND DENOISING OF FLOW FIELD IMAGES 1061
Pouya Tafti, Ricard Delgado-Gonzalo, École Polytechnique Fédérale de Lausanne, Switzerland; Aurélien Stalder, Xuanwu Hospital - Capital Medical University, China; Michael Unser, École Polytechnique Fédérale de Lausanne, Switzerland

TH-OS9.2: SELF-ASSESSING IMAGE-BASED RESPIRATORY MOTION COMPENSATION FOR FLUOROSCOPIC CORONARY ROADMAPPING 1065
Michael Manhart, University of Erlangen-Nuremberg, Germany; Ying Zhu, Siemens Corporate Research, United States; Dime Vitanovski, University of Erlangen-Nuremberg, Germany

TH-OS9.3: MYOCARDIAL MOTION COMPUTATION IN 4D ULTRASOUND.....1070
Ryan Mukherjee, Chad Sprouse, Theodore Abraham, Beatrice Hoffmann, Elliot McVeigh, The Johns Hopkins University, United States; David Yuh, Johns Hopkins Hospital, United States; Philippe Burlina, The Johns Hopkins University, United States

TH-OS9.4: QUANTIFICATION OF REGIONAL LUNG VENTILATION FROM TAGGED HYPERPOLARIZED HELIUM-3 MRI 1074
Kai Ding, Wilson Miller, University of Virginia, United States; Kunlin Cao, Gary Christensen, Joseph Reinhardt, University of Iowa, United States; Stanley Benedict, Bruce Libby, Ke Sheng, University of Virginia, United States

TH-OS9.5: NONINVASIVE STRAIN IMAGING IN PULSATING VESSELS USING BEAM STEERED ULTRASOUND ACQUISITIONS 1078
Hendrik Hansen, Radboud University Nijmegen Medical Centre, Netherlands; Richard Lopata, Michiel Keijts, Eindhoven University of Technology, Netherlands; Tim Idzenga, Chris de Korte, Radboud University Nijmegen Medical Centre, Netherlands

TH-OS10: IMAGE CLASSIFICATION OF DISEASES I

TH-OS10.1: REGIONAL ANALYSIS OF FDG-PET FOR USE IN THE CLASSIFICATION OF ALZHEIMER'S DISEASE 1082
Katherine R. Gray, Robin Wolz, Imperial College London, United Kingdom; Shiva Keihaninejad, University College London / Imperial College London, United Kingdom; Rolf A. Heckemann, The Neurodis Foundation / Imperial College London, France; Paul Aljabar, Imperial College London, United Kingdom; Alexander Hammers, The Neurodis Foundation / Imperial College London, France; Daniel Rueckert, Imperial College London, United Kingdom

TH-OS10.2: DISEASE CLASSIFICATION AND PREDICTION VIA SEMI-SUPERVISED DIMENSIONALITY REDUCTION 1086
Kayhan Nematollah Batmanghelich, Dong Hye Ye, Kilian Mary Pohl, Section of Biomedical Image Analysis, United States; Ben Taskar, Computer and Information Science, United States; Christos Davatzikos, University of Pennsylvania, United States; ADNI, Laboratory of Neuro Imaging, United States

TH-OS10.3: AUTOMATIC CLASSIFICATION OF IMAGES OF AN ANGIOGRAPHY SEQUENCE USING MODIFIED SHAPE CONTEXT-BASED SPATIAL PYRAMID KERNELS 1091
Fei Wang, Yong Zhang, Hayit Greenspan, Tanveer Syeda-Mahmood, David Beymer, IBM Research Almaden, United States

TH-OS10.4: COMPUTER-AIDED DETECTION OF HEPATOCELLULAR CARCINOMA IN HEPATIC CT: FALSE POSITIVE REDUCTION WITH FEATURE SELECTION 1097
Jian-Wu Xu, Kenji Suzuki, The University of Chicago, United States

TH-OS10.5: UNDERSTANDING HETEROGENEITY IN NORMAL OLDER ADULT POPULATIONS VIA CLUSTERING OF LONGITUDINAL DATA 1101
Roman Filipovych, University of Pennsylvania, United States; Susan M. Resnick, National Institutes of Health, United States; Christos Davatzikos, University of Pennsylvania, United States

TH-OS11: BRAIN IMAGING

TH-OS11.1: PARTITIONING DIRECTED GRAPHS BASED ON MODULARITY AND INFORMATION FLOW 1105
Yu-Teng Chang, Dimitrios Pantazis, Richard M. Leahy, University of Southern California, United States

TH-OS11.2: ANISOTROPIC EQUIVALENT CONDUCTIVITY TENSORS FOR BIOELECTRIC MODELING OF PARTIAL VOLUME EFFECTS IN CEREBROSPINAL FLUID SPACES 1109
Damon Hyde, Simon K. Warfield, Children's Hospital of Boston / Harvard Medical School, United States

TH-OS11.3: BRAIN TUMOR VASCULAR NETWORK SEGMENTATION FROM MICRO-TOMOGRAPHY 1113
Xavier Descombes, INRIA, France; Franck Plouraboue, IMFT, France; Abdelhakim El Boustani, ENSA, Morocco; Caroline Fonta, CERCO, France; Geraldine LeDuc, ESRF, France; Raphael Serduc, INSERM, France; Timm Weitkamp, SOLEIL, France

TH-OS11.4: BRAIN PATTERN ANALYSIS OF CORTICAL VALUED DISTRIBUTIONS 1117
Shantanu Joshi, Ian Bowman, Arthur W. Toga, John Van Horn, LONI, UCLA, United States

TH-OS11.5: INTERACTIVE 3D BRAIN VESSEL SEGMENTATION FROM AN EXAMPLE 1121
Alice Dufour, Nicolas Passat, Strasbourg University, France; Benoît Naegel, Nancy I University, France; Joseph Baruthio, Strasbourg University, France

TH-SS1b: COMPRESSIVE SENSING FOR BIOMEDICAL IMAGING II

TH-SS1b.1: SPARSE TOPOLOGICAL DATA RECOVERY IN MEDICAL IMAGES 1125
Moo K. Chung, University of Wisconsin, United States; Hyekyoung Lee, Seoul National University, Republic of Korea; Peter T. Kim, University of Guelph, Canada; Jong Chul Ye, Korea Advanced Institute of Science and Technology, Republic of Korea

TH-SS1b.2: APPLICATION OF COMPRESSED SENSING TO OPTICAL TOMOGRAPHY 1130
Benoit Hamelin, Simon Archambault, Samuel Bélanger, Ecole Polytechnique Montréal, Canada; Jean-Marc Lina, Ecole de Technologie Superieure de Montreal, Canada; Frédéric Lesage, Ecole Polytechnique Montréal, Canada

TH-SS1b.3: COMPRESSIVE SENSING WITH CONSTRAINED MEASUREMENT DIRECTIONS ..... N/A
David Wipf, Srikantan Nagarajan, University of California, San Francisco, United States

FR-PS1a: IMAGE RECONSTRUCTION: PET, SPECT, CT (I)

FR-PS1a.1: ACCELERATED ORDERED-SUBSETS ALGORITHM BASED ON SEPARABLE QUADRATIC SURROGATES FOR REGULARIZED IMAGE RECONSTRUCTION IN X-RAY CT 1134
Donghwan Kim, Jeffrey A. Fessler, The University of Michigan, United States

FR-PS1a.2: NEW STATISTICAL RECONSTRUCTION METHOD FOR EMISSION TOMOGRAPHY 1138
Arkadiusz Sitek, Harvard Medical School / Brigham and Women's Hospital, United States

FR-PS1a.3: DIFFUSE OPTICAL TOMOGRAPHY USING GENERALIZED MUSIC ALGORITHM 1142
Okkyun Lee, Jongmin Kim, Korea Advanced Institute of Science and Technology, Republic of Korea; Yoram Bresler, University of Illinois, Urbana-Champaign, United States; Jong Chul Ye, Korea Advanced Institute of Science and Technology, Republic of Korea

FR-PS1a.4: KERNEL DENSITY CORRELATION BASED NON-RIGID POINT SET MATCHING FOR STATISTICAL MODEL-BASED 2D/3D RECONSTRUCTION 1146
Guoyan Zheng, University of Bern, Switzerland

FR-PS1a.5: A UNIFIED ENERGY MINIMIZATION FRAMEWORK FOR NONLOCAL REGULARIZATION 1150
Zhili Yang, Mathews Jacob, University of Rochester, United States

FR-PS1a.6: IMAGE RECOVERY USING IMPROVED TOTAL VARIATION REGULARIZATION 1154
Yue Hu, Mathews Jacob, University of Rochester, United States

FR-PS1a.7: EDGE PRESERVING BOWSHER PRIOR WITH NONLOCAL WEIGHTING FOR 3D SPECT RECONSTRUCTION 1158
Daniil Kazantsev, University College London, United Kingdom; Alexandre Bousse, University College London Hospitals NHS Trust, United Kingdom; Stefano Pedemonte, Simon Arridge, University College London, United Kingdom; Brian Hutton, University College London Hospitals NHS Trust, United Kingdom; Sebastien Ourselin, University College London, United Kingdom

FR-PS1a.8: RECONSTRUCTION OF 3D TUBULAR STRUCTURES FROM CONE-BEAM PROJECTIONS 1162
Jia Li, Oakland University, United States; Laurent Cohen, University of Paris - Dauphine, France

FR-PS1a.9: PROJECTION DATA RESTORATION GUIDED NON-LOCAL MEANS FOR LOW-DOSE COMPUTED TOMOGRAPHY RECONSTRUCTION 1167
Jing Huang, Jianhua Ma, Nan Liu, Qianjin Feng, Wufan Chen, Southern Medical University, China

FR-PS1b: MUSCULOSKELETAL CLASSIFICATION

FR-PS1b.1: MANDIBULAR ASYMMETRY CHARACTERIZATION USING GENERALIZED TENSOR-BASED MORPHOMETRY 1175
Beatriz Paniagua, Abeer Alhadidi, Lucia Cevidanes, Martin Styner, Ipek Oguz, University of North Carolina at Chapel Hill, United States

FR-PS1b.2: COMPUTER-AIDED DIAGNOSIS FOR LUMBAR MRI USING HETEROGENEOUS CLASSIFIERS 1179
Subarna Ghosh, Raja' Alomari, Vipin Chaudhary, State University of New York at Buffalo, United States; Gurmeet Dhillon, Proscan Imaging Inc., United States

FR-PS1b.3: AGE PREDICTION USING A SUPERVISED FACIAL MODEL 1183
Alex Nkengne, Johnson and Johnson Group of Consumers Companies, France; Arthur Tenenhaus, SUPELEC, France; Bernard Fertil, Ecole Supérieure d'Ingénieurs de Luminy (ESIL), France

FR-PS1b.4: HIP FRACTURE DISCRIMINATION USING 3D RECONSTRUCTIONS .....1189 FROM DUAL-ENERGY X-RAY ABSORPTIOMETRY
Tristan Whitmarsh, Universitat Pompeu Fabra, Spain; Karl Fritscher, University for Health Sciences, Medical Informatics and Technology, Austria; Ludovic Humbert, Universitat Pompeu Fabra, Spain; Luis Del Rio Barquero, CETIR, Centre Medic, Spain; Rainer Schubert, University for Health Sciences, Medical Informatics and Technology, Spain; Alejandro F. Frangi, Universitat Pompeu Fabra, Spain

