NAME AND PRESENT POSITION

Yunmei Chen, Distiguished Professor of Mathematics

Research Interest

PDE/Variational methods for image processing;

Optimization techniques and applications in imaging, machine learning and neuron network computing;

Medical image analysis;

Partial differential equations (PDE), Nonlinear analysis.

EDUCATIONAL BACKGROUND

Ph.D., Mathematics, Fudan University, Shanghai, China, 1985

M.S., Mathematics, Tongji University, Shanghai, China, 1981

B.S., Mathematics, Fudan University, Shanghai, China, 1967

EMPLOYMENT

Distinguished Professor, University of Florida, 2015-present

Professor, University of Florida, 1995-2015

Associate Professor, University of Florida, 1992-1995

Assistant Professor, University of Florida, 1991-1992

Visiting Professor, SISSA, Italy, 1989-1991

Post-Doctoral Fellow, International Centre for Theoretical Physics, Italy, 1986-1989

HONORS

• University of Florida Research Foundation Professorship 2003-2006;

• Gibson Term Professorship 2001-2002;

• The best paper award in the 5th World Multi-conference on systemics, Cybernetics and Informatics, Orlando, USA, July 22-25, 2001;

• TIP Awards for distinguished teaching at University of Florida, 1994-1995, and 1998-1999;

• The third prize for Natural Science Award, National Science and Technology Committee of China, 1997;

• The first prize for Advancement of Science and Technology, National Education Committee of China, 1993.

CONTRACTS AND GRANTS

A. Funded Externally

AFOSR/Eglin 9/30/2014 4/27/2017, Co-PI, Air Force Research Laboratory (AFRL) Mathematical Modeling and Optimization Institute Task Order 0042, ($ 1,680,364);

NSF/DMS 9/1/2013-8/31/2016, PI, Accelerated Algorithms for a Class of Saddle Point Problems and Variational Inequality, ($160,000);

NSF/DMS 3/15/2014-3/14/2015, Co-PI, The Third University of Florida SIAM Gators Conference, ($15,300);

NSF/IIP 9/1/2012-8/31/2015, Co-PI, Innovation Transfer of the Portable Nuclear Moment Imaging Platform ($ 598,644);

NSF/DMS 9/15/2011-9/14/2014, Co-PI, Collaborative Research: Fast TV-Regularized Large-Scale and Ill-Conditioned Linear Inversion with Application to PPI, ($241,579);

NIH/R01, 07/01/2006 - 06/30/2011, Co-Investigator, Segmentation of Ultrasound Images, ($1,556,175, 10% FTE);

NIH/R01, 4/1/2006-12/30/2011, Co-Investigator, Biochemical Markers of Traumatic Brain Injury, ($5,099,083, 10% FTE);

NSF/CCF, 10/1/2005-9/30/2007, Co-PI, MSPA-MCS: Mathematical and Computational Algorithms for Visualization of Human Brain Neural Pathways, ($193,615);

Research Support: from ViewRay Inc., 8/15/06-8/15/07, ($50,000);

Contract: 3/1/2006-8/15/2006, PI, Research Agreement between ViewRay Inc and the University of Florida: Deformable registration registration in radiotherapy,($25,000);

NSF (Analysis), 9/1/2005-8/31/2006 , Co-PI, Conference on Partial Differential Equations and Applications, ($14,700);

NIH/R01, 4/1/2002-3/31/2006, Co-Investigator, *Algorithms for Automatic Fiber Tract Mapping in Central Nervous System*, ($1,369,534, 22% FTE);

NIH/P50, 6/1/2000-5/31/2005, Co-Investigator, *Treatment of Aphasia and Related Disorders*, Core B: *Neuroimaging*, ($6,006,497, 7.5% FTE);

NSF (Applied Mathematics), 9/15/2003-9/14/2004, Co-PI, University of Florida 2003/2004 Special Year in Mathematics, ($30,000);

Contract, 1/1/2003-12/10/2003, PI, Contract with MRI Device Corporation, *Research Agreement between MRI Device Corporation and the University of Florida/Parallel Noise Encoding*, ($34,906);

Contract, 1/1/2002-12/31/2002, PI, Contract with MRI Device Corporation, *Research Agreement between MRI Device Corporation and the University of Florida/Parallel Noise Encoding*, ($55,118);

Contract, 12/2000-12/2001, PI, Research Agreement between MRI Device Corporation and the University of Florida, ($63,214);

NSF/DMS (IGMS), 8/15/1999-8/14/2000, PI, Interdisciplinary study in image and signal processing, ($93,082);

NSF/DMS (SCREMS), 7/1/1998-6/30/1999, Co-PI, Mathematical Methods in Imaging, ($19,640);

NSF /DMS (Analysis), 8/15/1997-8/14/2000, PI, gradient like flows, ($72,210);

NSF/DMS (Analysis), 8/15/1994-8/14/1997, PI, weak flow of harmonic maps, ($60,000);

NSF (Analysis), 1992-1994, PI, heat flow of harmonic maps, ($30,000).

b. Funded Internally

Title: UF Informatics Institute Support, 1/01/2016-12/31/2017, PI, *First-order Accelerated Gradient Methods with Applications to Data Science Problems*, ($25,742)

The UF Informatics Institute Seed Fund, 5/16/2015 5/16/2016, CO-PI, *Image Informatics for Scanning Tunneling Microscopy and Scanning Tunneling Potentiometry*, ($ 45,000);

Opportunity Fund from UF, 06/01/2009-05/31/2011, CO-PI, *A Portable, Wearable, Fast, Magnetic Resonance Imager*, ($90,298);

Opportunity Fund from UF, 5/1/2000-5/1/2002, PI, *A PDE Based Method for Automatic Boundary Determination on 2-D Echocardiographic Images.* ($36,820).

