

SCIENTIFIC PROGRAM FULLY 3D 2015

MONDAY JUNE 1

8:00-8:20 Welcome by Michael King, Stephen Glick, and Klaus Mueller

8:20-10:00 Image Quality Assessment 1 (IQA1) – Moderators: Stephen Glick and Michael King

Keynote Talk by Kyle Myers on Image Quality Assessment

1. Adaptive Feature Selection for Model Observers: Reducing Reliance on Prior Knowledge for Task-based Assessment. Howard Gifford, Anando Sen, and Robert Azencott. University of Houston
2. Incorporating prior information in a no-gold-standard technique to assess quantitative SPECT reconstruction methods. Abhinav Jha, and Eric C Frey. Johns Hopkins University
3. Impact of statistical weights and edge preserving regularization on image quality in iterative CT reconstruction. Katharina Hahn, Harald Schöndube, Karl Stierstorfer, Frederic Noo. Siemens AG, Healthcare

10:30-12:10 Image Quality Assessment 2 (IQA2) – Moderators: Kyle Myers and Howard Gifford

1. Task-Based Optimization of Source-Detector Orbits in Interventional Cone-beam CT. J. Webster Stayman, Grace Gang, and Jeffery W. Siewerdsen. Johns Hopkins University
2. Clinically Relevant Task-based Assessment for Digital Breast Tomosynthesis using an Adaptive Visual-search Model Observer. Mini Das, Zhihua Liang, and Howard Gifford. University of Houston
3. Optimization of 3D SPECT-MPI Reconstruction Using a Machine Learning Polar-Map Model Observer for Detection and Localization of Perfusion Defects. M Felipe Parages, J Michael O'Connor, P Hendrik Pretorius, and Jovan G Brankov. Illinois Institute of Technology
4. Collimator optimization and collimator-detector response compensation in myocardial perfusion SPECT. Michael Ghaly, Jonathan M Links, and Eric C Frey. Johns Hopkins University

1:30-3:30 Poster Session 1 – Moderators: Jeffery Fessler and Ge Wang

- Mo1. List-Mode Reconstruction from Raw Detector Signals: An Embedded Detection Model for Monolithic Crystals. Jorge Cabello, Magdalena Rafecas, John E. Gillam, and Josep F. Oliver. Technische Universitat Munchen
- Mo2. Evaluation of a local respiratory motion correction (LRMC) in PET/CT imaging for oncology and cardiology applications. Frederic Lamare, Philippe Fernandez, and Dimitris Visvikis. Univ. Bordeaux, INCIA, CNRS UMR 5287
- Mo3. Marker-less Motion Detection for Multiple Frame Acquisition PET Brain Imaging. Clifford Lindsay, Joyeeta M. Mukherjee, Patrick Olivier, and Michael A. King. UMass Med School
- Mo4. Optimization-Based Simultaneous Determination of Emission Activity and Photon Attenuation in PET. Xiaochuan Pan, Buxin Chen, Zheng Zhang, Sean Rose, and Emil Sidky. The University of Chicago

- Mo5. Multi-threaded image reconstruction of 3D PET sinogram data with STIR. Kris Thielemans, Vesna Cuplov, and Benjamin Thomas. University College London
- Mo6. Fully Bayesian Image Estimation Software for List-Mode PET Data. Joaquin L Herraiz and Arkadiusz Sitek. Madrid-MIT M+Vision
- Mo7. Attenuation estimation from time-of-flight PET histo-images using consistency equations. Yusheng Li, Michel Defrise, Scott Metzler, and Samuel Matej. University of Pennsylvania
- Mo8. Towards Continuous-to-Continuous 3D Imaging in the Real World. Luca Caucci, Harrison Barrett, Zhonglin Liu, Abhinav Jha, and Lars Furenlid. Department of Medical Imaging, University of Arizona
- Mo9. Analytical Modeling of Collimator Response for a Compact Stationary Parallel-hole SPECT System. Lara Pato, Stefaan Vandenberghe, Pedro Luis Esquinas, and Roel Van Holen. MEDISIP, Ghent University
- Mo10. Correction of Hysteretic Respiratory Motion in SPECT Myocardial Perfusion Imaging. Paul Dasari, Arda Könik, P. Hendrik Pretorius, Karen Johnson, W. Paul Segars, and Michael A. King. University of Maryland
- Mo11. Reduced Angle Acquisition in I-123 DaTscan Imaging using Multi-pinhole (MPH) and Fan-beam Collimators on a Dual-headed SPECT system. Joyeeta Mitra Mukherjee, Joyoni Dey, and Michael King, UMass Medical School
- Mo12. A Visual-Search Model Observer for Multitarget SPECT Image. Kheya Banerjee, Anando Sen, and Howard C. Gifford, University of Houston
- Mo13. Accounting for anatomical noise in tumor localization tasks with visual-search and channelized Hotelling observers. Anando Sen and Howard C. Gifford. University of Houston
- Mo14. Iterative CT Reconstruction with Regularization Parameter Tuned by Blind Image Quality Assessment. Ti Bai, Xuanqin Mou, Wufeng Xue, Hao Yan, and Steve Jiang. Xi'an Jiaotong University
- Mo15. (#6) Projection and backprojection method based on piecewise linear signal model for tomographic imaging. Yoonmi Hong, Gye Hyun Kim, Jaesung Lee, Jaechool Lee, and Haekyung Jung. Samsung Electronics
- Mo16. Iterative CT Image Reconstruction using 3D Dictionary Learning. Kai Mei, Alexander Valentinitzsch, Felix Kopp, Peter Noël, Andreas Fehringer, Franz Pfeiffer, Jan Bauer, and Ernst Rummeny. Technische Universität München
- Mo17. Comparison of Resolution and Noise Properties of Rebinning Techniques for Fan-Beam Reconstruction. Sathish Ramani, Jed Pack, Bruno De Man. GE Global Research
- Mo18. Distributed Block-Separable Ordered Subsets for Helical X-ray CT Image Reconstruction. Donghwan Kim and Jeffrey Fessler. University of Michigan
- Mo19. Metal artifact correction for liquid CT scan with a parameterized image and a spectrum projection model. Xin Jin, Liang Li, Le Shen, Qingping Huang, Zhiqiang Chen, Yinong Liu, and Li Zhang. Department of Engineering Physics, Tsinghua University