FR-PS1b.5: AUTOMATED QUANTIFICATION AND ANALYSIS OF FACIAL ASYMMETRY .....1193 IN CHILDREN WITH ARTHRITIS IN THE TEMPOROMANDIBULAR JOINT
Tron A. Darvann, Copenhagen University Hospital Rigshospitalet; School of Dentistry, University of Copenhagen; and DTU Informatics, Technical University of Denmark, Denmark; Nuno V. Hermann, Sune Demant, University of Copenhagen, Denmark; Per Larsen, Copenhagen University Hospital Rigshospitalet; School of Dentistry, University of Copenhagen; and DTU Informatics, Technical University of Denmark, Denmark; Hildur Ólafsdóttir, Technical University of Denmark, Denmark; Signe S Thorup, Copenhagen University Hospital Rigshospitalet; School of Dentistry, University of Copenhagen; and DTU Informatics, Technical University of Denmark, Denmark; Marek Zak, Copenhagen University Hospital Rigshospitalet, Denmark; Angelo Lipira, Washington University School of Medicine, United States; Alex A Kane, Children's Medical Center, United States; Daniel Govier, Washington University School of Medicine, United States; Helena Schatz, University of Copenhagen, Denmark; Daniel Rueckert, Imperial College London, United Kingdom; Sven Kreiborg, University of Copenhagen, Denmark

FR-PS1b.7: AN AUTOMATIC METHOD FOR RIB ORDERING AND PAIRING IN 3D .....1201 MEDICAL IMAGES
Sowmya Ramakrishnan, Volt Workforce Solutions inc. / Siemens Corporate Research, United States; Christopher Alvino, Siemens Corporate Research, United States

FR-PS1c: IMAGE REGISTRATION II

FR-PS1c.1: COLLAPSED-CONE BASED DEFORMATION FIELD REGULARIZATION .....1205 FOR NONRIGID IMAGE REGISTRATION
Bo Zhou, Cedric X. Yu, University of Maryland, United States; Andrew Godley, X. Allen Li, Medical College of Wisconsin, United States; Xiaobo Sharon Hu, Danny Z. Chen, University of Notre Dame, United States

FR-PS1c.2: BOOSTED METRIC LEARNING FOR 3D MULTI-MODAL DEFORMABLE .....1209 REGISTRATION
Fabrice Michel, Ecole Centrale de Paris / INRIA Saclay Ile de France, France; Michael Bronstein, Università della Svizzera Italiana, Switzerland; Alex Bronstein, Tel Aviv University, Israel; Nikos Paragios, Ecole Centrale de Paris / INRIA Saclay Ile de France, France

FR-PS1c.3: A HYBRID METHOD FOR 2-D/3-D REGISTRATION BETWEEN 3-D .....1215 VOLUMES AND 2-D ANGIOGRAPHY FOR TRANS-CATHETER AORTIC VALVE IMPLANTATION (TAVI)
Shun Miao, Rui Liao, Yefeng Zheng, Siemens Corporate Research, United States

FR-PS1c.4: DEMONS REGISTRATION WITH LOCAL AFFINE ADAPTIVE REGULARIZATION: APPLICATION TO REGISTRATION OF ABDOMINAL STRUCTURES 1219
Moti Freiman, Harvard Medical School, United States; Stephan Voss, Children's Hospital of Boston / Harvard Medical School, United States; Simon K. Warfield, Harvard Medical School, United States

FR-PS1c.5: WHOLE BODY NONRIGID CT-PET REGISTRATION USING WEIGHTED DEMONS 1223
Jung Wook Suh, Oh-K. Kwon, University of Pennsylvania, United States; Dustin Scheinost, Albert Sinusas, Gary Cline, Xenophon Papademetris, Yale University, United States

FR-PS1c.6: OPTIMIZED GPU HISTOGRAMS FOR MULTI-MODAL REGISTRATION 1227
Christoph Vetter, Siemens Corporate Research, United States; Rüdiger Westermann, Technische Universität München, Germany

FR-PS1c.7: MULTI-SCALE RIGID REGISTRATION TO DETECT DAMAGE IN MICRO-CT IMAGES OF PROGRESSIVELY LOADED BONES 1231
Richard Green, Jim Graham, Hugh Devlin, University of Manchester, United Kingdom

FR-PS1c.8: ELASTIC REGISTRATION OF CHEST CT IMAGES WITH LOG UN-BIASED DEFORMATIONS AND RIGIDITY CONSTRAINT 1235
Habib Baluwala, University of Oxford, United Kingdom; Kinda Anna Saddi, Siemens Molecular Imaging, United Kingdom; Julia A. Schnabel, University of Oxford, United Kingdom

FR-PS1c.9: A HYBRID FEM-BASED METHOD FOR ALIGNING PRONE AND SUPINE IMAGES FOR IMAGE GUIDED BREAST SURGERY 1239
Lianghao Han, John Hipwell, Thomy Mertzanidou, Tim Carter, Marc Modat, Sebastien Ourselin, David Hawkes, University College London, United Kingdom

FR-PS1c.10: ITREE: FAST AND ACCURATE IMAGE REGISTRATION BASED ON THE COMBINATIVE AND INCREMENTAL TREE 1243
Hongjun Jia, Guorong Wu, Qian Wang, Minjeong Kim, Dinggang Shen, University of North Carolina at Chapel Hill, United States

FR-PS1c.11: REGISTRATION OF IMAGES WITH TOPOLOGICAL CHANGE VIA RIEMANNIAN EMBEDDING 1247
Xiaoxing Li, GE Global Research, United States; Xiaojing Long, Christopher Wyatt, Virginia Tech, United States

FR-PS1c.12: SURFACE MEMBRANE BASED BLADDER REGISTRATION FOR EVALUATION OF ACCUMULATED DOSE DURING BRACHYTHERAPY IN CERVICAL CANCER 1253
Karsten Noe, The Alexandra Institute, Denmark; Kari Tanderup, Aarhus University Hospital, Denmark; Thomas Sangild Sørensen, Aarhus University, Denmark

FR-PS1c.13: EM-ICP STRATEGIES FOR JOINT MEAN SHAPE AND CORRESPONDENCES ESTIMATION: APPLICATIONS TO STATISTICAL ANALYSIS OF SHAPE AND OF ASYMMETRY 1257
Benoit Combès, Marc Fournier, INRIA, France; David Kennedy, University of Massachusetts Medical School, France; José Braga, AMIS, Paul Sabatier University, France; Neil Roberts, CRIC Edinburgh, United Kingdom; Sylvain Prima, INRIA, France

FR-PS2a: CARDIAC IMAGING

FR-PS2a.1: K-T ISD: COMPRESSED SENSING WITH ITERATIVE SUPPORT DETECTION FOR DYNAMIC MRI 1264
Dong Liang, University of Wisconsin - Milwaukee, United States; Edward V. R. DiBella, Rong-Rong Chen, University of Utah, United States; Leslie Ying, University of Wisconsin - Milwaukee, United States

FR-PS2a.2: DIRECT PARAMETRIC RECONSTRUCTION OF GATED DYNAMIC CARDIAC SPECT 1268
Xiaofeng Niu, Yongyi Yang, Miles Wernick, Illinois Institute of Technology, United States

FR-PS2a.3: A NEW FRAMEWORK FOR AUTOMATED IDENTIFICATION OF PATHOLOGICAL TISSUES IN CONTRAST ENHANCED CARDIAC MAGNETIC RESONANCE IMAGES 1272
Ahmed Elnakib, Garth Beache, Matthew Nitzken, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, United States; Ayman El-Baz, University of Louisville, United States

FR-PS2a.4: AN IMPROVED PERIODIC OPTICAL FLOW MODEL FOR CARDIAC GATED IMAGE RECONSTRUCTION 1276
Wenyuan Qi, Xiaofeng Niu, Yongyi Yang, Illinois Institute of Technology, United States

FR-PS2a.5: ACCELERATED FIRST PASS CARDIAC PERFUSION MRI USING IMPROVED K-T SLR 1280
Sajan Goud Lingala, Yue Hu, University of Rochester, United States; Edward V. R. Dibella, University of Utah, United States; Mathews Jacob, University of Rochester, United States

FR-PS2a.6: MOVING PROPAGATION OF SUSPICIOUS MYOCARDIAL INFARCTION FROM DELAYED ENHANCED CARDIAC IMAGING TO CINE MRI USING HYBRID IMAGE REGISTRATION 1284
Yixun Liu, Siemens Corporate Research / The College of William and Mary / Old Dominion University, United States; Hui Xue, Christoph Guetter, Marie-Pierre Jolly, Siemens Corporate Research, United States; Nikos Chrisochoides, Old Dominion University, United States; Jens Guehring, Siemens Corporate Research, United States

FR-PS2a.7: IMPROVED STRAIN MEASURING USING FAST STRAIN-ENCODED CARDIAC MR 1289
Abdallah Motaal, Nile University, Egypt; Nael Osman, The Johns Hopkins University, United States

FR-PS2a.9: SEMI-SUPERVISED SELF-TRAINING MODEL FOR THE SEGMENTATION OF THE LEFT VENTRICLE OF THE HEART FROM ULTRASOUND DATA 1295
Gustavo Carneiro, Jacinto Nascimento, Instituto Superior Técnico, Portugal; Antonio Freitas, Hospital Amadora-Sintra, Portugal

FR-PS2a.10: EXTRACTING GEOMETRIC FEATURES OF AORTIC VALVE ANNULUS MOTION FROM DYNAMIC MRI FOR GUIDING INTERVENTIONS 1302
Nikhil Navkar, Erol Yeniaras, University of Houston, United States; Dipan Shah, Weill Medical College of Cornell University, United States; Nikolaos Tsekos, Zhigang Deng, University of Houston, United States

FR-PS2a.11: AUTOMATIC ANALYSIS OF LEFT VENTRICLE WALL THICKNESS USING SHORT-AXIS CINE CMR IMAGES 1306
Fahmi Khalifa, Garth Beache, Matthew Nitzken, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, New Zealand; Guruprasad Giridharan, Ayman El-Baz, University of Louisville, United States

FR-PS2a.12: SIMULTANEOUS IMAGING OF WALL MOTION AND FLOW VELOCITY IN THE HEARTS AND VESSELS OF MICE IN VIVO: A FEASIBILITY STUDY 1310
Jianwen Luo, Elisa E. Konofagou, Columbia University, United States

FR-PS2a.13: AN AUTOMATIC METHOD FOR THE IDENTIFICATION AND QUANTIFICATION OF MYOCARDIAL PERFUSION DEFECTS OR INFARCTION FROM CARDIAC CT IMAGES 1314
Yechiel Lamash, Jonathan Lessick, Asher Gringauz, Philips Healthcare, Israel

FR-PS2a.14: QUANTITATIVE DETECTION OF LEFT VENTRICULAR DYSSYNCHRONY FROM CARDIAC COMPUTED TOMOGRAPHY ANGIOGRAPHY 1318
Ming Jack Po, Columbia University, United States; Monvadi Barbara Srichai, NYU Langone Medical Center, United States; Andrew F. Laine, Columbia University, United States

FR-PS2a.15: COMBINING SHAPE AND SPECKLE TRACKING FOR DEFORMATION ANALYSIS IN ECHOCARDIOGRAPHY USING RADIAL BASIS FUNCTIONS 1322
Colin Compas, Ben Lin, Smita Sampath, Albert Sinusas, James S. Duncan, Yale University, United States

FR-PS2a.16: LOW-ORDER 4D DYNAMICAL MODELING OF HEART MOTION UNDER RESPIRATION 1326
Marc Queralt Madrigal, Technical University of Catalonia, Spain; Gilead Tadmor, Northeastern University, United States; Giullem Crosas Cano, Technical University of Catalonia, Spain; Dana H. Brooks, Northeastern University, United States

FR-PS2b: BIOLOGICAL CURVILINEAR STRUCTURE TRACING

FR-PS2b.1: AUTOMATED ESTIMATION OF MICROTUBULE MODEL PARAMETERS FROM 3-D LIVE CELL MICROSCOPY IMAGES 1330
Aabid Shariff, Robert Murphy, Gustavo Kunde Rohde, Carnegie Mellon University, United States