Ph.D. STUDENTS ADVISEMENT AND PLACEMENT:

2000: Stacey Levine, full professor, Department of Mathematics and Computer Science, Duquesne University, Pittsburgh, PA.

2003: Thomas Wunderli, associate professor, American University of Sharjha, Sharjha, UAE.

2004: Feng Huang, Research Scientist, Invivo Diagnostic Imaging, Phlips Gainesville, FL.

2005: Sheshadri Thiruvenkadam, senior research scientist at GE Global Research, Bangalore, India.

2005: Jung-ha An, associate professor,Department of Mathematics, California State University, Stanislaus, CA.

2006: Christopher Tweddle, assistant professor, University of Evansville, Evansville, IN.

2007: Weihong Guo, associate professor, Department of Mathematics Case Western Reserve University, Cleveland, Ohio.

2007: Pengwen Chen, associate professor, Department of Mathematics, National Chung Hsing University, Taiwan.

2008: Qingguo Zeng, Scientist, ViewRay Inc., Beachwood, Ohio.

2009: Junyi Xia, (Co-Chair), assistant professor, Department of Radiation Oncology, University of Iowa Hospitals and Clinics, Iowa City, Iowa.

2011: Xiaojing Ye, Assistant professor,Department of Mathematics, Georgia State University, Atlanta, Georgia.

2012: Fuhua Chen, Assistant professor, Department of Natural Sciences and Mathematics, West Liberty University, West Virginia.

2012: Iulia Posrica, Adjunct, Department of mathematics, Santa Fe College.

2013: Jinseop Lee, Adjunct, Department of mathematics, Santa Fe College.

2013: Ouyang Yuyuang, Assistant professor, Department of Mathematical Sciences, Clemson University, SC

2013: Haili Zhang, Senior Image Processing Engineer, Hermes Microvision Inc. San Jose, CA.

2013: Jiangli Shi, Financial Management Division, Stanford University, Stanford, CA.

2014: Meng Liu, Data Analyst & Marketing Consultant, Dragon Oil Technologies Inc., Houston, TX.

OTHER PROFESSIONAL SERVICES

Editorial Board for the SIAM Journal on Imaging Sciences, 2007-Present;

Editorial Board for the AIMS journal on Inverse Problem and Imaging, 2009-Present;

Editorial Board for the Journal of Mathematical Imaging and Vision, 2016-present;

Guest editor for the special issue series: "Medical Imaging" in Inverse Problem and Imaging, 2009 (with Prof. Tony Chan and Prof. Nikos Paragios), 2010.

Guest editor for the special issue series: "Integrative Approaches in Computational Biomedical Imaging" in computational and Mathematical Methods in Medicine, 2013-2014, and 2014-2015 (with Prof. Huafeng Liu and Prof. Pengcheng Shi).

Reviewer for Mathematical Review; 1992-Present;

PATENT

1. J.Dobson, M. Davidson, K.White and Y.Chen, Detection of Anomalites within Tissue, U.S. Provisional App. No 62/257,401, November 19, 2015.

2. B.Lu, Y.Chen, H.Zhang and C.Park, Common-Mask Guided Image Reconstruction for Enhanced Four-Dimensional Cone-Beam Computed Tomography, U.S. Provisional App. No. 62/118,952, October 26, 2015.

3. J.Dobson, M.Davison, Y.Chen, K.White, Systems and Methods for Detecting the Presence of Iron Within Tissue (the Invention), U.S. Patent, Serial No. 14/342,976, March 5, 2014;

4. M.Davison, Y.Chen, J.Dobson, K.White, Systems and Methods for Detecting the Presence of Iron Within Tissue, U.S. Patent, PCT/US12/53916, 2012;

5. Y.Chen and X.Ye, Fast MR Image Reconstruction in Partially Parallel Imaging. U.S. Patent, PCT/US11/58921, 2011;

6. F.Huang, G.R.Duensing, Y.Chen, Method for applying an In-painting technique to correct images in parallel imaging, US patent 7,230,429 B1. 2007.

PUBLICATIONS

A. Books, Co-authored

N.Paragios, Y.Chen, and O.Faugeras, Handbook of Mathematical Models in Computer Vision, *Springer Verlag*, (2006).

T.Li and Y.Chen, Global Classical Solutions for Nonlinear Evolution Equations, *Pitman Monographs and Surveys in Pure and Applied Mathematics*45, Longman Scientific & Technical, (1992).

T.Li and Y.Chen, Nonlinear Evolution Equations *Science Press*, Beijing, China, (1990).