- Mo20. 2D Singular Value Decomposition based Interior Tomography. Rui Liu, Hengyong Yu, Lu He, and Yan Luo. Wake Forest University Health Sciences
- Mo21. Reducing short-scan artifacts in 3D axial cone-beam CT with extra views. Jang Hwan Cho, Jeffrey Fessler, Debashish Pal, and Jean-Baptiste Thibault. Endra Inc
- Mo22. Early stopping vs. a Bayesian framework of regularization applied to the analytical model-based statistical reconstruction approach. Robert Cierniak and Anna Lorent. Czestochowa University of Technology
- Mo23. Accurately approximating algebraic tomographic reconstruction by filtered backprojection. Daniel Pelt and Kees Joost Batenburg. CWI, Amsterdam, The Netherlands
- Mo24. An FDK-type reconstruction algorithm for a CT system with real-time calibrated geometry. Hongkai Yang, Kejun Kang, and Yuxiang Xing. Tsinghua University
- Mo25. A distributed SIRT implementation for the ASTRA Toolbox. Willem Jan Palenstijn, Jeroen Bédorf, and Joost Batenburg. CWI, Amsterdam, Netherlands
- Mo26. Improving iterative 4D CBCT through the use of motion information. Cyril Mory and Simon Rit. iMagX project, ICTEAM Institut & Université de Lyon, CREATIS ; CNRS UMR5220 ; Inserm U1044 ; INSA-Lyon ; Université Lyon 1 ; Centre Léon Bérard, Fra
- Mo27. Fully 3D variance reconstruction for circular cone beam CT. Dirk Schaefer, Peter van de Haar, and Michael Grass. Philips Research
- Mo28. Motion Correction of Skull and Breathing Motion with Motion Artefact Metric (MAM) Optimization. Herbert Bruder, Christopher Rohkohl, Karl Stierstorfer, Michael Knott, and Thomas Flohr. Siemens HealthCare
- Mo29. Affine deformation correction in cone beam Computed Tomography. Nieuwenhov, De Beenhouwer Jan Vincent, Luc Van Hoorebeke, Thomas De Schryver, and Jan Sijbers. University of Antwerp
- Mo30. Low-dose Cerebral Perfusion CT Image Restoration using Sparse and Low-rank Matrix Decomposition. Shanzhou Niu, Shanli Zhang, Jing Huang, Zhaoying Bian, Dong Zeng, Gaohang Yu, Zhengrong Liang, Jianhua Ma, and Wufan Chen. Southern Medical University
- Mo31. Poseless CBCT on Surgical C-arm. Lance McBride and Arvi Cheryauka. GE Healthcare-Surgery
- Mo32. Low-dose Dynamic Cerebral Perfusion CT Imaging via Coupled Dictionary Learning. Zhaoying Bian, Jing Huang, Jianhua Ma, Shanli Zhang, Shanzhou Niu, and Dong Zeng. Southern Medical University
- Mo33. Spectral PICCS Reconstruction for Photon-Counting CT. Zhicong Yu, Shuai Leng, Zhoubo Li, Erik Ritman, and Cynthia McCollough. Mayo Clinic
- Mo34. A Novel Filtered Backprojection-Based Algorithm for Sparse View CT Image Reconstruction. Meng Wu, Andreas Maier, Qiao Yang, and Rebecca Fahrig. Stanford University

Mo35. A Method for Synthesizing Panoramic Image from Cone-beam CT projection. Ji Zhao, Zhiqiang Chen, Li Zhang, and Xin Jin. Tsinghua University

Mo36. Extended View Cone-Beam Reconstruction With A Movable Gantry. Andrei Bronnikov. Bronnikov Algorithms

Mo37. A Highly Adaptable X-ray Imaging System Simulator. Serge Soloviev. Reveal Imaging, Leidos