FR-PS2b.2: EXTRACTION AND ANALYSIS OF ACTIN NETWORKS BASED ON OPEN ACTIVE CONTOUR MODELS 1334
Ting Xu, Hongsheng Li, Tian Shen, Nikola Ojkic, Dimitrios Vavylonis, Xiaolei Huang, Lehigh University, United States

FR-PS2b.3: A RIDGE SCORE WITH APPLICATION TO PIECEWISE LINEAR NEURAL RECONSTRUCTION 1341
Erhan Bas, Deniz Erdogmus, Northeastern University, United States

FR-PS2b.4: TRACE DRIVEN REGISTRATION OF NEURON CONFOCAL MICROSCOPY STACKS 1345
Luke Hogrebe, Antonio Paiva, Elizabeth Jurrus, Cameron Christensen, Michael Bridge, Julie Korenberg, Tolga Tasdizen, University of Utah, United States

FR-PS2b.5: AUTOMATED DNA FIBER TRACKING AND MEASUREMENT.....1349
Yaping Wang, Northwestern Polytechnical University, China; Paul Chastain, Pew-Thian Yap, Jie-Zhi Cheng, David Kaufman, University of North Carolina at Chapel Hill, United States; Lei Guo, Northwestern Polytechnical University, China; Dinggang Shen, University of North Carolina at Chapel Hill, United States

FR-PS2b.6: CURVILINEAR STRUCTURES EXTRACTION IN CLUTTERED 1353
BIOIMAGING DATA WITH DISCRETE OPTIMIZATION METHODS
Nicolas Honnorat, Régis Vaillant, GE Healthcare, France; James S. Duncan, Yale University, United States; Nikos Paragios, INRIA Saclay-Ile-de-France, France

FR-PS2b.7: AUTOMATED EXTRACTION OF BLOOD VESSEL NETWORKS FROM 3D 1358
MICROSCOPY IMAGE STACKS VIA MULTI-SCALE PRINCIPAL CURVE TRACING
Erhan Bas, Nastaran Ghadarghadar, Deniz Erdogmus, Northeastern University, United States

FR-PS2c: BIOLOGICAL MICROSCOPY

FR-PS2c.1: SUBPIXEL RESOLVING OPTOFLUIDIC MICROSCOPE BASED ON 1362
SUPER RESOLUTION ALGORITHM
Guoan Zheng, Seung Ah Lee, Samuel Yang, Changhuei Yang, California Institute of Technology, United States

FR-PS2c.2: AUTOMATED CROPPING AND ARTIFACT REMOVAL FOR KNIFE-EDGE 1366
SCANNING MICROSCOPY
Jaerock Kwon, Kettering University, United States; David Mayerich, University of Illinois, Urbana-Champaign, United States; Yoonsuck Choe, Texas A&M University, United States

FR-PS2c.3: NON LINEAR PHASE RETRIEVAL FROM FRESNEL DIFFRACTION 1370
PATTERNS USING THE FRECHET DERIVATIVE
Bruno Sixou, Valentina Davidoiu, Max Langer, Francoise Peyrin, CREATIS, France

FR-PS2c.4: BIOMEDICAL IMAGE MOSAICING: AN OPTIMIZED MULTISCALE 1374
APPROACH
Hao-Chiang Shao, National Tsing Hua University, Taiwan; Wen-Liang Hwang, Academia Sinica, Taiwan; Yung-Chang Chen, National Tsing Hua University, Taiwan

FR-PS2c.5: AUTOMATED MORPHOMETRIC CHARACTERIZATION OF CARDIAC 1379
FIBERS BY SECOND HARMONIC MICROSCOPY IMAGING
Patricia Garcia-Canadilla, Transmural Biotech S.L., Spain; Iratxe Torre, Anna Gonzalez-Tendero, Igor Iruretagoyena, Elisenda Eixarch, Fatima Crispi, Fetal and Perinatal Research Group, Institut d'Investigacions Biomèdiques August Pi i Sunyer, Hospital Clinic IDIBAPS, Spain; Eduard Gratacos, Universitat de Barcelona, Spain; Ivan Amat-Roldan, Transmural Biotech S.L., Spain

FR-PS2c.6: IMAGE FUSION FOR AUTOFOCUSING IN FLUORESCENCE 1383
MICROSCOPY FOR TUBERCULOSIS SCREENING
Ronald Dendere, Otolorin Osibote, Sriram Krishnan, Tania Douglas, University of Cape Town, South Africa

FR-PS3a: IMAGE SEGMENTATION METHODS

FR-PS3a.1: TRAMLINE AND NP WINDOWS ESTIMATION FOR ENHANCED 1387
UNSUPERVISED RETINAL VESSEL SEGMENTATION
Katherine Allen, Niranjan Joshi, Alison Noble, University of Oxford, United Kingdom

FR-PS3a.2: AUTOMATED SEGMENTATION OF CORTICAL NECROSIS USING A WAVELET BASED ABNORMALITY DETECTION SYSTEM 1391
Bilwaj Gaonkar, Guray Erus, Kilian Mary Pohl, Manoj Tanwar, Stefan Margiewicz, Nick Bryan, Christos Davatzikos, University of Pennsylvania, United States

FR-PS3a.3: AUTOMATIC RETINA EXUDATES SEGMENTATION WITHOUT A MANUALLY LABELLED TRAINING SET 1396
Luca Giancardo, Oak Ridge National Laboratory / University of Burgundy, United States; Fabrice Meriaudeau, University of Burgundy, France; Thomas P Karnowski, Oak Ridge National Laboratory, United States; Yaqin Li, University of Tennessee Health Science Center, United States; Kenneth W Tobin Jr., Oak Ridge National Laboratory, United States; Edward Chaum, University of Tennessee Health Science Center, United States

FR-PS3a.4: COMBINING ATLAS AND ACTIVE CONTOUR FOR AUTOMATIC 3D MEDICAL IMAGE SEGMENTATION 1401
Yi Gao, Allen Tannenbaum, Georgia Institute of Technology, United States

FR-PS3a.5: MICROANEURYSM DETECTION IN RETINAL IMAGES USING A ROTATING CROSS-SECTION BASED MODEL 1405
Istvan Lazar, Andras Hajdu, University of Debrecen, Hungary

FR-PS3a.6: A CURVE EVOLUTION METHOD FOR IDENTIFYING WEAK EDGES WITH APPLICATIONS TO THE SEGMENTATION OF MAGNETIC RESONANCE IMAGES OF THE KNEE 1410
Jincheng Pang, Eric L. Miller, Tufts University, United States; Jeffrey Driban, Anna Tassinari, Timothy McAlindon, Tufts Medical Center, United States

FR-PS3a.7: IDENTIFICATION AND RECONNECTION OF INTERRUPTED VESSELS IN RETINAL VESSEL SEGMENTATION 1416
Vinayak Joshi, Mona Garvin, Joseph Reinhardt, Michael Abramoff, University of Iowa, United States

FR-PS3a.8: VESSEL GEOMETRY MODELING AND SEGMENTATION USING CONVOLUTION SURFACES AND AN IMPLICIT MEDIAL AXIS 1421
Guillaume Pizaine, Philips Healthcare, France; Elsa D. Angelini, Isabelle Bloch, Telecom ParisTech, France; Sherif Makram-Ebeid, Philips Healthcare, France

FR-PS3a.9: GROUP SPARSITY BASED CLASSIFICATION FOR CERVIGRAM SEGMENTATION 1425
Yang Yu, Junzhou Huang, Shaoting Zhang, Christophe Restif, CBIM, Rutgers, The State University of New Jersey, United States; Xiaolei Huang, Lehigh University, United States; Dimitris Metaxas, CBIM, Rutgers, The State University of New Jersey, United States

FR-PS3a.10: PREDICTION OF GROWTH BASED ON SHAPE ANALYSIS OF ATHEROSCLEROTIC CALCIFICATIONS FROM LATERAL X-RAY IMAGES 1430
Lene Lillemark, University of Copenhagen, Denmark; Sami S. Brandt, Synarc Imaging Technologies, Denmark

FR-PS3a.11: INCORPORATING USER INPUT IN TEMPLATE-BASED SEGMENTATION 1434
Camille Vidal, Food and Drug Administration, United States; Dale Beggs, Laurent Younes, Sanjay K. Jain, Bruno Jedynak, The Johns Hopkins University, United States

FR-PS3a.12: ESTIMATING THE GROUND TRUTH FROM MULTIPLE INDIVIDUAL SEGMENTATIONS INCORPORATING PRIOR PATTERN ANALYSIS WITH APPLICATION TO SKIN LESION SEGMENTATION 1438
Xiang Li, Ben Aldridge, Robert Fisher, Jonathan Rees, University of Edinburgh, United Kingdom

FR-PS3a.13: SEGMENTATION OF M-FISH IMAGES FOR IMPROVED CLASSIFICATION OF CHROMOSOMES WITH AN ADAPTIVE FUZZY C-MEANS CLUSTERING ALGORITHM 1442
Hongbao Cao, Yu-Ping Wang, Tulane University, United States

FR-PS3a.14: A UNIFIED APPROACH TO EXPECTATION-MAXIMIZATION AND LEVEL SET SEGMENTATION APPLIED TO STEM CELL AND BRAIN MRI IMAGES 1446
Nathan Lowry, Massachusetts Institute of Technology, United States; Rami Mangoubi, Mukund Desai, The Charles Stark Draper Laboratory, United States; Youssef Marzouk, Massachusetts Institute of Technology, United States; Paul Sammak, University of Pittsburgh School of Medicine, United States

FR-PS3b: MRI IMAGE SEGMENTATION

FR-PS3b.1: ESTIMATING PATIENT-SPECIFIC SHAPE PRIOR FOR MEDICAL IMAGE SEGMENTATION 1451
Wuxia Zhang, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China; Pingkun Yan, Chinese Academy of Sciences, China; Xuelong Li, Xi'an Institute of Optics and Precision Mechanics, Chinese Academy of Sciences, China

FR-PS3b.2: FUSION OF PERPENDICULAR ANISOTROPIC MRI SEQUENCES 1455
J. Wenjun Chi, Sir Michael Brady, University of Oxford, United Kingdom; Niall R. Moore, John Radcliffe Hospital, United Kingdom; Julia A. Schnabel, University of Oxford, United Kingdom

FR-PS3b.3: GRAPH-BASED ACTIVE CONTOURS USING SHAPE PRIORS FOR PROSTATE SEGMENTATION WITH MRI 1459
Yusuf Artan, Illinois Institute of Technology, United States; Masoom A. Haider, University Health Network, Canada; Imam Samil Yetik, Illinois Institute of Technology, United States

FR-PS3b.4: MEDIAL AXIS BASED STATISTICAL SHAPE MODEL (MASSM): APPLICATIONS TO 3D PROSTATE SEGMENTATION ON MRI 1463
Robert Toth, Rachel Sparks, Anant Madabhushi, Rutgers University, United States

FR-PS3b.5: AN AUTOMATIC SEGMENTATION METHOD OF THE SPINAL CANAL FROM CLINICAL MR IMAGES BASED ON AN ATTENTION MODEL AND AN ACTIVE CONTOUR MODEL 1467
Jaehan Koh, Peter Scott, Vipin Chaudhary, University at Buffalo, SUNY, United States; Gurmeet Dhillon, Proscan Imaging Inc., United States

FR-PS3b.6: PROPAGATING INTERACTIVE SEGMENTATION OF A SINGLE 3D EXAMPLE TO SIMILAR IMAGES: AN EVALUATION STUDY USING MR IMAGES OF THE PROSTATE 1472
Emmanouil Moschidis, Jim Graham, The University of Manchester, United Kingdom