B. Book Chapters

B.C.Vemuri and Y.Chen, PDE-based Algorithms for Simultaneous Image Registration and Segmentation, book chapter in *Geometric Level Set Methods in Imaging, Vision and Graphics*, Springer Verlag, (2003), 251-271.

Y.Chen, Characterization of Diffusion Anisotropy in DWI, book chapter in *Handbook of Mathematical Models in Computer Vision*, Springer Verlag, (2006), 487-502.

Y.Chen and X.Ye, Inverse Consistent Deformable Image Registration, *Development of Mathematics, The Legacy of Alladi Ramakrishnan in the Mathematical Sciences*, Springer-Verlag, (2010), 419-440.

C. Refereed Papers

Y.Chen, G.Lan, Y.Ouyang, and W.Zhang, Fast Bundle-Level Type Methods for Unconstrained and Ball-constrained Convex Optimization, *SIAM Journal on Optimization* (under review). http://arxiv.org/submit/1131766

Y.Chen, G.Lan and Y.Ouyang, Accelerated Schemes for a Class of Variational Inequalities, a special issue of Stochastic Equilibrium and Variational Inequalities in *Mathematical Programming B* (under review).

F.Dong and Y.Chen, A Fractional-order Derivative Based Variational Framework for Image Denoising, *Inverse Problem and Imaging*, Vol. 10 (1) (2016), 27-50.

X.Yu; H.Liu; S.Chen; M.Liu; Y.Chen; P.Shi, Sparse/Low Rank Constrained Reconstruction for Dynamic PET Imaging, PLOS ONE, November 5, 2015, DOI: 10.1371/journal.pone.0142019.

S.Chen, H.Liu, Z.Hu, P.Shi and Y.Chen. Simultaneous Reconstruction and Segmentation of Dynamic PET via Low-rank and Sparse matrix decomposition, *IEEE Transactions on Biomedical Engineering*, Vol. 62(7) (2015), 1784-1795.

F.Dong, Y.Chen and D.Kong, Salt and Pepper Noise Removal Based on an Approximation of l_0 Norm, *Computers and Mathematics with Applications*, Vol. 70(5), (2015), 789-804.

J.Park, H.Zhang, Y.Chen, Q.Fan, J.Li, C.Liu and B.Lu, Common-mask guided image reconstruction (c-MGIR) for enhanced four-dimensional cone-beam computed tomography, *Physics in Medicine and Biology*, Vol. 60(21) (2015), 8505-8524.

M.Guo, L.Chen, X.Shen, H.Iwai, Y.Chen, H.Liu, System model enabling fast tomographic phase microscopy with total variation regularization, *Physics in Medicine and Biology*, Vol. 60(23) (2015), 9059-9077.

J.Park, H.Zhang, Y.Chen, Q.Fan, L.Kahler, C.Liu and B.Lu, Priori mask guided image reconstruction (p-MGIR) for ultra-low dose cone-beam computed tomography, *Physics in Medicine and Biology*, Vol. 60, no. 21 (2015), 8505 8524.

Y.Ouyang, Y.Chen, G.Lan and E.Pasiliao Jr., An Accelerated Linearized Alternating Direction Method of Multipliers, *SIAM Journal on Imaging Sciences*, 8 (1) (2015), 644-681.

Y.Chen, J.Shi, M.Rao, and J-S.Lee, Deformable Multi-modal Image Registration by Maximizing Renyi's Statistical Dependence Measure, *Inverse Problem and Imaging*, Vol.9 (1), (2015) 79-203.

H.Zhang, Y.Chen, E.Pasoliao and F.Huang, Joint Multi-Shot Multi-Channel Image Reconstruction in Compressive Diffusion Weighted MR Imaging, *Proc. SPIE 9413, Medical Imaging 2015: Image Processing*, 94130B (March 20, 2015); doi:10.1117/12.2082104.

M. Liu, Y.Chen, H.Zhang and F.Huang, Multi-Contrast Multi-Channel MR Image Reconstruction with Significantly Reduced Data, *Proc. SPIE 9413, Medical Imaging 2015: Image Processing*, 94130C (March 20, 2015); doi:10.1117/12.2082136.

H.Zhang, J.Park, Y.Chen, G.Lan and B.Lou, A novel method for 4D Cone-Beam Computer-Tomography Reconstruction, *Proc. SPIE 9413, Medical Imaging 2015*: Image Processing, 941324 (March 20, 2015); doi:10.1117/12.2082128.

S.Chen, H.Liu, P.Shi and Y.Chen, Sparse Representation and Dictionary Learning Penalized Image Reconstruction for Positron Emission Tomography, *Physics in Medcine Biology* 60 (2015) 807-823.

I.Posirca, Y.Chen, C.Z. Barcelos, A New Variational Model for Segmentation and Denoising of Images with Multiplicative Noise, *Advanced Modeling and Optimization*, Vol.17 (1), (2015) 1-18.

Y.Chen, G.Lan and Y.Ouyang, Optimal Primal-Dual Methods for a Class of Saddle Point Problems, *SIAM Journal on Optimization* 24(4)(2014), 1779-1814.