Mo38. Photon Count Rate Optimization in CZT based Coded Aperture X-ray Diffraction Imaging Applications. Joel Greenberg, Kris Iniewski, and David Brady. Duke University

Mo39. A 3-D Scattering Model for Orientation-dependent X-ray Dark-field Imaging. Shiyang Hu, Christian Riess, Andreas Maier, Joachim Hornegger, Florian Bayer, Thomas Weber, and Gisela Anton. FAU Erlangen

4:00-6:00 Iterative Reconstruction 1 (IR1) – Moderators: Frederic Noo and Ken Sauer

1. Frequency-Split Iterative Tomographic Reconstruction in Targeted Region-of-Interest. Lin Fu, Jed Pack, and Bruno De Man. GE Global Research

2. Fast Variance Prediction for Iteratively Reconstructed CT with Arbitrary Geometries. Stephen Schmitt, Stephen, and Jeffrey Fessler. University of Michigan

3. Iterative shading correction for cone-beam CT. Tianye Niu, Pengwei Wu, Jun Dang, Tingyu Mao, Yanan Huo, and Xiaonan Sun. Sir Run Shaw Hospital, Zhejiang University School of Medicine

4. Generalized Penalized Weighted Least-Squares Reconstruction for Deblurred Flat-Panel CBCT. Steven Tilley, Jeffrey Siewerdsen, and J. Webster Stayman. Johns Hopkins University

5. A Hierarchical Multi-Scale Based Reconstruction Method for Tomosynthesis. Bernhard Claus, and David Langan. GE Global Research Center

6. When do the iterative reconstruction methods become worth the effort? Sophia Bethany Coban, Philip Withers, Bill Lionheart, and Sam McDonald. The University of Manchester

6:30-7:30 Clinical Application of 3D Reconstruction to Interventional Imaging. Ajay Wakhloo and Matthew Gounis – Moderators: Michael King and Stephen Glick

TUESDAY JUNE 2

8:00 -10:00 Iterative Reconstruction 2 (IR2) – Moderators: Charlie Byrne and Hengyong Yu

Keynote Talk by Jeffrey Fessler on Iterative Reconstruction in CT and MRI

1. Improve Path Seeking Accuracy for Iterative Reconstruction Using the Karush-Kuhn-Tucker Condition. Meng Wu, Andreas Maier, Qiao Yang, and Rebecca Fahrig. Department of Radiology, Stanford University
2. Reconstruction of Difference using Prior Images and a Penalized-Likelihood Framework. Amir Pourmorteza, Hao Dang, Jeffrey Siewerdsen, and J. Webster Stayman. Johns Hopkins University
3. Adaptive Regularization for Uniform Noise Covariance in Iterative 3D CT. Ken Sauer, Zhiqian Chang, Ruoqiao Zhang, Jean-Baptiste Thibault, Lin Fu, Debashish Pal, and Charles Bouman. University of Notre Dame
4. Relaxed Linearized Algorithms for Faster X-Ray CT Image Reconstruction. Hung Nien, Jeffrey A. Fessler, University of Michigan, Ann Arbor

10:30-12:10 Computed Tomography 1 (CT1) – Moderators: Mark Kachelrieß and Mini Das

1. Dynamic Contrast Estimation and Compensation in Computed Tomography. Brian Nett, Jed Pack, and Cyril Riddell. Ge Healthcare
2. Low-dose Cerebral Perfusion CT Image Restoration via Low-Rank and Sparse Prior. Shanzhou Niu, Shanli Zhang, Jing Huang, Zhaoying Bian, Dong Zeng, Gaohang Yu, Wufan Chen, Zhengrong Liang, and Jianhua Ma. Southern Medical University
3. Combined Metal Artifact Reduction and Determination of Metallic Composition for On-Board CBCT. Qiong Xu, Xuanqin Mou, Lei Xing, Yong Yang, and Michael Sano. Xi'an Jiaotong University
4. 4D DSA Iterative Reconstruction. Juergen Endres, Sebastian Schafer, Christopher Rohkohl, Kevin Royalty, Andreas Maier, Markus Kowarschik, and Joachim Hornegger. Pattern Recognition Lab, Friedrich-Alexander-Universität Erlangen-Nürnberg

1:30-3:30 PET and SPECT Reconstruction 1 (PSR1) – Moderators Richard Carson and Stephen Moore

1. Consistency equation for TOF-PET histo-images: derivation and applications. Michel Defrise, Samuel Matej, and Yusheng Li. Vrije Universiteit Brussel
2. Direct Joint Motion Estimation/Image Reconstruction in Attenuation-Corrected Gated PET/CT Using a Single CT. Alexandre Bousse, Ottavia Bertolli, David Atkinson, Simon Arridge, Sébastien Ourselin, Brian Hutton, and Kris Thielemans. University College London
3. A hybrid kinetic model/B-spline algorithm for direct parametric reconstruction from cardiac list mode PET. Mary Germino, Albert Sinusas, Chi Liu, and Richard Carson. Yale University
4. Detector modeling in PET list-mode reconstruction: comparison between pre-calculated and on-the-fly computed system matrix. Awen Autret, Julien Bert, Dimitris Visvikis, Matthieu Moreau, Thomas Carlier, and Olivier Strauss. LaTIM - INSERM UMR 1101
5. Penalized Maximum Likelihood Reconstruction of Ultrahigh Resolution PET with Depth of Interaction. Kyungsang Kim, Joyita Dutta, Andrew Groll, Ling-Jian Meng, Georges El Fakhri, and Quanzheng Li. Massachusetts General Hospital and Harvard Medical School