FR-PS3b.7: A NEW 3D AUTOMATIC SEGMENTATION FRAMEWORK FOR ACCURATE EXTRACTION OF PROSTATE FROM DCE-MRI 1476
Ahmad Firjani, Ahmed Elnakib, Fahmi Khalifa, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, United States; Mohamed Abo El-Ghar, University of Mansoura, United States; Jasjit Suri, Biomedical Technologies Inc., United States; Adel Elmaghraby, Ayman El-Baz, University of Louisville, United States

FR-PS3b.8: LABEL FUSION IN MULTI-ATLAS BASED SEGMENTATION WITH USER-DEFINED LOCAL WEIGHTS 1480
Thomas Langerak, Uulke van der Heide, Alexis Kotte, Floris Berendsen, Josien P.W. Pluim, University Medical Center Utrecht, Netherlands

FR-PS3b.9: ATLAS BASED METHOD FOR THE AUTOMATED SEGMENTATION AND QUANTIFICATION OF KNEE FEATURES: DATA FROM THE OSTEOARTHRITIS INITIATIVE 1484
Jose Tamez-Peña, ITESM, Mexico; Patricia Gonzalez, Joshua Farber, Karl Baum, Eduard Schreyer, Saara Totterman, Qmetrics Technology, LLC, United States

FR-PS3b.10: FIBER TRACTOGRAPHY AND TRACT SEGMENTATION IN MULTIPLE SCLEROSIS LESIONS 1488
Navid Shiee, Pierre-Louis Bazin, Peter A. Calabresi, The Johns Hopkins University, United States; Daniel Reich, National Institute of Neurological Disorders and Stroke, United States; Dzung L. Pham, The Henry M. Jackson Foundation for the Advancement of Military Medicine, United States

FR-PS3b.12: A NEW CLASSIFIER FEATURE SPACE FOR AN IMPROVED MULTIPLE SCLEROSIS LESION SEGMENTATION 1492
Xavier Tomas Fernandez, Simon K. Warfield, Computational Radiology Laboratory, United States

FR-PS3b.13: SUPERVISED PROSTATE CANCER SEGMENTATION WITH MULTISPECTRAL MRI INCORPORATING LOCATION INFORMATION 1496
Lluis Carbo, Illinois Institute of Technology, United States; Masoom A. Haider, University Health Network, Canada; Imam Samil Yetik, Illinois Institute of Technology, United States

FR-OS1: IMAGE RECONSTRUCTION: PET, SPECT, CT

FR-OS1.1: REGULARIZATION DESIGN FOR ISOTROPIC SPATIAL RESOLUTION IN MOTION-COMPENSATED IMAGE RECONSTRUCTION 1500
Se Young Chun, Massachusetts General Hospital / Harvard Medical School, United States; Jeffrey A. Fessler, The University of Michigan, United States

FR-OS1.2: TEMPORAL REGULARIZATION IN FULLY 5D RECONSTRUCTION OF CARDIAC GATED DYNAMIC SPECT IMAGES 1504
Xiaofeng Niu, Yongyi Yang, Miles Wernick, Illinois Institute of Technology, United States

FR-OS1.3: PATCH-BASED REGULARIZATION FOR ITERATIVE PET IMAGE RECONSTRUCTION 1508
Guobao Wang, Jinyi Qi, University of California, Davis, United States

FR-OS1.4: ITERATIVE IMAGE RECONSTRUCTION FOR DUAL-ENERGY X-RAY CT USING REGULARIZED MATERIAL SINOGRAM ESTIMATES 1512
Wonseok Huh, University of Michigan, United States; Jeffrey A. Fessler, The University of Michigan, United States

FR-OS1.5: A NOVEL HYBRID ALGORITHM FOR ACCELERATING CT RECONSTRUCTIONS AND IMPROVING LOW-DOSE IMAGE QUALITY 1516
Synho Do, MGH and Harvard Medical School, United States; W. Clem Karl, Boston University, United States; Homer Pien, MGH and Harvard Medical School, United States

FR-OS2: IMAGE REGISTRATION II

FR-OS2.1: REGISTRATION OF BRAIN RESECTION MRI WITH INTENSITY AND LOCATION PRIORS 1520
Nicha Chitphakdithai, Yale University, United States; Kenneth Vives, Yale School of Medicine, United States; James S. Duncan, Yale University, United States

FR-OS2.2: IMPROVING IMAGE REGISTRATION BY CORRESPONDENCE INTERPOLATION 1524
Hildur Ólafsdóttir, Technical University of Denmark, Denmark; Henrik Pedersen, Glostrup Hospital, Denmark; Michael Sass Hansen, Technical University of Denmark, Denmark; Henrik Larsson, Glostrup Hospital, Denmark; Rasmus Larsen, Technical University of Denmark, Denmark

FR-OS2.3: RETROSPECTIVE REGISTRATION-BASED MRI MOTION CORRECTION WITH INTERLEAVED RADIAL TRAJECTORIES 1528
Ashley Anderson III, Julia Velikina, Oliver Wieben, Alexey Samsonov, University of Wisconsin - Madison, United States

FR-OS2.4: CONSTRUCTION OF A 4D ATLAS OF THE DEVELOPING BRAIN USING NON-RIGID REGISTRATION 1532
Ahmed Serag, Paul Aljabar, Serena Counsell, James Boardman, Joseph V. Hajnal, Daniel Rueckert, Imperial College London, United Kingdom

FR-OS2.5: COMPARISON OF VOLUMETRIC REGISTRATION ALGORITHMS FOR TENSOR-BASED MORPHOMETRY 1536
Julio Villalon, Anand Joshi, University of California, Los Angeles, United States; Natasha Lepore, University of Southern California / Children's Hospital Los Angeles, United States; Caroline Brun, University of Pennsylvania, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles, United States

FR-OS3: DYNAMIC BIOLOGICAL IMAGING AND ANALYSIS

FR-OS3.1: TRACKING C. ELEGANS SWIMMING FOR HIGH-THROUGHPUT PHENOTYPING 1542
Christophe Restif, Carolina Ibanez-Ventoso, Monica Driscoll, Dimitris Metaxas, Rutgers University, United States

FR-OS3.2: IN VIVO, HIGH-THROUGHPUT IMAGING FOR FUNCTIONAL CHARACTERIZATION OF THE EMBRYONIC ZEBRAFISH HEART 1549
Jungho Ohn, Michael Liebling, University of California, Santa Barbara, United States

FR-OS3.3: DETECTING CELLULAR EVENTS IN BRAIN CORTEX USING TIME-LAPSE MICROSCOPY 1553
Liya Ding, The Ohio State University, United States; Ryan Insolera, Song-Hai Shi, The Sloan-Kettering Memorial Cancer Institute, United States; Kun Huang, The Ohio State University, United States

FR-OS3.4: DELTR: DIGITAL EMBRYO LINEAGE TREE RECONSTRUCTOR 1557
Xinghua Lou, Frederik Kaster, Martin Lindner, Bernhard Kausler, Ullrich Koethe, Burkhard Hoeckendorf, Joachim Wittbrodt, Heike Jaenicke, Fred A. Hamprecht, University of Heidelberg, Germany

FR-OS3.5: PROCESSING PIPELINE FOR DIGITALIZING THE LINEAGE TREE OF EARLY ZEBRAFISH EMBRYOGENESIS FROM MULTIHARMONIC IMAGING 1561
Miguel Angel Luengo-Oroz, Universidad Politécnica de Madrid, Spain; Thierry Savy, Ecole Polytechnique, CNRS, France; Jose Luis Rubio, Universidad Politécnica de Madrid, Spain; Louise Duloquin, CNRS, France; Emmanuel Faure, Ecole Polytechnique, CNRS, France; Nicolas Olivier, Ecole Polytechnique, France; Maria Jesus Ledesma-Carbayo, Universidad Politécnica de Madrid, Spain; Delphine Debarre, Ecole Polytechnique, France; Paul Bourgine, Ecole Polytechnique, CNRS, France; Emmanuel Beaurepaire, Ecole Polytechnique, France; Nadine Peyriéras, CNRS, France; Andres Santos, Universidad Politécnica de Madrid, Spain

FR-OS4: FUNCTIONAL MRI AND ANALYSIS II

FR-OS4.1: EFFICIENT SINGLE-SHOT Z-SHIM EPI VIA SPATIAL AND TEMPORAL ENCODING 1565
W. Scott Hoge, Hong Pan, Brigham and Women's Hospital, United States; Huan Tan, Virginia Tech / Wake Forest University, United States; Emily Stern, Brigham and Women's Hospital, United States; Robert A. Kraft, Virginia Tech / Wake Forest University, United States

FR-OS4.2: QUANTIFYING INFORMATION FLOW IN FMRI USING THE KULLBAKC-LEIBLER DIVERGENCE 1569
Abd-Krim Seghouane, National ICT Australia, Australia

FR-OS4.3: ICA OF FMRI DATA: PERFORMANCE OF THREE ICA ALGORITHMS AND THE IMPORTANCE OF TAKING CORRELATION INFORMATION INTO ACCOUNT 1573
Wei Du, Hualiang Li, Xi-Lin Li, University of Maryland, Baltimore County, United States; Vince D. Calhoun, The Mind Research Network and The University of New Mexico, United States; Tulay Adali, University of Maryland, Baltimore County, United States

FR-OS4.4: ANALYZING FMRI DATA WITH GRAPH-BASED VISUALIZATIONS OF SELF-ORGANIZING MAPS 1577
Santosh B. Katwal, John C. Gore, Baxter P. Rogers, Vanderbilt University, United States

FR-OS4.5: BRAIN AS A SELF-PREDICTOR: SPARSE FULL-BRAIN AUTO-REGRESSIVE MODELING IN FMRI 1581
Rahul Garg, Guillermo Cecchi, A. Ravishankar Rao, IBM T. J. Watson Research Center, United States

FR-OS5: SPARSE MRI RECONSTRUCTION

FR-OS5.1: HIGHLY UNDERSAMPLED MRI USING ADAPTIVE SPARSE REPRESENTATIONS 1585
Saiprasad Ravishankar, Yoram Bresler, University of Illinois, Urbana-Champaign, United States

FR-OS5.2: EVALUATING SPARSITY PENALTY FUNCTIONS FOR COMBINED COMPRESSED SENSING AND PARALLEL MRI 1589
Daniel Weller, Massachusetts Institute of Technology, United States; Jonathan Polimeni, Massachusetts General Hospital, United States; Leo Grady, Siemens Corporate Research, United States; Lawrence Wald, Massachusetts General Hospital, United States; Elfar Adalsteinsson, Vivek Goyal, Massachusetts Institute of Technology, United States

FR-OS5.3: FURTHER DEVELOPMENT OF IMAGE RECONSTRUCTION FROM HIGHLY UNDERSAMPLED (K, T)-SPACE DATA WITH JOINT PARTIAL SEPARABILITY AND SPARSITY CONSTRAINTS 1593
Bo Zhao, Justin Haldar, Anthony G. Christodoulou, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

FR-OS5.4: COMPRESSED SENSING OF DIFFUSION MRI DATA USING SPATIAL REGULARIZATION AND POSITIVITY CONSTRAINTS 1597
Sudipto Dolui, Oleg Michailovich, University of Waterloo, Canada; Yogesh Rathi, Harvard Medical School, United States

FR-OS5.5: TRANSLATIONAL-INVARIANT DICTIONARIES FOR COMPRESSED SENSING IN MAGNETIC RESONANCE IMAGING 1602
Christopher Baker, University of Wisconsin - Milwaukee, United States; Kevin King, GE Healthcare, United States; Dong Liang, Leslie Ying, University of Wisconsin - Milwaukee, United States

FR-SS1: ELASTOGRAPHY

FR-SS1.1: COMPARISON OF QUALITATIVE AND QUANTITATIVE ACOUSTIC RADIATION FORCE BASED ELASTICITY IMAGING METHODS 1606
Kathryn Nightingale, Ned Rouze, Michael Wang, Duke University, United States; Liang Zhai, Siemens Healthcare, United States; Mark Palmeri, Duke University, United States