C. A. Z. Barcelos, Y.Chen, F.Chen, Soft Image Segmentation Based on the Mixture of Gaussian and the Phase-Transition Theory, *Applied Mathematics*, Vol.5, (2014), 2888-2898.

S.Chen, Z.Hu, Y.Chen, H.Liu, Simultaneous Reconstruction and Segmentation for Dynamic PET: A Low Rank Framework, *Proceedings of the 2014 IEEE International Symposium on Biomedical Imaging*, Beijing, China, April 29 - May 2, (2014) 967-970.

J.Peng, F.Dong, Y.Chen, and D.Kong, A Region Appearance Based Adaptive Variational Model for 3D Liver Segmentation, *Medical Physics*, Vol. 41 (4), 043502 (2014) 1-11.

Y.Ouyang, Y.Chen and Y.Wu, Vectorial Total Variation Regularization of Orientation Distribution Functions in Diffusion Weighted MRI, *International Journal of Bioinformatics Research and Applications* , Vol. 10, No.1, (2014), 110-127.

J.Huang, X.Yang, Y.Chen and L.Tang, Ultrasound kidney segmentation with a global prior shape, *Journal of Visual Communication and Image Representation*, Vol. 24, Issue 7, (2013), 937943.

M.Liu, Y.Chen, Y.Ouyang, X.Ye, and F.Huang, An Enhanced Approach for Simultaneous Image Reconstruction and Sensitivity Map Estimation on Partially Parallel Imaging, *Proceedings of the 20th IEEE International Conference on Image Processing*, (2013), 2314-2318.

H.Zhang, X.Ye and Y.Chen, An Efficient Algorithm for Multi-phase Image Segmentation with Intensity Bias Correction, *IEEE Transaction on Image Processing*, (doi: 10.1109/

TIP.2013.2262291), 22(10), (2013), 3842-3851.

F.Chen, Y.Chen and H.Wang, A New Multiphase Soft Segmentation with Adaptive Variants, *Applied Computational Intelligence and Soft Computing*, Vol. 2013, Article ID 921721, 9 pages, doi:10.1155/2013/921721, (2013).

Y.Ouyang, Y.Chen, and Y.Wu, Total Variation and Wavelet Regularization of Orientation Distribution Functions in Diffusion MRI, *Inverse Problems and Imaging*, Vol. 7, (2), (2013), 565-583.

M.Liu, Y.Chen, Y.Ouyang, X.Ye, F.Huang, An Enhanced Approach for Simultaneous Image Reconstruction and Sensitivity Map Estimation on Partially Parallel Imaging, *Proceedings of 20th IEEE International Conference on Image Processing*, (2013), 2314-2318.

Y.Chen, W.Hager, M.Yashtini and X.Ye, Bregman Operator Splitting with Variable Stepsize for Total Variation Image Reconstruction, *Computational Optimization and Applications*, Vol. 54, (2), (2013), 317-342.

Y.Chen, D.T.Phan, W.W.Hager, F.Huang, X.Ye, and W.Yin, A Fast Algorithm for Image Reconstruction with Application to Partially Parallel MR Imaging, *SIAM Journal on Imaging Sciences*, Vol.5 (1), (2012), 90-118.

H.Liu, P.Shi and Y.Chen, Integrative Approaches in Computational Biomedical Imaging, *Computational and Mathematical Methods in Medicine*, Vol. 2012, Article ID 162892, (2012), doi:10.1155/2012/162892.

H.Zhang, Y.Chen, and J.Shi, Nonparametric Image Segmentation Using Renyis Statistical Dependence Measure, *Journal of Mathematical Imaging and Vision*, (doi:10.1007/s10851-012-0329-z). Vol. 44(3), (2012), 330 - 340.

Y.Chen and X.Ye, Modeling and Computations in Image Registration, *Mathematical Modeling and Its Applications*, Vol. 1, No. 1, (2012), 26-37.

S.Wu, G.Fu, Y.Chen, Z.Wang and R.Wu, Genetic Mapping of Complex Traits by Minimizing Integrated Square Errors, *BMC Genetics*, (2012), 13:20 doi:10.1186/1471-2156-13-20.

H.Zhang and Y.Chen, A Sparseland model for Deblurring Images in the Presence of Impulse, *Proceedings of 2012 IEEE International Conference on Image Processing*, Sep.30-Oct.3, 2012, Orlando, Florida, (2012), 3077-3080.

H.Zhang, X.Ye and Y.Chen, A Variational Multiphase Model for Simultaneous MR Image Segmentation and Bias Correction, *Proceedings of 2012 IEEE International Conference on Image Processing*, Sep.30-Oct.3, 2012, Orlando, Florida, (2012), 2037-2040.

M. Yashtini, W. W. Hager, Y. Chen, X. Ye, Parallel MR Image Reconstruction Using Sensitivity Encoding, *Proceedings of 2012 IEEE International Conference on Image Processing*, Sep.30-Oct.3, 2012, Orlando, Florida, (2012), 2077-2080.

F.Chen, Y.Chen and H.D.Tagare, A New Framework of Multi-phase Segmentation and Its Application to Partial Volume Segmentation, *Applied Computational Intelligence and Soft Computing*, Vol. 2011, Article ID 786369, 11 pages, (2011). doi:10.1155/2011/786369.