6. Reconstruction of Multiple-Pinhole MicroSPECT Data Using Origin Ensembles. Morgan Cervo, Arkadiusz Sitek, Scott D. Metzler, and Stephen C. Moore. Brigham and Women's Hospital

WEDNESDAY JUNE 3

8:00 -10:00 High Performance Computing (HPC) - Moderators Jens Gregor and Webster Stayman

Keynote Talk by Klaus Mueller on High Performance Computing

1. GPU-Based 4D Cone-Beam CT Reconstruction by Meshing Method. Zichun Zhong, Xuejun Gu, Weihua Mao, Xiaohu Guo and Jing Wang. UT Southwestern Medical Center at Dallas and University of Texas at Dallas
2. Multi-GPU SART for Arbitrary Imaging Trajectories. Marc Käseberg, Steffen Melnik, Karl Wessel and Erwin Keeve. Fraunhofer IPK and Charité Universitätsmedizin Berlin
3. Fast GPU-Driven Model-Based X-Ray CT Image Reconstruction via Alternating Dual Updates. Madison G. McGaffin and Jeffrey A. Fessler. University of Michigan.
4. An Algorithm to Compute Independent Sets of Voxels for Parallelization of ICD-based Statistical Iterative Reconstruction. Sungsoo Ha and Klaus Mueller. Stony Brook University and SUNY Korea.

10:30-12:10 Novel Geometry, Security, and Industrial Applications, and Other Modalities (NSIO) – Moderators: Marc Kachelrieß and Benjamin Tsui

1. X-ray Tensor Tomography Reconstruction. Jakob Vogel, Matthias Wiecek, Christoph Jud, Florian Schaff, Franz Pfeiffer, and Tobias Lasser. Technische Universität München
2. List-mode proton CT reconstruction using their most likely paths via the finite Hilbert transform of the derivative of the backprojection. Simon Rit, Rolf Clackdoyle, Jan Hoskovec, and Jean Michel Létang. CREATIS / CLB
3. SPECT Algorithm Envisions DC-Less MRI. Larry Zeng. Weber State University
4. Reconstruction of electron density from time resolved in-plane Compton backscatter measurements. Nick Calvert, Marta Betcke, Edward Morton, and Robert Speller. University College London

1:30-3:30 Poster Session 2 – Moderators: Georges El Fakhri and Hengyong Yu

We1. MR-consistent Simultaneous Reconstruction of Attenuation and Activity for non-TOF PET/MR: a Simulation Study. Thorsten Heußner, Christopher M Rank, Thomas Beyer, and Marc Kachelrieß. German Cancer Research Center (DKFZ)

We2. 4D PET image reconstruction algorithm integrating temporal regularization for improved Patlak parameters estimations in oncology. Thibaut Merlin, Frédéric Lamare, and Dimitris Visvikis. INSERM, UMR1101, LaTIM

- We3. Preliminary Investigation of PET Image Reconstruction from Reduced Data by Constrained-TV-Minimization. Zhen Zhang, Jinghan Ye, Buxin Chen; Amy Perkins, A. Trindade, P. Rodrigue, Chien-Min Kao, Emil Sidky, and Xiaochuan Pan. The University of Chicago
- We4. TOF ML-ACF Reconstruction of Dynamic Data. Vladimir Panin. Siemens Healthcare.
- We5. Effect of Time-of-Flight Information to Fill Lost-Frequency in Incomplete PET Geometry. Hideaki Tashima and Taiga Yamaya. National Institute of Radiological Sciences
- We6. Direct Estimation of Voxelwise Neurotransmitter Response Maps From Dynamic PET Data. Georgios Angelis, John Gillam, William Ryder, and Steven Meikle. The University of Sydney
- We7. ML estimation of the scatter scaling in TOF PET. Koen Salvo, Vladimir Panin, Harold Rothfuss, and Michel Defrise. Vrije Universiteit Brussel
- We8. Non-Uniform Acquisition Intervals in Dynamic SPECT Imaging. Yunlong Zan, Grant Gullberg, and Qiu Huang. Shanghai Jiao Tong University and Lawrence Berkeley National Laboratory
- We9. Post-Processing of Cardiac Gated SPECT with 4D Non-Local Means Filter. Chao Song, Yongyi Yang, Wenyan Qi, Miles Wernick, P. Hendrik Pretorius, and Michael King. Illinois Institute of Technology
- We10. High Performance Fully 3D and 4D Image Reconstruction in SPECT Using a Big Data Analytic Tool Running on a Supercomputer. Sihih-Ying Clare Huang. University of California San Francisco
- We11. PINHOLE SPECT IMAGE RECONSTRUCTION USING A DENSE SYSTEM MATRIX. Jingyan Xu. Johns Hopkins University
- We12. Improvement of Variance in TOF-PET using Iterative Image Reconstruction. Mengdie Wang, Guangshu Hu, Georges El Fakhri, Hui Zhang, and Quanzheng Li. Tsinghua University/ Massachusetts General Hospital
- We13. WITHDRAWN
- We14. Optimal Selection for Regularization Parameter in Iterative CT Reconstruction Based on the Property of Natural Image Statistics. Xuanqin Mou; Ti Bai, Xi Chen, Hengyong Yu, Qingsong Yang, and Ge Wang. Xi'an Jiaotong University
- We15. Regularized SART-type of Methods in CT. Daxin Shi. Toshiba Medical Research Institute USA
- We16. CT Iterative Reconstruction Based Gradient Domain Dictionary Learning. Zhanli Hu, Yunwan Zhang, Giegen Liu, Na Zhang, Peter Z.Wu, Hairong Zheng, and Dong Liang. SIAT
- We17. Robust artefact reduction in tomography using Student's t data fitting. Bleichrodt, Folkert; Tristan van Leeuwen and K. Joost Batenburg. Centrum Wiskunde & Informatica
- We18. Multiresolution Approach to Acceleration of Iterative Image Reconstruction for X-Ray Imaging for Security Applications. Soysal Degirmenci, Joseph A.O'Sullivan, and David G.Politte, Washington University in St. Louis