FR-SS1.2: FUNCTIONAL CARDIOVASCULAR ULTRASOUND IMAGING: QUANTIFICATION OF PLAQUE VULNERABILITY AND CARDIAC FUNCTION 1610
Chris de Korte, Radboud University Nijmegen Medical Center, Netherlands; Richard Lopata, Eindhoven University of Technology, Netherlands; Hendrik Hansen, Maartje Nillesen, Tim Idzenga, Livia Kapusta, Johan Thijssen, Radboud University Nijmegen Medical Center, Netherlands

FR-SS1.3: FUNDAMENTAL IMAGE QUALITY PARAMETERS OF POROELASTOGRAPHY 1614
Raffaella Righetti, Anuj Chaudhry, Sanjay Nair, Texas A&M University, United States

FR-SS1.4: TAKING MR ELASTOGRAPHY (MRE) TO THE MICROSCOPIC SCALE (μMRE) 1618
Temel K. Yasar, Thomas J. Royston, Richard L. Magin, University of Illinois, Chicago, United States

FR-OS6: IMAGE CLASSIFICATION OF DISEASES II

FR-OS6.1: MORPHOLOGICAL SIGNATURES AND GENOMIC CORRELATES IN GLIOBLASTOMA 1624
Lee Cooper, Jun Kong, Fusheng Wang, Tahsin Kurc, Carlos Moreno, Daniel Brat, Joel Saltz, Emory University, United States

FR-OS6.2: SEMI-SUPERVISED MULTIMODAL CLASSIFICATION OF ALZHEIMER'S DISEASE 1628
Daoqiang Zhang, Dinggang Shen, University of North Carolina at Chapel Hill, United States

FR-OS6.3: NETWORK CYCLE FEATURES: APPLICATION TO COMPUTER-AIDED GLEASON GRADING OF PROSTATE CANCER HISTOPATHOLOGICAL IMAGES 1632
Parmeshwar Khurd, Leo Grady, Ali Kamen, Siemens Corporate Research, United States; Summer Gibbs-Strauss, Elizabeth Genega, John Frangioni, Beth Israel Deaconess Medical Center, United States

FR-OS6.4: MANIFOLD LEARNING COMBINING IMAGING WITH NON-IMAGING INFORMATION 1637
Robin Wolz, Paul Aljabar, Joseph V. Hajnal, Imperial College London, United Kingdom; Jyrki Loetjoenen, VTT Technical Research Centre of Finland, Finland; Daniel Rueckert, Imperial College London, United Kingdom

FR-OS6.5: SOFT CLASSIFICATION OF TRABECULAE IN TRABECULAR BONE 1641
Rodrigo Moreno, Örjan Smedby, Magnus Borga, Linköping University, Sweden

FR-OS7: MRI IMAGE SEGMENTATION

FR-OS7.1: ACTIVE LEARNING GUIDED INTERACTIONS FOR CONSISTENT IMAGE SEGMENTATION WITH REDUCED USER INTERACTIONS 1645
Harini Veeraraghavan, James Miller, GE Global Research, United States

FR-OS7.2: A PIXEL CLASSIFICATION SYSTEM FOR SEGMENTING BIOMEDICAL IMAGES USING INTENSITY NEIGHBORHOODS AND DIMENSION REDUCTION 1649
Cheng Chen, Carnegie Mellon University, United States; John A. Ozolek, Children's Hospital of Pittsburgh, United States; Wei Wang, Gustavo Kunde Rohde, Carnegie Mellon University, United States

FR-OS7.3: SEGMENTATION OF THE BLADDER WALL USING COUPLED LEVEL SET METHODS 1653
J. Wenjun Chi, Sir Michael Brady, University of Oxford, United Kingdom; Niall R. Moore, John Radcliffe Hospital, United Kingdom; Julia A. Schnabel, University of Oxford, United Kingdom

FR-OS7.4: AUTOMATIC MASK GENERATION USING INDEPENDENT COMPONENT ANALYSIS IN DYNAMIC CONTRAST ENHANCED-MRI 1657
Hatef Mehrabian, Ian Pang, Chaitanya Chandrana, Rajiv Chopra, Anne Martel, University of Toronto, Canada

FR-OS7.5: SKULL-STRIPPING WITH DEFORMABLE ORGANISMS 1662
Gautam Prasad, Anand Joshi, Paul M Thompson, Arthur W. Toga, David Shattuck, University of California, Los Angeles School of Medicine, United States; Demetri Terzopoulos, University of California, Los Angeles, United States

FR-OS8: MAGNETIC RESONANCE IMAGING AND SPECTROSCOPY: METHODOLOGY

FR-OS8.1: RECEIVE COIL ARRAY FOR MAGNETIC PARTICLE IMAGING 1666
Tobias Knopp, Timo F. Sattel, Sven Biederer, University of Lübeck, Germany; Jürgen Weizenecker, Karlsruhe University of Applied Sciences, Germany; Bernhard Gleich, Jörn Borgert, Philips Technologie GmbH Forschungslaboratorien, Germany; Thorsten M. Buzug, University of Lübeck, Germany

FR-OS8.2: SENSITIVITY OF BIOMARKERS TO POST-ACQUISITIONAL PROCESSING PARAMETERS FOR IN VIVO BRAIN MR SPECTROSCOPY SIGNALS 1670
Daniel Cocuzzo, Nirmal Keshava, The Charles Stark Draper Laboratory, United States

FR-OS8.3: ON MR EXPERIMENT DESIGN WITH QUADRATIC REGULARIZATION 1676
Justin Haldar, Zhi-Pei Liang, University of Illinois, Urbana-Champaign, United States

FR-OS8.4: OPTIMAL ECHO-TIME SELECTION FOR MRSI ACQUISITION 1680
Wenting Deng, Stanley Reeves, Auburn University, United States; Donald Twieg, The University of Alabama at Birmingham, United States

FR-OS8.5: SUPER-RESOLUTION FOR REAL-TIME VOLUMETRIC MR-TEMPERATURE MONITORING 1684
Baudouin Denis de Senneville, Silke Hey, Chrit Moonen, Mario Ries, Laboratory for Molecular and Functional Imaging, France

FR-OS9: CARDIAC IMAGING

FR-OS9.1: AUTOMATIC CARDIAC FLOW QUANTIFICATION ON 3D VOLUME COLOR DOPPLER DATA 1688
Yang Wang, Bogdan Georgescu, Siemens Corporate Research, United States; Saurabh Datta, Siemens Medical Solutions USA Inc., United States; Shizhen Liu, Mani Vannan, The Ohio State University, United States; Dorin Comaniciu, Siemens Corporate Research, United States

FR-OS9.2: PATIENT-SPECIFIC MODELING AND VISUALIZATION OF BLOOD FLOW THROUGH THE HEART 1692
Scott Kulp, Dimitris Metaxas, Rutgers University, United States; Zhen Qian, Szilard Voros, Piedmont Heart Institute, United States; Leon Axel, NYU School of Medicine, United States; Viorel Mihalef, Rutgers University, United States

FR-OS9.3: ASSESSMENT OF INPUT SIGNAL POSITIONING FOR CARDIAC RESPIRATORY MOTION MODELS DURING DIFFERENT BREATHING PATTERNS 1698
Francisco Savill, Tobias Schaeffter, Andrew King, King's College London, United Kingdom

FR-OS9.4: JOINT CARDIAC AND RESPIRATORY MOTION CORRECTION AND SUPER-RESOLUTION RECONSTRUCTION IN CORONARY PET/CT 1702
Sonal Ambwani, W. Clem Karl, Boston University, United States; Ahmed Tawakol, Homer Pien, Massachusetts General Hospital, United States

FR-OS9.5: TAGGED CARDIAC MR IMAGE SEGMENTATION USING BOUNDARY & REGIONAL-SUPPORT AND GRAPH-BASED DEFORMABLE PRIORS 1706
Bo Xiang, Chaohui Wang, Ecole Centrale de Paris, France; Jean-Francois Deux, Alain Rahmouni, Henri Mondor Hospital, France; Nikos Paragios, Ecole Centrale de Paris, France

FR-SS2: CURRENT CHALLENGES IN IMAGE ANALYSIS FOR HIGH-THROUGHPUT MICROSCOPY

FR-SS2.1: METHODS AND ALGORITHMS FOR EXTRACING HIGH-CONTENT SIGNATURES FROM CELLS, TISSUES, AND MODEL ORGANISMS 1712
Jens Rittscher, Dirk Padfield, A. Santamaria, J. Tu, A. Can, M. Bello, D. Gao, A. Sood, M. Gerdes, F. Ginty, GE Global Research, United States

FR-SS2.2: CARTOGRAPHY OF SPATIO-TEMPORAL CELLULAR DYNAMICS 1717
Till Bretschneider, University of Warwick, United Kingdom

FR-SS2.3: REUSABLE MODULES FOR HIGH-CONTENT 3D AND 4D IMAGE ANALYSIS 1719
Olaf Ronneberger, Albert Ludwigs Universität Freiburg, Germany

FR-SS2.4: EXTRACTING BIOMEDICALLY IMPORTANT INFORMATION FROM LARGE, AUTOMATED IMAGING EXPERIMENTS 1723
Anne Carpenter, Broad Institute of MIT and Harvard, United States

FR-SS2.5: DETERMINATION OF PROTEIN LOCATION DIVERSITY VIA ANALYSIS OF IMMUNOHISTOCHEMICAL IMAGES FROM THE HUMAN PROTEIN ATLAS 1727
Arvind Rao, Robert Murphy, Carnegie Mellon University, United States

FR-SS2.6: CURRENT CHALLENGES IN IMAGE ANALYSIS FOR IN TOTO IMAGING OF ZEBRAFISH 1730
Sean Megason, Harvard Medical School, United States

FR-OS10: IMAGE SEGMENTATION IN BRAIN MRI

FR-OS10.1: LONGITUDINAL ASSESSMENT OF BRAIN TUMORS USING A REPEATABLE PRIOR-BASED SEGMENTATION 1733
Lior Weizman, Leo Joskowicz, The Hebrew University of Jerusalem, Israel; Liat Ben Sira, Ben Shofty, Shlomi Constantini, Dafna Ben Bashat, Tel Aviv Sourasky Medical Center, Israel

FR-OS10.2: TOPOLOGY PRESERVING AUTOMATIC SEGMENTATION OF THE SPINAL CORD IN MAGNETIC RESONANCE IMAGES 1737
Min Chen, The Johns Hopkins University / The National Institute of Neurological Disorders and Stroke, United States; Aaron Carass, Jennifer Cuzzocreo, Pierre-Louis Bazin, The Johns Hopkins University, United States; Daniel Reich, The Johns Hopkins University / The National Institute of Neurological Disorders and Stroke, United States; Jerry Prince, The Johns Hopkins University, United States

FR-OS10.3: A DEFORMABLE SURFACE MODEL BASED AUTOMATIC RAT BRAIN EXTRACTION METHOD 1741
Jiehua Li, The George Washington University, United States; Xiaofeng Liu, GE Global Research, United States; Jiachen Zhuo, Rao Gullapalli, University of Maryland, Baltimore, United States; Jason Zara, The George Washington University, United States

FR-OS10.4: ATLAS SELECTION STRATEGY USING LEAST ANGLE REGRESSION IN MULTI-ATLAS SEGMENTATION PROPAGATION 1746
Kai-kai Shen, Pierrick Bourgeat, Nicholas Dowson, Australian e-Health Research Centre, CSIRO, Australia; Fabrice Meriaudeau, Université de Bourgogne, France; Olivier Salvado, Australian e-Health Research Centre, CSIRO, Australia