I.Posirca, Y.Chen, C.Z.Barcelos, A New Stochastic Variational PDE Model for Soft MumfordShah Segmentation, *Journal of Mathematical Analysis and Applications*, Vol.384 (1), (2011), 104-114.

J.Huang, X.Yang, and Y.Chen, A Fast Algorithm for Global Minimization of Maximum Likelihood Based on Ultrasound Image Segmentation, *Inverse Problem and Imaging*, Vol.5 (3), (2011), 645-657.

J.An and Y.Chen, A Piecewise Constant Region Based Simultaneous Image Segmentation and Registration, International Conference on Signal Processing and Imaging Engineering, San Francisco, California, October, 2011, *World Congress on Engineering and Computer Science*, Vol. I,(2011) 491-494.

X.Ye, Y.Chen and F.Huang, Computational Acceleration for MR Image Reconstruction in Partially Parallel Imaging, *IEEE Transactions on Medical Imaging,* Vol.30 (5), (2011) 1055-1063.

Y.Ouyang, Y.Chen and Y.Wu, A Spatial Regularization Framework of Orientation Diffusion Functions Using Total Variation and Wavelet, *Proceedings of the 8th IEEE International Symposium on Biomedical Imaging: From Nano to Macro*, March 30-April 2, 2011, Chicago, Illinois, USA, (2011) 272-275.

X.Ye, Y.Chen, W.Lin, and F.Huang, Fast MR Image Reconstruction for Partially Parallel Imaging with Arbitrary k-Space Trajectories, *IEEE Transactions on Medical Imaging,* Vol. 30(3), (2011), 575-585.

M. Rao, S.Seth, J.Xu, Y.Chen, H.Tagare, and J.C.Prncipe, A test of independence based on a generalized correlation function, *Signal Processing*, Vol.91(1), (2011), 15-27.

F.Huang, Y.Chen, W.Yin, W.Lin, X.Ye, W.Guo, and A.Reykowski, A Rapid and Robust Numerical Algorithm for Sensitivity Encoding with Sparsity Constraints: Self-feeding Sparse SENSE, *Magnetic Resonance in Medicine*, Vol. 64, No. 4, (2010), 1078-1088.

F.Chen and Y.Chen, A Stochastic Variational Model for Multi-phase Soft Segmentation with Bias Correction, *Advanced Modeling and Optimization*, Vol. 12 (3), (2010), 339-345.

Y.Chen, X.Ye and F.Huang, A Novel Model and Fast Algorithm for MR Image Reconstruction with Significantly Under-Sampled Data, *Inverse Problem and Imaging*, Vol.4, No.2, (2010), 223-240.

F.Chen and Y.Chen, A Multi-phase Soft Segmentation Based on Bi-direction Projected PDHG Method, *Proceedings of International Conference on Image Processing, Computer Vision, & Pattern Recognition*, July 12-15, 2010, Las Vegas, USA, (2010), 486-491.

J.Shi, Y.Chen, M.Rao and J.S.Lee, A Statistical Similarity Measure for Non-rigid Multimodal Image Registration *Proceedings of SPIE Medical Imaging*, San Diego, California, USA, 13 - 18 February, 762307 (2010);

K.H.Zou, H.Du, S.Sidharthan, L.M.DeTora, Y.Chen, A.B.Ragin, R.R.Edelman, Y.Wu, Statistical Evaluations of the Reproducibility and Reliability of 3-Tesla High Resolution Magnetization Transfer Brain Images: A Pilot Study on Healthy Subjects, *International*

Journal of Biomedical Imaging, doi:10.1155/2010/618747, (2010), 1-11.

T.McGraw, B.Vemuri, E.Ozarslan, Y.Chen and T.Mareci, Variational Denoising of Diffusion Weighted MRI, *Inverse Problems and Imaging*, Vol. 3(4), (2009), 625-648.

X.Ye and Y.Chen, A New Algorithm for Inverse Consistent Image Registration, *Lecture Notes in Computer Science* 5875, Springer-Verlag (2009), 2420-2423.

X.Ye, Y.Chen and F.Huang, Image Reconstruction via Sparse Representation: Modeling and Algorithm. *Proceedings of International Conference on Image Processing, Computer Vision, and Pattern Recognition*, Las Vegas, USA, July 13-16 (2009), 10-16.

C.Barcelos, Y.Chen, and F.Chen, A Soft Multiphase Segmentation Model via Gaussian Mixture, *Proceedings of IEEE International Conference on Image Processing*, Cairo, Egypt, November 7-10, (2009)

P.Chen, Y.Chen and M.Rao, Metrics Defined by Bregman Divergences, *Communications in Math Sciences,* Vol.6 (4), (2008) 915-926.

P.Chen, Y.Chen and M.Rao, Metrics Defined by Bregman Divergences, part 2, *Communications in Math Sciences,* Vol.6 (4), (2008) 927-948.

Y.Chen, W.Guo, Q.Zeng, Y.Liu, A Nonstandard Smoothing in Reconstruction of Apparent Diffusion Coefficient Profiles from Diffusion Weighted Images, *Inverse Problems and Imaging Journal* (2008), No. 2, 205-224.