- We19. Ratio of Multi-Channel Representation (rMCR) Based Spectral CT Reconstruction. Yanbo Zhang, Xuanqin Mou, Hengyong Yu, and Ge Wang. Xi'an Jiaotong University
- We20. Model-Based Iterative Reconstruction with a Gaussian Mixture MRF Prior for X-Ray CT. Ruoqiao Zhang, Debashish Pal, Jean-Baptiste Thibault, Charles Bouman, and Ken Sauer. Purdue University
- We21. Initial Condition for Fast Model-Based Iterative Reconstruction of Truncated Projection Data. Dong Hye Ye, Charles Bouman, Somesh Srivastava, Debashish Pal, Jean-Baptiste Thibault, and Ken Sauer. Purdue University
- We22. Consistency of Fanbeam Projections Along an Arc of a Circle. Rolf Clackdoyle, Michel Defrise, Laurent Desbat, and Johan Nuyts. Laboratoire Hubert Curien
- We23. Efficient Fourier Extrapolation-based Image Reconstruction for Linear Scan CT. Hanming Zhang. National Digital Switching System Engineering and Technological Research Center
- We24. Ultra-fast Semi-analytic Iterative Reconstruction Framework for 3D Low-Dose CT. Eunhee Kang, Kyungsang Kim, and Jong Chul Ye. KAIST
- We25. Fan-Beam Short-Scan FBP Algorithm Is Not Exact. Larry Zeng. Weber State University
- We26. Beam Hardening Correction for Flat-Panel Computed Tomography devices. , Fabian-Alexander Schlicht and Holger Kunze. Hamburg University of Applied Sciences
- We27. A novel scatter correction method for Cone Beam CT. Kun Zhou. Peking University
- We28. Adapted sampling for 3D X-ray computed tomography. Anthony Cazasnoves, Fanny Buyens, and Sylvie Sevestre. CEA, LIST
- We29. Data-driven Rigid Motion Correction for Helical CT. Tao Sun, Jung-Ha Kim, Fulton Roger, and Nuyts Johan. KU Leuven
- We30. Projection-based Material Decomposition by Machine Learning using Image-based Features for Computed Tomography. Yanye Lu, Jan Geret, Mathias Unberath, Michael Manhar, Qiushi Ren, Rebecca Fahrig, Joachim Hornegger, and Andreas Maier. Pattern Recognition Lab, Department of Computer Science, Friedrich-Alexander-University Erlangen-Nurember
- We31. Multi-Resolution Penalized Weighted Least-Squares Reconstruction for Quantitative Cone-Beam CT Imaging of Bone Morphology. Qian Cao, Wojciech Zbijewski, John Yorkston, Jeffrey Siewerdsen, and Webster Stayman. Johns Hopkins University
- We32. A General Projection Weight for Feldkamp-Type Cone-Beam Image Reconstruction from Arbitrary CT Scan Trajectories. Michael Knaup, Jan Kuntz, Stefan Sawall, and Marc Kachelrieß. German Cancer Research Center (DKFZ)
- We33. Fast Scatter Artifacts Correction for Cone-Beam CT without System Modification and Repeat Scan. Wei Zhao. Huazhong University of Science and Technology

We34. A Study of Volume Integration Models for Iterative Cone-Beam Computed Tomography. Sungsoo Ha. Stony Brook University

We35. Geometric Adjustment of X-ray Tomosynthesis. Tobias Grulich, Wolfgang Holub, Ulf Hassler, André Aichert, and Andreas Fraunhofer Maier. Development Center X-ray Technology EZRT