FR-OS10.5: SPARSE RIEMANNIAN MANIFOLD CLUSTERING FOR HARDI SEGMENTATION 1750
Hasan Cetingul, Rene Vidal, The Johns Hopkins University, United States

SA-PS1a: IMAGE RECONSTRUCTION: PET, SPECT, CT (II)

SA-PS1a.1: REGULARIZED RICHARDSON-LUCY ALGORITHM FOR RECONSTRUCTION OF POISSONIAN MEDICAL IMAGES 1754
Elad Shaked, Sudipto Dolui, Oleg Michailovich, University of Waterloo, Canada

SA-PS1a.2: SIMULTANEOUS ESTIMATION OF INPUT FUNCTIONS: THE B-SIME METHOD 1758
Camille Jouvie, Ségolène de Gavriloff, CEA, France; Maria-João Santiago Ribeiro, Université François Rabelais de Tours, France; Véronique Gaura, Philippe Rémy, Paolo Zanotti-Fregonara, Renaud Maroy, CEA, France

SA-PS1a.3: STATISTICAL RECONSTRUCTION USING DUAL FORMULATION OF SUBBAND-WISE TOTAL VARIATION REGULARIZATION (SDST) FOR LIMITED ANGLE TOMOGRAPHY 1762
Kwang Eun Jang, Younghun Sung, Kangeui Lee, Jongha Lee, Samsung Advanced Institute of Technology, Republic of Korea; Seungryoung Cho, Korea Advanced Institute of Science and Technology, Republic of Korea

SA-PS1a.5: TOWARD QUANTITATIVE X-RAY CT PHANTOMS OF METASTATIC TUMORS USING RAPID PROTOTYPING TECHNOLOGY 1770
Terry S Yoo, Trevor Hamilton, National Library of Medicine / National Institutes of Health, United States; Darrell Hurt, National Institute of Allergy and Infectious Diseases / National Institutes of Health, United States; Jesus Caban, David Liao, David Chen, National Library of Medicine / National Institutes of Health, United States

SA-PS1a.6: TOTAL VARIATION SMOOTHED MAXIMUM PENALIZED LIKELIHOOD TOMOGRAPHIC RECONSTRUCTION WITH POSITIVITY CONSTRAINTS 1774
Ma Jun, Macquarie University, Australia

SA-PS1a.7: ESTIMATION OF UNCERTAINTY IN RESPIRATORY-GATED PET IMAGES..... 1778
Paulo Mendonca, Peter Lamb, Evren Asma, Ravindra Manjeshwar, GE Global Research, United States; Osama Mawlawi, MD Anderson Cancer Center, United States; Rahul Bhotika, GE Global Research, United States

SA-PS1a.8: INVESTIGATION OF BREAST CANCER DETECTABILITY USING PET INSERT WITH WHOLE-BODY AND ZOOM-IN IMAGING CAPABILITY 1784
Aswin John Mathews, Sergey Komarov, Maiko Kume, Heyu Wu, Joseph A. O'Sullivan, Yuan-Chuan Tai, Washington University in St Louis, United States

SA-PS1a.9: OPTIMIZATION OF THE INTERNAL NOISE MODELS FOR CHANNELIZED HOTELLING OBSERVER 1788
Jovan Brankov, Illinois Institute of Technology, United States

SA-PS1a.10: OPTIMAL INVERSE TREATMENT PLANNING BY STOCHASTIC CONTINUATION 1792
Marc Robini, Francois Smekens, Bruno Sixou, CREATIS, INSA-Lyon, France

SA-PS1a.12: NEUTRON ACTIVATION FOR PLANAR AND SPECT IMAGING..... 1801
Adam R. Bell, Glenn McRae, Carleton University, Canada; Richard Wassenaar, The Ottawa Hospital, Canada; Glenn Wells, University of Ottawa Heart Institute, Canada

SA-PS1b: NOISE MODELING AND DENOISING

SA-PS1b.1: K-SVD FOR HARDI DENOISING.....1805
Vishal Patel, Yonggang Shi, Paul M Thompson, Arthur W. Toga, University of California, Los Angeles, United States

SA-PS1b.2: NOISE ESTIMATION AND REMOVAL IN MR IMAGING: THE VARIANCE-STABILIZATION APPROACH 1809
Alessandro Foi, Tampere University of Technology, Finland

SA-PS1b.3: NOISE ESTIMATION IN MR GRAPPA RECONSTRUCTED DATA 1815
Santiago Aja-Fernandez, Gonzalo Vegas-Sánchez-Ferrero, Universidad de Valladolid, Spain; Antonio Tristan-Vega, Harvard Medical School, United States

SA-PS1b.4: AN AUTOMATIC ADDITIVE AND MULTIPLICATIVE NOISE REMOVAL SCHEME WITH SHARPNESS PRESERVATION 1819
Jing Qin, Weihong Guo, Case Western Reserve University, United States

SA-PS1b.5: A CONTRAST-ENHANCED TRILATERAL FILTER FOR MR IMAGE DENOISING 1823
Herng-Hua Chang, National Taiwan University, Taiwan; Ming-Chang Chiang, National Yang-Ming University, Taiwan; Tony W. H. Sheu, National Taiwan University, Taiwan; Henry Huang, University of California, Los Angeles, United States

SA-PS1b.6: PET-CT ENHANCEMENT BY FUNCTIONAL TO ANATOMICAL IMAGE ADAPTATION BASED ON CORRELATED NONLINEAR DIFFUSION 1827
Raz Carmi, Piotr Maniawski, Julianne Suhy, Philips Healthcare, Israel; David Groshar, Tel Aviv University, Israel

SA-PS1c: BRAIN IMAGING CLASSIFICATION

SA-PS1c.1: RBOOST: RIEMANNIAN DISTANCE BASED REGULARIZED BOOSTING 1831
Meizhu Liu, Baba Vemuri, University of Florida, United States

SA-PS1c.2: USING TOPOGRAPHICAL CHANNEL DISTRIBUTION TO DECODE MOVEMENT DIRECTIONS FROM LOCAL FIELD POTENTIALS 1835
Vijay Aditya Tadipatri, Ahmed H. Tewfik, The University of Texas at Austin, United States; James Ashe, Giuseppe Pellizer, Rahul Gupta, VA Medical Center, United States

SA-PS1c.3: IMPROVED GENERATION OF PROBABILISTIC ATLASES FOR THE EXPECTATION MAXIMIZATION CLASSIFICATION 1839
Jyrki Lötjönen, VTT Technical Research Centre of Finland, Finland; Robin Wolz, Imperial College London, United Kingdom; Juha Koikkalainen, VTT Technical Research Center of Finland, Finland; Lennart Thurfjell, Roger Lundqvist, GE Healthcare, Sweden; Gunhild Waldemar, Rigshospitalet, Denmark; Hilkka Soininen, University of Eastern Finland, Finland; Daniel Rueckert, Imperial College London, United Kingdom

SA-PS1c.4: AUTISM DIAGNOSTICS BY CENTERLINE-BASED SHAPE ANALYSIS OF THE CORPUS CALLOSUM 1843
Ahmed Elnakib, Manuel Casanova, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, United States; Andrew Switala, Ayman El-Baz, University of Louisville, United States

SA-PS1c.5: 3D SHAPE ANALYSIS OF THE BRAIN CORTEX WITH APPLICATION TO AUTISM 1847
Matthew Nitzken, Manuel Casanova, University of Louisville, United States; Georgy Gimel'farb, University of Auckland, New Zealand; Fahmi Khalifa, Ahmed Elnakib, Andrew Switala, Ayman El-Baz, University of Louisville, United States

SA-PS1c.6: SPECTRAL SIGNATURES OF POINT CLOUDS AND APPLICATIONS TO DETECTION OF ALZHEIMER'S DISEASE THROUGH NEUROIMAGING 1851
Jonathan Bates, Dominic Pafundi, Prabesh Kanel, Xiuwen Liu, Washington Mio, Florida State University, United States

SA-PS1c.7: BOOSTING POWER TO DETECT GENETIC ASSOCIATIONS IN IMAGING USING MULTI-LOCUS, GENOME-WIDE SCANS AND RIDGE REGRESSION 1855
Omid Kohannim, Derrek Hibar, Jason Stein, Neda Jahanshad, University of California, Los Angeles, United States; Clifford Jack Jr, Mayo Clinic, United States; Michael Weiner, University of California, San Francisco, United States; Arthur W. Toga, Paul M Thompson, University of California, Los Angeles, United States

SA-PS1c.8: TOPOGRAPHIC EEG BRAIN MAPPING BEFORE, DURING AND AFTER OBSTRUCTIVE SLEEP APNEA EPISODES 1860
Ana Luísa Coito, David Belo, Institute for Systems and Robotics, Portugal; Teresa Paiva, Centro de Electroencefalografia e Neurofisiologia Clinica, Portugal; João Miguel Sanches, Institute for Systems and Robotics, Portugal

SA-PS2a: IMAGE-GUIDED THERAPY

SA-PS2a.1: INTERVENTIONAL MR-IMAGING FOR THERMAL ABLATION THERAPY 1864
Eva Rothgang, University of Erlangen-Nuremberg, Germany; Wesley D. Gilson, Siemens Corporate Research, United States; Wilhelm Strehl, University of Erlangen-Nuremberg, Germany; Li Pan, Siemens Corporate Research, United States; Jörg Roland, Siemens Healthcare, Germany; Christine H. Lorenz, Siemens Corporate Research, United States; Joachim Hornegger, University of Erlangen-Nuremberg, Germany

SA-PS2a.2: AUGMENTED INLINE-BASED NAVIGATION FOR STEREOTACTIC IMAGE GUIDED NEUROSURGERY 1869
Alark Joshi, Boise State University, United States; Dustin Scheinost, Ronen Globinsky, Kenneth Vives, Dennis Spencer, Lawrence Staib, Xenophon Papademetris, Yale University, United States

SA-PS2a.4: TRAJECTORY PLANNING WITH AUGMENTED REALITY FOR IMPROVED RISK ASSESMENT IN IMAGE-GUIDED KEYHOLE NEUROSURGERY 1873
Reuben R Shamir, Martin Horn, Tobias Blum, Technische Universität München, Germany; Jan H. Mehrkens, Ludwig-Maximilians University, Germany; Yigal Shoshan, Hebrew University - Hadassah Medical Center, Israel; Leo Joskowicz, The Hebrew University of Jerusalem, Israel; Nassir Navab, Technische Universität München, Germany

SA-PS2b: IMAGE RETRIEVAL

SA-PS2b.1: LOCALIZED FUNCTIONAL NEUROIMAGING RETRIEVAL USING 3D DISCRETE CURVELET TRANSFORM 1877
Sidong Liu, Weidong Cai, University of Sydney, Australia; Lingfeng Wen, Stefan Eberl, Michael J Fulham, Royal Prince Alfred Hospital, Australia; Dagan Feng, University of Sydney, Australia

SA-PS2b.2: CASCADED REGRESSION FOR CT SLICE LOCALIZATION.....1881
Olga C. Avila-Montes, Uday Kurkure, Computational Biomedicine Laboratory, United States; Ryo Nakazato, Daniel S. Berman, Damini Dey, Department of Imaging, United States; Ioannis A. Kakadiaris, Computational Biomedicine Laboratory, United States

SA-PS2b.3: THORACIC IMAGE CASE RETRIEVAL WITH SPATIAL AND CONTEXTUAL .....1885 INFORMATION
Yang Song, Weidong Cai, University of Sydney, Australia; Stefan Eberl, Michael J Fulham, Royal Prince Alfred Hospital, Australia; Dagan Feng, University of Sydney, Australia

SA-PS2b.4: DEMENTIA DIAGNOSIS USING SIMILAR AND DISSIMILAR RETRIEVAL .....1889 ITEMS
Devrim Unay, Bahcesehir University, Turkey; Ahmet Ekin, Philips Research, Netherlands