W.Guo, Y.Chen, Q.Zeng, A Geometric Flow Based Approach for Diffusion Tensor Image Segmentation, Theme Issue Mathematical and Statistical Methods for Diagnoses and Therapies, *Philosophical Transactions of the Royal Society A*, Vol.366, No.1874 (2008), 2279-2292.

P.Chen, Y.Chen and M.Rao, A Novel Distribution Classifier, *Journal of Mathematical Analysis and Applications*, Vol 342/2, (2008), 915-930.

X.Ye and Y.Chen, Improvement of Accuracy in Deformable Registration in Radiation Therapy, *Proceedings of IEEE 15th International Conference on Image Processing*, San Diego, California, USA, October 12-15,(2008) 2420-2423.

F.Chen, Y.Chen and H.D.Targare, An Improvement of the Sine-Sinc Model Based on Log-Likelihood, *Proceedings of International Conference on Image Processing, Computer Vision, and Pattern Recognition,* Las Vegas, Nevada, USA, July 14-17, (2008), Vol. 1, 222-227.

Y.Chen, G.Fu, and R.Wu, Integration of Functional Mapping and Delay Differential Equations to Map the Genes that Regulate Circadian Rhythms,*Proceedings of International Conference on Bioinformatics, Computational Biology, Genomics and Chemoinformatics*, Orlando, FL, USA July 7-10, (2008), 118-125.

Q.Zeng and Y.Chen, Accurate Inverse Consistent Non-rigid Image Registration and Its Application on Automatic Re-contouring, *Proceedings of the 4th International Symposium on Bioinformatics Research and Applications*, Atlanta, GA, USA, May 6-9, 2008, Lecture Notes in Computer Science 4983/(2008), 293-304.

H.D.Tagare, Y.Chen, R.K.Fulbright, Comparison of EM-based and Level Set Partial Volume Segmentations of MR Brain Images, *Medical Imaging 2208, Proceedings of S.P.I.E. Symposium on Medical Imaging*, San Diego (2008), Vol.6914, 69140N, 1-7.

Y.Chen, M.Rao and C.Tweddle, Fenchel Transforms of a Convex Functional, *International Journal of Pure and Applied Mathematics*, Volume 39, No. 3, (2007), 341-362.

Y.Liu, X.Liu, Y.Chen and R.Wu, A Computational Model for Functional Mapping of Genes that Regulate Intracellular Circadian Rhythms, *Theoretical Biology and Medical Modeling*, (2007), 4:5 doi:10.1186/1742-4682-4-5.

J.h.An and Y.Chen, Region Based Image Segmentation Using Modified Mumford-Shah Algorithm, *Lecture Notes in Computer Science* 4485, (2007), 733-742.

P.Chen, Y.Chen,and M.Rao, Kullback Leibler Divergence Based Curve Matching Method, *Lecture Notes in Computer Science* 4485, (2007), 813-824.

J.Xia, Y.Chen, and S.Samant, The "Juggler Algorithm: A Hybrid Deformable Image Registration Algorithm for Adaptive Radiotherapy, *Proceedings of SPIE Conference on Medical Imaging*, San Diego, CA, February 17-22, Medical Imaging (2007): Physics of Medical Imaging 65105J.

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Y.Chen, F.Huang, H.D.Tagare, and M.Rao, A Coupled Minimization Problem for Medical Image Segmentation with Priors, *International Journal of Computer Vision*, 71 (2006) 259-272.

X.Zheng, Y.Chen, D.Groisser, and D.Wilson, Nonrigid Correspondence and Classification of Curves Based on More Desirable Properties, *Multi-scale Optimization Methods and Applications, Nonconvex Optimization and its Applications Series*, Springer Verlag, Vol.82 (2006), 397-411

Q.Zeng, Y.Chen, W.Guo, Y.Liu, Recover Multi-tensor Structure from HARD MRI Under Bi-Gaussian Assumption, *Multi-scale Optimization Methods and Applications, Nonconvex Optimization and its Applications Series*, Springer Verlag, Vol.82 (2006), 379-386

J.h.An, Y.Chen, M.Chang, D.Wilson, and E.Geiser, Generating Geometric Models through Self-Organizing Maps, *Multiscale Optimization Methods and Applications, Nonconvex Optimization and its Applications Series*, Springer Verlag, Vol.82 (2006), 241-250

S.Thiruvenkadam, S.Arcot, and Y.Chen: A PDE Based Method For Fuzzy Classification Of Medical Images, *Proceedings of International Conference on Image Processing*, Atlanta, Oct. 8-11, (2006), 1805-1808.

W.Guo and Y.Chen: Using Non-Parametric Kernel To Segment And Smooth Images Simultaneously, *Proceedings of International Conference on Image Processing*, Atlanta, Oct. 8-11, (2006), 217-220.

W.Guo, Q.Zeng, Y.Chen and Y.Liu, Using Multiple Tensor Deflection to Reconstruct White Matter Fiber Traces With Branching, *Proceedings of IEEE International Symposium*

on Biomedical Imaging Macro to Nano, Arlington, Virginia, April 6-9, 2006, 69-72.