We36. Many-view under-sampling dual-energy low-dose diagnostic CT scan. Seungryong Cho,; Taewon Lee, Jiseoc Lee, Kyoung-Yong Lee, and Do-Il Kim. KAIST

We37. Cycle Time Reduction in Process Integrated Computed Tomography using Compressed Sensing. Tobias Schoen, Florian Römer, Marcus Grossmann, Steven Oeckl, Roland Gruber, Alexander Jung, and Giovanni Del Galdo. Fraunhofer IIS

We38. X-ray grating-based dark-field tomography with artifact reduction. Xiaolei Jiang, Li Zhang, Zhiqiang Chen, Xiaohua Zhu, Shengping Wang, Weijun Peng, and Wei Li. Tsinghua University

We39. A Data-Driven Framework to Optimize External Marker Positioning for Internal Motion Tracking. Joyita Dutta, Georges El Fakhri, and Quanzheng Li. Harvard Medical School / Massachusetts General Hospital

We40 Total Variation Regularization for X-Ray Tensor Tomography. Matthias Wiecek, Jakob Vogel, Andreas Weinmann, Christoph Jud, Florian Schaff, Martin Storath, Franz Pfeiffer, Maximilian Baust, and Tobias Lasser. Computer Aided Medical Procedures (CAMP), Technische Universität München, Germany

4:00-6:00 Spectral Computed Tomography (SCT) – Moderators: Web Stayman and Emil Sidky

1. Impact of Spectral Separation in Dual-Energy CT with Anti-Correlated Statistical Reconstruction. Kevin Brown, Stanislav Zabic, and Gilad Shechter. Philips Healthcare

2. Basis-Image Reconstruction Directly from Limited-Angle Data Sets in Spectral CT. Buxin Chen, Zheng Zhang, Emil Sidky, Erik Pearson, Charles Pelizzari, and Xiaochuan Pan. The University of Chicago

3. Third Material Separation in Spectral CT with Basis Decomposition. Fredrik Grönberg, Hans Bornefalk, and Mats Persson. KTH Royal Institute of Technology

4. One-step inversion of sparse-view spectral CT data by constrained maximization of a transmission-Poisson likelihood model. Rina Foygel Barber, Emil Sidky, Taly Gilat-Schmidt, and Xiaochuan Pan. University of Chicago

5. Tensor based Dictionary Learning for Spectral CT Reconstruction. Yanbo Zhang, Xuanqin Mou, Hengyong Yu, Ge Wang, and Qiong Xu. Xi'an Jiaotong University

6. An ADMM algorithm for joint dual energy CT iterative reconstruction. Yan Liu, and Zhou Yu. Toshiba Medical Research Institute USA

THURSDAY JUNE 4

8:00-10:00 PET and SPECT Reconstruction 2 (PSR2) – Moderators: Jinyi Qi and Magdalena Rafecas

Keynote Talk by Michel Defrise on Reconstruction of PET and TOF PET

1. An Iterative Method for Eliminating Artifacts from Multiplexed Data in Pinhole SPECT. Stephen Moore, Morgan Cervo, José Manuel Udias, Joaquin L. Herraiz, and Scott Metzler. Brigham & Women's Hospital, Harvard Medical School
2. Analytic TOF reconstruction algorithm within DIRECT data partitioning framework. Samuel Matej, Margaret Daube-Witherspoon, and Joel Karp. University of Pennsylvania
3. Non-rigid 4D Respiratory and Cardiac Motion Correction on Projection Data before Image Reconstruction for Cardiac PET. Tao Feng, and Benjamin Tsui. Johns Hopkins University
4. Electron Density Reconstruction from Scattered Coincidences for Attenuation Correction in Positron Emission Tomography. Geng Zhang, Hongyan Sun, and Stephen Pistorius. University of Manitoba

10:30-12:10 Patient Motion (PM) – Moderators: Johan Nuyts and Nicole Maas

1. Keeping the Pace: Heart Rate Informed 3-D Motion Detection for Adaptive Temporal Smoothing. Oliver Taubmann, Günter Lauritsch, Andreas Maier, Rebecca Fahrig, and Joachim Hornegger. Pattern Recognition Lab, Department of Computer Science, Friedrich-Alexander-University Erlangen-Nuremberg
2. Fully Automatic Head Motion Correction for Interventional C-arm Systems using Fiducial Markers. Kerstin Müller, Martin Berger, Jang-Hwan Choi, Sanjit Datta, Sonja Gehrisch, Teri Moore, Michael P. Marks, Andreas K. Maier, Rebecca Fahrig. Stanford University
3. Motion adaptive sparsity prior for low-dose dynamic CT myocardial perfusion imaging. Zhaoying Bian, Changfei Gong, Dong Zeng, Shanzhou Niu, Hua Zhang, Zhang Zhang, and Jianhua Ma. Southern Medical University
4. Feasibility of Correcting for realistic head motion in helical CT. Jung-Ha Kim, Tao Sun, Johan Nuyts, Zdenka Kuncic, and Roger Fulton. The University of Sydney, Sydney, Australia