SA-PS2b.5: PATHOLOGY-BASED VERTEBRAL IMAGE RETRIEVAL.....1893
Zhiyun Xue, L. Rodney Long, Sameer Antani, George R. Thoma, University of California, Los Angeles School of Medicine, United States

SA-PS2b.6: BOOSTED SPECTRAL EMBEDDING (BOSE): APPLICATIONS TO .....1897 CONTENT-BASED IMAGE RETRIEVAL OF HISTOPATHOLOGY
Akshay Sridhar, Scott Doyle, Anant Madabhushi, Rutgers University, United States

SA-PS2b.7: METRIC LEARNING FOR MAXIMIZING MAP AND ITS APPLICATION TO .....1901 CONTENT-BASED MEDICAL IMAGE RETRIEVAL
Wei Yang, Qianjin Feng, Zhentai Lu, Wufan Chen, Southern Medical University, China

SA-PS2b.8: A BIOMEDICAL IMAGE RETRIEVAL FRAMEWORK BASED ON .....1905 CLASSIFICATION-DRIVEN IMAGE FILTERING AND SIMILARITY FUSION
Md Mahmudur Rahman, Sameer Antani, George R. Thoma, National Institutes of Health, United States

SA-PS2c: CELL TRACKING

SA-PS2c.1: CELLCUT: A FRAMEWORK FOR INTERACTIVE TRACKING OF PROTEIN .....1909 TRANSLOCATIONS BETWEEN CELL NUCLEUS AND CYTOPLASM
Cheng-Jin Du, University of Warwick, United Kingdom; Marco Marcello, David Spiller, Michael White, University of Liverpool, United Kingdom; Till Bretschneider, University of Warwick, United Kingdom

SA-PS2c.2: LINEAGETRACKER: A STATISTICAL SCORING METHOD FOR TRACKING .....1913 CELL LINEAGES IN LARGE CELL POPULATIONS WITH LOW TEMPORAL RESOLUTION
Mike Downey, Keith W Vance, Till Bretschneider, University of Warwick, United Kingdom

SA-PS2c.3: A NEW HYBRID BAYESIAN-VARIATIONAL PARTICLE FILTER WITH .....1917 APPLICATION TO MITOTIC CELL TRACKING
Ricard Delgado-Gonzalo, Nicolas Chenouard, Michael Unser, École Polytechnique Fédérale de Lausanne, Switzerland

SA-PS2c.4: AUTOMATED LINEAGE TREE RECONSTRUCTION FROM .....1921 CAENORHABDITIS ELEGANS IMAGE DATA USING PARTICLE FILTERING BASED CELL TRACKING
Noemí Carranza-Herrezuelo, Ihor Smal, Oleh Dzyubachyk, Wiro Niessen, Erik Meijering, Erasmus MC - University Medical Center Rotterdam, Netherlands

SA-PS2c.5: TRACKING MULTIPLE PARTICLES IN FLUORESCENCE MICROSCOPY IMAGES VIA PROBABILISTIC DATA ASSOCIATION 1925
William J. Godinez, University of Heidelberg / DKFZ Heidelberg, Germany; Marko Lampe, University of Heidelberg, Germany; Roland Eils, University of Heidelberg / DKFZ Heidelberg, Germany; Barbara Müller, University of Heidelberg, Germany; Karl Rohr, University of Heidelberg / DKFZ Heidelberg, Germany

SA-PS2c.6: QUANTITATIVE BIOLOGICAL STUDIES ENABLED BY ROBUST CELL TRACKING 1929
Dirk Padfield, Jens Rittscher, GE Global Research, United States; Badrinath Roysam, Rensselaer Polytechnic Institute, United States

SA-PS2d: ELECTRON MICROSCOPY

SA-PS2d.1: UNDERSTANDING DYNAMICS OF BIOLOGICAL MACROMOLECULAR COMPLEXES BY ESTIMATING A MECHANICAL MODEL VIA STATISTICAL MECHANICS FROM CRYO ELECTRON MICROSCOPY IMAGES 1935
Kang Wang, Peter C. Doerschuk, Cornell University, United States

SA-PS2d.2: TOWARDS DENSE MOTION ESTIMATION IN LIGHT AND ELECTRON MICROSCOPY 1939
Luis Pizarro, Imperial College London, United Kingdom; Jose Delpiano, University of Chile, Chile; Paul Aljabar, Imperial College London, United Kingdom; Javier Ruiz-del-Solar, University of Chile, Chile; Daniel Rueckert, Imperial College London, United Kingdom

SA-PS2d.3: ALPHA HELIX PREDICTION BASED ON METROPOLIS-HASTINGS SAMPLING 1943
Lingyu Ma, University of Freiburg, Germany; Marco Reisert, University Hospital Freiburg, Germany; Christophe Wirth, Carola Hunte, Olaf Ronneberger, Hans Burkhardt, University of Freiburg, Germany

SA-PS2d.4: FAST WAVELET-BASED SINGLE-PARTICLE RECONSTRUCTION IN CRYO-EM 1950
Cedric Vonesch, Lanhui Wang, Princeton University, United States; Yoel Shkolnisky, Tel Aviv University, United States; Amit Singer, Princeton University, United States

SA-PS3a: IMAGE SEGMENTATION IN CT

SA-PS3a.1: IMPROVED 3D AUTOMATIC SEGMENTATION AND MEASUREMENT OF PLEURAL EFFUSIONS 1954
John Bliton, Jianhua Yao, Mark Bi, Ronald Summers, National Institutes of Health, United States

SA-PS3a.2: TUMOR SEGMENTATION USING THE LEARNED DISTANCE METRIC 1958
Qianjin Feng, Shuanqiang Li, Wei Yang, Wufan Chen, Southern Medical University, China

SA-PS3a.3: DETECTION OF HAIRLINE MANDIBULAR FRACTURE USING MAX-FLOW MIN-CUT AND KOLMOGOROV-SMIRNOV DISTANCE 1962
Ananda Chowdhury, Jadavpur University, India; Suchendra Bhandarkar, Robert Robinson, University of Georgia, United States; Jack Yu, Medical College of Georgia, United States; Tianming Liu, University of Georgia, United States

SA-PS3a.4: EVALUATION OF MULTI-ATLAS-BASED SEGMENTATION OF CT SCANS IN PROSTATE CANCER RADIOTHERAPY 1966
Oscar Acosta, Antoine Simon, Frederic Monge, Frederic Commandeur, Cunka Bassirou, Guillaume Cazoulat, Renaud de Crevoisier, Pascal Haigron, LTSI INSERM University of Rennes 1, France

SA-PS3a.5: SEGMENTATION OF 3D CELLULAR NETWORKS FROM SR-MICRO-CT IMAGES 1970
Alexandra Pacureanu, ESRF, France; Jerome Rollet, Chantal Muller, Vasile Buzuloiu, Max Langer, Francoise Peyrin, CREATIS, INSA de Lyon, France

SA-PS3a.6: ANALYSIS OF VARIABILITY IN MANUAL LIVER TUMOR DELINEATION IN CT SCANS 1974
Jan Hendrik Moltz, Stefan Braunewell, Jan Rühaak, Frank Heckel, Sebastiano Barbieri, Lennart Tautz, Horst Karl Hahn, Heinz-Otto Peitgen, Fraunhofer MEVIS, Germany

SA-PS3a.7: RANDOM WALK-BASED AUTOMATED SEGMENTATION FOR THE PROGNOSIS OF MALIGNANT PLEURAL MESOTHELIOMA 1978
Mitchell Chen, University of Oxford, United Kingdom; Emma Helm, Warwick Medical School, United Kingdom; Niranjan Joshi, Sir Michael Brady, University of Oxford, United Kingdom

SA-PS3a.8: INTRA-HEPATIC VESSEL SEGMENTATION AND CLASSIFICATION IN MULTI-PHASE CT USING OPTIMIZED GRAPH CUTS 1982
Vivek Pamulapati, Bradford Wood, Marius George Linguraru, National Institutes of Health, United States

SA-PS3a.9: REAL-TIME REGION-BASED SEGMENTATION OF 3D INHOMOGENEOUS OBJECTS IN MEDICAL IMAGES 1986
Daniel Barbosa, Katholieke Universiteit Leuven, Belgium; Thomas Dietenbeck, Denis Friboulet, INSA-Lyon, France; Jan D'hooge, Katholieke Universiteit Leuven, Belgium; Olivier Bernard, INSA-Lyon, France

SA-PS3a.10: LYMPH NODE SEGMENTATION IN CT SLICES USING DYNAMIC PROGRAMMING 1990
Sebastian Steger, Daniel Ebert, Marius Erdt, Fraunhofer IGD, Germany

SA-PS3a.11: NARROW BAND REGION-SCALABLE FITTING MODEL FOR IMAGE SEGMENTATION IN THE PRESENCE OF INTENSITY INHOMOGENEITIES 1994
Bei Yan, UESTC, China; Chunming Li, University of Pennsylvania, United States; Mei Xie, UESTC, China; Christos Davatzikos, University of Pennsylvania, United States

SA-PS3a.12: DISCRETISATION OF 3D DEFORMATION FIELDS: IMPLICATIONS FOR ESTABLISHING CORRESPONDENCE BETWEEN 2D X-RAY MAMMOGRAPHIC PROJECTIONS 1998
Yassir Jafar, John Hipwell, University College London, United Kingdom; Christine Tanner, ETH Zentrum, Switzerland; Andrew Melbourne, David Hawkes, University College London, United Kingdom

SA-PS3a.13: EXTENDED GENERAL LINEAR MODEL BASED ON-LINE BRAIN ACTIVATION MAPPING 2002
Xiao-Su Hu, Keum-Shik Hong, Pusan National University, Republic of Korea; Shuzhi Ge, The National University of Singapore, Singapore; Myung-Yung Jeong, Pusan National University, Republic of Korea

SA-PS3a.14: A NEW SEGMENTATION AND REGISTRATION APPROACH FOR VERTEBRAL BODY ANALYSIS 2006
Melih Aslan, Asem Ali, Aly Farag, Hossam Abdelmumin, University of Louisville, United States; Ben Arnold, Image Analysis, Inc, United States; Ping Xiang, Image Analysis, United States

SA-PS3a.15: SEGMENTATION OF VERTEBRAE USING LEVEL SETS WITH EXPECTATION MAXIMIZATION ALGORITHM 2010
Melih Aslan, Aly Farag, Ben Arnold, Ping Xiang, University of Louisville, United States

SA-PS3b: IMAGE SEGMENTATION IN BRAIN MRI

SA-PS3b.2: AUTOMATIC SEGMENTATION OF AGE-RELATED WHITE MATTER CHANGES ON FLAIR IMAGES: METHOD AND MULTICENTRE VALIDATION 2014
Thomas Samaille, Université Pierre et Marie Curie, France; Olivier Colliot, Centre National de la Recherche Scientifique, France; Didier Dormont, Assistance publique - Hôpitaux de Paris, France; Marie Chupin, Centre National de la Recherche Scientifique, France

SA-PS3b.4: SEGMENTATION OF BRAIN TUMOR IMAGES BASED ON ATLAS-REGISTRATION COMBINED WITH A MARKOV-RANDOM-FIELD LESION GROWTH MODEL 2018
Stefan Bauer, Lutz-Peter Nolte, Mauricio Reyes, University of Bern, Switzerland

SA-PS3b.5: CORTICAL BRAIN STRUCTURES SEGMENTATION USING CONSTRAINED OPTIMIZATION AND INTENSITY COUPLING 2022
Alireza Akhondi-Asl, Simon K. Warfield, Children's Hospital of Boston / Harvard Medical School, United States