Y.Chen, M.Rao, Y.Tonegawa, T.Wunderli, Partial regularity for a Selective Smoothing Functional for Image Restoration, *SIAM Journal on Mathematical Analysis*, 37 (4) (2005), 1098-1116.

F.Huang, Y.Chen, G.R.Duensing, J.Akao, A.Rubin, and C.Saylor, Application of Partial Differential Equation-Based Inpainting on Sensitivity Maps, *Magnetic Resonance in Medicine* Vol.53 (2005), 388-397.

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X.Zhang, Y.Chen, D.Groisser, D.Wilson, Some New Results on Non-rigid Correspondence and Classification of Curves, *Lecture Notes in Computer Science 3757, Proceedings of Energy Minimization Methods in Computer Vision and Pattern Recognition,* St.Augustine, FL, USA, Nov. (2005), 473-489.

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CO-ORGANIZER OF INTERNATIONAL CONFERENCES (for the last ten years)

Co-organizer of Minisymposium "Computational Methods in Inverse Problem and Imaging" in the 40th SIAM Southeastern Atlantic Section Conference (SIAM-SEAS), March 11-13, 2016, Athens, GA,

Co-organizer of Minisymposium Recent Advances of Optimization Techniques in Imaging, SIAM Conference on Imaging Sciences (SIAM IS14), May12-14, 2014, Hong Kong.

Co-organizer of Minisymposium Efficient Optimization Algorithms and their Application to Image Analysis", SIAM Conference in Imaging Sciences (SIAM IS12), Philadelphia, Pennsylvania, May 20-22, 2012.

Co-organizer of Mini-symposium Statistical and Probabilistic Methods in Image Analysis and Sampling", SIAM Conference on Imaging Science (SIAM IS10), Chicago, IL, April 12-14, 2010.

Co-organizer, the special session: "Mathematical Imaging", the Spring Topology and Dynamics Conference and the Ulam Centennial Conference, University of Florida, March 7-11, 2009

Co-organizer, the Special Session "Mathematical Methods in Biomedical Image Analysis", SIAM Conference on Imaging Science (SIAM IS08), San Diego, California, July 9-11, 2008.

Co-organizer, the International Workshop on Image Processing, Center of Mathematical Science, Zhejiang University, Hangzhou, China, June 13-14, 2007.

Co-organizer, the International Workshop on Mathematical Methods on Imaging and Image Analysis, East China Normal University, Shanghai, China, June 21-22, 2006.

Co-organizer, International Conference on PDE and Applications, Special year programm at University of Florida, Nov. 13-15, 2005.

Co-organizer, the Special Session "PDE-Based Methods in Imaging and Vision", AMS sectional meeting, Eastern Section, Pittsburgh, Pennsylvania, November 6-7, 2004.

Co-organizer, International Conference on Mathematical Methods in Imaging and Vision, Special year programm at University of Florida, January 24-27, 2004.

MEMBER OF OF INTERNATIONAL CONFERENCE PROGRAMM COMMITTEE (for the last ten years)

Member of Scientific Committee for the Summer School Theories, Methods and Applications in Imaging Science May 14-29, 2015, Henan University, China.

Member of Organizing Committee, International Conference on Image Science, Kaifeng, Henan, China, May 22-24, 2015.

Member of Scientific Committee, SIAM Conference on Imaging Sciences, Hong Kong, May12-14, 2014.

Member of Program Committee, the 5th International Symposium on Visual Computing, Las Vegas, Nevada, USA, November 30 - December 2, 2009.

Member of Program Committee, the Second International Conference on Scale Space Methods and Variational Methods in Computer Vision, Voss, Norway, June 1 - 5, 2009.

Member of Program Committee, the 1st International Conference on Scale-Space and Variational Methods in Computer Vision, Ischia, Italy, May 30-June 2, 2007.

Member of Program Committee, the 5th International Conference on Scale-Space and Diffusion Methods in Computer Vision, Schloesschen Schoenburg, Germany, April 6-10, 2005.

Member of Program Committee, IEEE Workshop on Variational, Geometric and Level Set Methods in Computer Vision In Conjunction with the 10th IEEE International Conference in Computer Vision, Beijing, China, October 16, 2005.

Member of Program Committee, the Third Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, St. Augustine, FL, Nov. 2005.

TALKS and LECTURES at INTERNATIONAL MEETINGs (for the last ten years)

Bundle Level Methods and Applications in Inverse Problem and Imaging, **plenary** talk in the 40th SIAM Southeastern Atlantic Section Conference (SIAM-SEAS), Athens, GA, March 11-13, 2016.

Fast Accelerated Bundle Level Method for Large Scale Convex Optimization, invited talk at the minisymposium Inverse Problem and Imaging in the 39th SIAM Southeastern Atlantic Section Conference (SIAM-SEAS), Birmingham, Alabama, March 20-22, 2015.

Accelerated First Order Methods for Convex Optimization with Applications to Image Analysis, invited **plenary** talk at International Conference on Image Processing: Theory, Methods and Applications, Kaifeng, Henan, China, May 22-24, 2015.