1:30-3:30 Poster Session 3 – Moderators: Brian Hutton and Xuanqin Mou

- Th1. Modeling Pose Measurement Uncertainty During Image Reconstruction for Awake Animal PET. John Gillam. Brain and Mind Research Institute
- Th2. Modulating Time-Activity Curves for Different Compartments in List-Mode Data. Yusheng Li, Margaret Daube-Witherspoon, Joel Karp, Suleman Surti, Samuel Matej, and Scott Metzler. University of Pennsylvania
- Th3. Investigation of Convex Priors in List Mode TOF PET Reconstruction with the Entropic Mirror Descent Algorithm. Sean Rose, Emil Sidky, Chien-Min Kao, and Xiaochuan Pan. The University of Chicago
- Th4. Evaluation of the Intel Xeon Phi coprocessor for PET reconstruction. Thomas Dey and Pedro Rodrigues. Oncology Solutions, Philips Research Europe

Th5. Study of a novel-geometry PET scanner. Kuang Gong. BME of UC DAVIS

Th6. WITHDRAWN

Th7. OpenCL-Accelerated Motion Corrected Reconstruction of Cardiac-gated SPECT Using DCAMM. Francesc Massanes and Jovan Brankov. Illinois Institute of Technology

Th8. Introducing Polar Map Defined Defects into Normal Cardiac Perfusion SPECT Slices using 3D Respiratory and Rigid-Body Motion Projection. P. Hendrik Pretorius, Michael A. King, Karen Johnson, Yongyi Yang, and Miles Wernick. UMass Med School

Th9. Fully 3D thyroid imaging with mini gamma cameras. José Gardiazabal, Jakob Vogel, Philipp Matthies, Matthias Wiczorek, Benjamin Frisch, Nassir Navab, Sibylle Ziegler, and Tobias Lasser. Technische Universität München

Th10. Reconstruction of Brain SPECT Data from an Ultra-Short Cone-Beam Collimator Paired with a Fan-Beam Collimator. Stephen Moore, Morgan Cervo, Marie Foley Kijewski, Charles Mauceri, Mi-Ae Park, and Laura Horky. Brigham & Women's Hospital, Harvard Medical School

TH11. Micro-SPECT imaging in the presence of an X-ray CT contrast agent: Effects of attenuation and scatter and effectiveness of corrections. Sanghyeb Lee, Jens Gregor, Jonathan Wall, and Dustin Osborne. University of Tennessee

Th12. A New Channel Design of Channelized Hotelling Observer and Internal Noise Optimization to Match Human Observer. Minah Han and Jongduk Baek. Yonsei University

Th13. Preliminary Investigation of Noise Properties in TV-constrained and TV-penalized CT Image Reconstruction. Adrian Sanchez, Emil Sidky, and Xiaochuan Pan. The University of Chicago

Th14. A Model of Regularization Parameter Selection in Low-dose X-ray CT Reconstruction Based on Dictionary Learning. Cheng Zhang, Jian Zheng, Ming Li, Yanfei Lu, Jiali You, and Yihui Guan. Suzhou Institute of Biomedical Engineering and Technology (SIBET) of Chinese Academy of Sciences, Suzhou, China

Th15. Numerical Investigation of the Convergence-Rate of the Chambolle-Pock Algorithm for CT Reconstruction. Dufan Wu, Emil Sidky, Li Zhang, and Xiaochuan Pan. Tsinghua University

Th16. Compressed Sensing based Statistical Interior Tomography with Feature Refinement. Yunwan Zhang, Jianbo Liu, Zhanli Hu, Hairong Zheng, and Dong Liang,. Lauterbur Research Center for Biomedical Imaging, Institute of Biomedical and Health Engineering, Shenzhen Institutes of Advanced Technology, China

Th17. Projection onto Convex Sets for Constrained Iterative Image Reconstruction. Li Liu, Yongxin Han, and Mingwu Jin. Tianjin University

Th18. Dual energy CT image iterative reconstruction using an average image induced edge-preserving prior. Dong Zeng, Jianhua Ma, Jing Huang, Zhaoying Bian, Hua Zhang, and Shanzhou Niu. Southern Medical University