SA-PS3b.6: AUTOMATIC SEGMENTATION OF NEWBORN BRAIN MRI USING MATHEMATICAL MORPHOLOGY 2026
Laura Gui, University of Geneva, Switzerland; Radoslaw Lisowski, Tamara Faundez, Petra Susan Hüppi, François Lazeyras, Geneva University Hospitals, Switzerland; Michel Kocher, École Polytechnique Fédérale de Lausanne, Switzerland

SA-PS3b.7: HOW TO FIX ANY 3D SEGMENTATION INTERACTIVELY VIA IMAGE FORESTING TRANSFORM AND ITS USE IN MRI BRAIN SEGMENTATION 2031
Paulo Miranda, Alexandre Falcão, Guilherme Ruppert, University of Campinas, Brazil; Fábio Cappabianco, Universidade Federal de São Paulo, Brazil

SA-PS3b.8: HIPPOCAMPUS SEGMENTATION USING A STABLE MAXIMUM LIKELIHOOD CLASSIFIER ENSEMBLE ALGORITHM 2036
Hongzhi Wang, Jung Wook Suh, Sandhitsu Das, Murat Altinay, John Pluta, Paul Yushkevich, University of Pennsylvania, United States

SA-PS3b.9: A GENERATIVE MRF APPROACH FOR AUTOMATIC 3D SEGMENTATION OF CEREBRAL VASCULATURE FROM 7 TESLA MRA IMAGES ... 2041
Wei Liao, Karl Rohr, University of Heidelberg / DKFZ Heidelberg, Germany; Chang-Ki Kang, Zang-Hee Cho, Gachon University of Medicine and Science, Republic of Korea; Stefan Wörz, University of Heidelberg / DKFZ Heidelberg, Germany

SA-PS3b.10: SEGMENTATION OF THE CORTEX IN FETAL MRI USING A TOPOLOGICAL MODEL 2045
Benoit Caldairou, Nicolas Passat, Université de Strasbourg, France; Piotr Habas, Colin Studholme, University of California, San Francisco, United States; Mériam Koob, Jean-Louis Dietemann, François Rousseau, Université de Strasbourg, France

SA-PS3b.11: SPATIAL INTENSITY PRIOR CORRECTION FOR TISSUE SEGMENTATION IN THE DEVELOPING HUMAN BRAIN 2049
Sun Hyung Kim, University of North Carolina at Chapel Hill, United States; Vladimir Fonov, Montreal Neurological Institute, Canada; Joe Piven, Carolina Institute for Developmental Disabilities, University of North Carolina at Chapel Hill, United States; John Gilmore, University of North Carolina at Chapel Hill, United States; The IBIS Network, National Institutes of Health, United States; Clement Vachet, University of North Carolina at Chapel Hill, United States; Guido Gerig, University of Utah, United States; D. Louis Collins, Montreal Neurological Institute, Canada; Martin Styner, University of North Carolina at Chapel Hill, United States

SA-PS3b.12: AUTOMATED BRAIN EXTRACTION USING MULTI-ATLAS PROPAGATION AND SEGMENTATION (MAPS) 2053
Kelvin K. Leung, Josephine Barnes, Marc Modat, Gerard R. Ridgway, University College London, United Kingdom; Jonathan Bartlett, London School of Hygiene and Tropical Medicine, United Kingdom; Nick C. Fox, Sebastien Ourselin, University College London, United Kingdom

SA-PS3b.13: LOCAL INTENSITY MODEL: AN OUTLIER DETECTION FRAMEWORK WITH APPLICATIONS TO WHITE MATTER HYPERINTENSITY SEGMENTATION 2057
Parnesh Raniga, Pierre Schmitt, Pierrick Bourgeat, Jurgen Fripp, CSIRO Preventative Health National Research Flagship ICTC, Australia; Victor Villemagne, Christopher Rowe, University of Melbourne, Australia; Olivier Salvado, CSIRO Preventative Health National Research Flagship ICTC, Australia

SA-PS3b.14: NEURONAL WHITE MATTER PARCELLATION USING SPATIALLY COHERENT NORMALIZED CUTS 2061
Luke Bloy, Madhura Ingalhalikar, Ragini Verma, University Of Pennsylvania, United States

SA-OS1: IMAGE SEGMENTATION IN CT

SA-OS1.1: CORONARY ARTERY TREE TRACKING WITH ROBUST JUNCTION DETECTION IN 3D CT ANGIOGRAPHY 2066
Fei Zhao, Rahul Bhotika, GE Global Research, United States

SA-OS1.2: SEGMENTATION OF PATHOLOGICAL AND DISEASED LUNG TISSUE IN CT IMAGES USING A GRAPH-SEARCH ALGORITHM 2072
Panfang Hua, Qi Song, Milan Sonka, Eric Hoffman, Joseph Reinhardt, University of Iowa, United States

SA-OS1.3: AUTOMATIC PANCREAS SEGMENTATION IN CONTRAST ENHANCED CT DATA USING LEARNED SPATIAL ANATOMY AND TEXTURE DESCRIPTORS 2076
Marius Erdt, Fraunhofer IGD, Germany; Matthias Kirschner, TU-Darmstadt, Germany; Klaus Drechsler, Fraunhofer IGD, Germany; Stefan Wesarg, TU-Darmstadt, Germany; Matthias Hammon, Alexander Cavallaro, University Hospital Erlangen, Germany

SA-OS1.4: ABDOMINAL MULTI-ORGAN LOCALIZATION ON CONTRAST-ENHANCED CT BASED ON MAXIMUM A POSTERIORI PROBABILITY AND MINIMUM VOLUME OVERLAP 2083
Xiaofeng Liu, Marius George Linguraru, Jianhua Yao, Ronald Summers, National Institutes of Health, United States

SA-OS1.5: FULLY AUTOMATIC AND FAST SEGMENTATION OF THE FEMUR BONE FROM 3D-CT IMAGES WITH NO SHAPE PRIOR 2087
Marcel Krcah, Charles University, Czech Republic; Gábor Székely, Rémi Blanc, Swiss Federal Institute of Technology, Switzerland

SA-SS1: IMAGING THE PROSTATE: HISTOLOGY AND IN VIVO

SA-SS1.1: SEGMENTATION OF PROSTATIC GLANDS IN HISTOLOGY IMAGES.....2091
Yahui Peng, Yulei Jiang, The University of Chicago, United States; Laurie Eisengart, Northwestern University Feinberg School of Medicine, United States; Mark Healy, Francis Straus, The University of Chicago, United States; Ximing Yang, Northwestern University Feinberg School of Medicine, United States

SA-SS1.2: CADONC : AN INTEGRATED TOOLKIT FOR EVALUATING RADIATION .....2095 THERAPY RELATED CHANGES IN THE PROSTATE USING MULTIPARAMETRIC MRI
Satish Viswanath, Pallavi Tiwari, Jonathan Chappelow, Robert Toth, Rutgers University, United States; John Kurhanewicz, University of California, San Francisco, United States; Anant Madabhushi, Rutgers University, United States

SA-SS1.3: AUTOMATED PROSTATE CANCER LOCALIZATION WITH MRI WITHOUT .....2099 THE NEED OF MANUALLY EXTRACTED PERIPHERAL ZONE
Xin Liu, Illinois Institute of Technology, United States; Masoom A. Haider, Mount Sinai Hospital, Canada; Imam Samil Yetik, Illinois Institute of Technology, United States

SA-SS1.4: LEARNING-BASED PROSTATE LOCALIZATION FOR IMAGE-GUIDED .....2103 RADIATION THERAPY
Luping Zhou, Shu Liao, Wei Li, Dinggang Shen, University of North Carolina at Chapel Hill, United States

SA-SS1.5: STATISTICAL ATLASES AND MACHINE LEARNING TOOLS APPLIED TO .....2107 OPTIMIZED PROSTATE BIOPSY FOR CANCER DETECTION AND ESTIMATION OF VOLUME AND GLEASON SCORE
Christos Davatzikos, University of Pennsylvania, United States

SA-SS1.6: THE ROLE OF MAGNETIC RESONANCE IMAGING IN PROSTATE CANCER .....2109 IMAGING AND STAGING
Robert Lenkinski, Beth Israel Deaconess Medical Center, United States

SA-OS2: BIOLOGICAL IMAGE PROCESSING AND ANALYSIS

SA-OS2.1: A FAST AND AUTOMATED FRAMEWORK FOR EXTRACTION OF NUCLEI .....2113 FROM CLUTTERED 3D IMAGES IN FLUORESCENCE MICROSCOPY
Sorin Pop, Alexandre Dufour, Jean-François Le Garrec, Chiara Ragni, Margaret Buckingham, Sigolène Meilhac, Jean-Christophe Olivo-Marin, Institut Pasteur, France

SA-OS2.2: CELL SEGMENTATION IN MULTISPECTRAL IMAGES USING LEVEL .....2117 SETS WITH PRIORS FOR ACCURATE SHAPE RECOVERY
Xuqing Wu, Shishir Shah, University of Houston, United States

SA-OS2.3: MITOSIS DETECTION FOR STEM CELL TRACKING IN PHASE-CONTRAST .....2121 MICROSCOPY IMAGES
Seungil Huh, Sungeun Eom, Ryoma Bise, Zhaozheng Yin, Takeo Kanade, Carnegie Mellon University, United States

SA-OS2.4: A COMPREHENSIVE FRAMEWORK FOR CLASSIFICATION OF NUCLEI IN .....2128 DIGITAL MICROSCOPY IMAGING: AN APPLICATION TO DIFFUSE GLIOMAS
Jun Kong, Lee Cooper, Fusheng Wang, Candace Chisolm, Carlos Moreno, Tahsin Kurc, Patrick Widener, Daniel Brat, Joel Saltz, Emory University, United States

SA-OS2.5: 3D STEERABLE WAVELETS AND MONOGENIC ANALYSIS FOR BIOIMAGING 2132
Nicolas Chenouard, Michael Unser, EFPL, Switzerland

SA-OS3: BRAIN CONNECTIVITY

SA-OS3.1: WAVELET FRAMES ON GRAPHS DEFINED BY FMRI FUNCTIONAL CONNECTIVITY 2136
Nora Leonardi, Dimitri Van de Ville, University of Geneva, Switzerland

SA-OS3.2: TOWARD AN ACCURATE MULTI-FIBER ASSESSMENT STRATEGY FOR CLINICAL PRACTICE 2140
Benoit Scherrer, Simon K. Warfield, Harvard Medical School, United States

SA-OS3.3: ASSESSING THE DYNAMICS ON FUNCTIONAL BRAIN NETWORKS USING SPECTRAL GRAPHY THEORY 2144
Xintao Hu, Lei Guo, Degang Zhang, Kaiming Li, Tuo Zhang, Jinglei Lv, Junwei Han, Northwestern Polytechnical University, China; Tianming Liu, The University of Georgia, United States

SA-OS3.4: OPTIMIZATION OF FUNCTIONAL BRAIN ROIS VIA MAXIMIZATION OF CONSISTENCY OF STRUCTURAL CONNECTIVITY PROFILES 2150
Dajiang Zhu, the University of Georgia, United States; Kaiming Li, Northwestern Polytechnical University, China; Carlos Faraco, Fan Deng, the University of Georgia, United States; Degang Zhang, Northwestern Polytechnical University, China; Xi Jiang, Hanbo Chen, the University of Georgia, United States; Lei Guo, Northwestern Polytechnical University, China; Stephen Miller, Tianming Liu, the University of Georgia, United States

SA-OS3.5: BRAIN STATE CHANGE DETECTION VIA FIBER-CENTERED FUNCTIONAL CONNECTIVITY ANALYSIS 2155
Chulwoo Lim, Xiang Li, Kaiming Li, University of Georgia, United States; Lei Guo, Northwestern Polytechnical University, China; Tianming Liu, University of Georgia, United States