Accelerated Alternating Direction Method of Multipliers, Minisymposium on Recent Advances of Optimization Techniques in Imaging, SIAM Conference on Imaging Science, Hong Kong, May 12-14, 2014.

Image Reconstruction in Multi-Contrast MR Partially Parallel Imaging, International Conference on Hybrid Medical Imaging, Hangzhou, China, May 17-18, 2014.

Mathematical Methods in Imaging Science, 8 hours lecture at the Summer Short Course for Gifted Students, Zhejiang University, Hangzhou, China, July 7-17, 2014.

Accelerated Primal Dual Method for a Class of Saddle Point Problems with Application to Partially Parallel MRI, the 2nd International Conference on Interdisciplinary Applied Mathematics and Computational Mathematics, HangZhou, China, June 19-22, 2013.

Modeling and Optimization Techniques in Image Analysis, 10 hours lectures at the International Summer Short Course, Shanghai University, China, June 4-10, 2012.

Multi-modal Image Registration Using Statistical Measure of Dependence, International Conference on Mathematical Imaging, ChangSha, China, June 20-22, 2012.

Variational and Statistical Methods for Image Segmentation and Registration, 8 hours lectures at the Summer School on Medical Imaging and Applications, Institute of Natural Sciences, Shanghai Jiao-Tong University, China, May 31-June 4, 2011.

Fast Sensitivity Encoding with Arbitrary k-space Trajectories in Partial Parallel Imaging, SIAM Conference on Imaging Science (SIAM IS10), Chicago, IL, April 12-14, 2010.

Fast Algorithms for Total Variational Based Image Reconstruction, 6 hours lectures at Advanced Seminar on Mathematical Theory and Methods in Image Processing, Center of Mathematical Sciences, Zhejiang University, China, May 10-11, 2010.

Deformable Multi-modal Image Registration, The Second Oklahoma PDE Workshop, University of Oklahoma, October 9-10, 2010.

Fast Algorithms for TV Regularized Linear Inversion and Application in PPI, International Workshop on Mathematical Aspect of Data Science, Fudan University, Shanghai, China, May 28-29, 2010.

PDE and Probability Methods in Image Segmentation and Registration with Applications in Medical Image Analysis, 12 hour lectures at the Summer School on Mathematical Methods in Medical Image Analysis, Center of Mathematical Sciences, Zhejiang University, HangZhou, China, May 11-22, 2009.

Inverse Consistent Deformable Image Registration, mini- symposium on Nonlinear PDE and Variational Methods in Image Processing, SIAM Conference on Analysis of Partial Differential Equations, Miami, Florida, Dec. 7-9, 2009.

Deformable Multi-modal Image Registration by Maximizing Renyi's Statistical Dependence Measure, mini-symposium on Computational Methods for Image Registration, SIAM

Conference Computational Science and Engineering, Miami, Florida, March 2-6, 2009.

Parametric and Nonparametric Active Contours for Image Segmentation and Registration with Applications in Medical Image Analysis, tutorials (6 lectures) at the Summer School on Mathematical Imaging and Digital Media, National University of Singapore, Singapore, 26 May - 6 June, 2008.

Inverse Consistent Non-rigid Image Registration and its Application on Automatic Recontouring, mini-symposium on Computational Science and Biology: The Challenges, Data, Methods and Tools, SIAM Conference on Imaging Science, San Diego, California, July 7-9, 2008.

Deformable image registration with application in radiation therapy, Special Imaging Course, Department of Mathematics, Rice University, Nov.9-12, 2008.

A Local Nonparametric Model for Simultaneous Image Segmentation and Adaptive Smoothing, International Workshop on Bioimaging II / PDEs, Johann Radon Institute for Computational and Applied Mathematics, November 19 - 23, 2007.

Parametric and Nonparametric Models for Image Segmentation and Registration, International Workshop on Image Processing, Center of Mathematical Science, Zhejiang University, June 13-14, 2007.

Deformable Registration in Radiation Therapy, the International Conference on Data Mining, Systems Analysis and Optimization in Biomedicine, University of Florida, Gainesville, FL, March 28-30, 2007.

Using Multiple Tensor Deflection to Reconstruct White Matter Fiber Traces with Branching, SIAM Conference on Imaging Sciences May 15-17, 2006.

Apparent Diffusion Coefficient Approximation and Diffusion Anisotropy Characterization in DWI, SIAM Conference on Imaging Sciences, May 15-17, 2006.

Apparent Diffusion Coefficient Approximation and Diffusion Anisotropy Characterization in DWI, Information Processing in Medical Imaging, Glenwood Springs, Colorado, July 11-15, 2005.

Some New Results on Non-rigid Correspondence and Classification of Curves, the Third Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, St. Augustine, FL, Nov. 2005.

Minimizing p-energy and Total Variation", the International Workshop on Nonlinear Evolution Equations, Oberwolfach, Germany, May 2004.

Variational Methods in Image Segmentation, International Conference on Image Processing, Kaifeng, Henan, China, June 1-5, 2004.

Joint Estimation and Regularization in the Recovery of Apparent Diffusion Coefficient Profiles in DWI, SIAM Conference on Imaging Science, Salt Lake City, Utah, May 3-5, 2004.