- Th19. Statistical iterative reconstruction for ultra high-resolution x-ray tomography from undersampled data. Sebastian Allner, Andreas Fehringer, Astrid Velroyen, Franz Pfeiffer, and Peter B Noël. Department of Physics and Institute of Medical Engineering, Technische Universität München, Garching, Germany
- Th20. An iterative algorithm for region-of-interest reconstruction with cone-beam acquisitions on a generic source trajectory. Tasadduk Chowdhury, Anando Sen, and Robert Azencott. University of Houston
- Th21. An Optimal relaxation of the Algebraic Reconstruction Technique for CT Imaging. Sebastian Bannasch, Robert Frysch, Richard Bismark, Gerald Warnecke, Georg Rose. Institute of Medical Engineering, University of Magdeburg, Germany
- Th22. A Modified BPF Algorithm for ROI-volume Reconstruction from Helical Cone-beam Data Containing Truncation. Han Yu, Li Lei, Xi Xiaoqi, Yan Bin, and Hu Guoen. National Digital Switching System Engineering and Technological Research Center
- Th23. Bayesian image reconstruction for low-dose X-ray CT: a comparison study of sinogram- and image-domain implementations. Hao Zhang. Stony Brook University
- Th24. WITHDRAWN
- Th25. A geometric calibration method for digital x-ray tomosynthesis. Liang Li, Yao Yang, and Zhiqiang Chen. Tsinghua University
- Th26. Using Edge-Preserving Algorithm for Significantly Improved Image-Domain Material Decomposition in Dual Energy CT. Wei Zhao and Lei Xing. Huazhong University of Science and Technology
- Th27. Implementation of an Open Data Format for CT Projection Data. Baiyu Chen, Xinhui Duan, Zhicong Yu, Shuai Leng, Lifeng Yu, and Cynthia McCollough. Mayo Clinic
- Th28. Torsional Heart Motion in Cone-beam Computed Tomography Reconstruction. Mathias Unberath, Oliver Taubmann, Katrin Mentl, Andreas Maier, Rebecca Fahrig, Joachim Hornegger, and Stephan Achenbach. Friedrich-Alexander Universität Erlangen-Nürnberg
- Th29. MAP-Based Sinogram Denoising for Spectral CT Imaging Using a Joint Prior. Debashish Pal. GE Healthcare
- Th30. Dual energy CT images restoration via dictionary learning and spectral gradient modeling. Dong Zeng, Jianhua Ma, Zhaoying Bian, Hua Zhang, Shanzhou Niu, and Jing Huang. Southern Medical University
- Th31. Sparse-view Cerebral Perfusion CT Reconstruction via Total Generalized Variation and Spectral Patch-based Low-rank Penalty. Shanzhou Niu, Jing Huang, Zhaoying Bian, Shanli Zhang, Wufan Chen, and Jianhua Ma. Southern Medical University
- Th32. Joint Sparsity and Fidelity Regularization for Segmentation-driven CT Image Preprocessing. Feng Liu and Huibin Li. Xi'an Jiaotong University
- Th33. Resolution Improvement of Digital Radiography Image Based on a Modified ROF Deblurring Model. Qian Wang, Yining Zhu, and Hongwei Li. CT Laboratory, School of Mathematics, Capital Normal University

Th34. Wedge beam geometry – a possible approach of realization and potential for scatter reduction. Oleg Tischenko and Christoph Hoeschen. HMGU - German Research Center for Environmental Health.

Th35. Analytic Reconstruction Algorithm for Triple-source CT with Horizontal Data Truncation. Ming Chen and Hengyong Yu. University of Massachusetts Lowell

Th36. Investigation of 3D DSA Image Reconstruction from Single-Plane and Bi-Plane Data. Dan Xia, Xiao Han, Satoru Oishi, Tetsu Satow, Hiromichi Yokoyama, Masanobu Yamada, Emil Sidky, and Xiaochuan Pan. The University of Chicago

Th37. Dual Grid Approach for Iterative Reconstruction in Extreme Interior Tomography. William Thompson. Carl Zeiss X-ray Microscopy

Th38. Design and optimization of X-ray Talbot-Lau interferometry with polychromatic sources. Li Zhang, Ran Zhang, Zhiqiang Chen, Xiaohua Zhu, Xiaolei Jiang, and Wei Li. Tsinghua University

Th39. Modeling and reconstruction for dual-view selective plane illumination microscopy. Patrick La Riviere, Corey Smith, Abhishek Kumar, Daniel Colon-Ramos, Yicong Wu, and Hari Shroff. University of Chicago

4:00-6:00 Computed Tomography 2 (CT2) – Moderators: Xiaochuan Pan and Charlie Byrne

1. Joint Cone-beam Reconstruction and Geometry Estimation for Mobile C-arms. Caleb Rottman, Jacob Hinkle, Ross Whitaker, Arvidas Cheryauka, and Sarang Joshi. Scientific Computing and Imaging Institute, University of Utah

2. Investigation of a "zoomCT" architecture for cardiac CT imaging. Jed Pack, Ge Wang, Jiao Wang, Bruno De Man, Jeffrey Carr. GE Global Research

3. Multiple-component object representation and iterative reconstruction for X-ray coherent scattering imaging of the breast. Bahaa Ghamraoui, Andreu Badal, and Lucretiu Popescu. US Food and Drug Administration

4. Automated Anatomy Segmentation of Statistical Iterative Reconstructed CBCT. Lyndon Hibbard, and Yaqi Chen. Elekta

5. Intensity-Based Iterative Reconstruction for Differential Phase-Contrast Imaging with Reconstruction Parameter Estimation. Bernhard Brendel, Thomas Koehler, Maximilian von Teuffenbach, Andreas Fehringer, Peter B. Noel, and Franz Pfeiffer. Philips Research

6. Presentation of Plans for CT Meeting 2016

7. Presentation of Plans for Fully 3D 2017

CLOSE SCIENTIFIC SESSIONS FULLY 3D 2015