

# Sharon Xiaolei Huang

## A. BIOGRAPHICAL INFORMATION

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### Education

**Rutgers, the State University of New Jersey**, New Brunswick, NJ, 2001 – 2006  
Ph.D. in Computer Science, Awarded May 2006

**Rutgers, the State University of New Jersey**, New Brunswick, NJ, 1999 – 2001  
M.S. in Computer Science, May 2001

**Tsinghua University**, Beijing, China, 1994 – 1999  
B.E. in Computer Science, June 1999

### Professional Experience

**Associate Professor**, Penn State University, University Park, PA, 08/2018 – present  
**Associate Professor**, Lehigh University, Bethlehem, PA, 06/2013 – 08/2018  
**Assistant Professor**, Lehigh University, Bethlehem, PA, 08/2006 – 06/2013  
**Staff Scientist**, Siemens Medical Solutions USA, Inc., Malvern, PA, 08/2005 - 08/2006  
**Research Assistant**, Rutgers University, New Brunswick, NJ, 08/2002 – 06/2005  
**Teaching Assistant**, Rutgers University, New Brunswick, NJ, 08/1999 – 05/2002  
**Summer Intern**, Siemens Corporate Research, Inc., Princeton, NJ, 2001 and 2003  
**Research Programmer**, Tsinghua University, Beijing, China, 1998-1999

## B. PUBLICATIONS AND CREATIVE ACTIVITIES

### Articles in Refereed Journals

T. Xu, C. Langouras, M. A. Koudehi, B. E. Vos, N. Wang, G. H. Koenderink, X. Huang, and D. Vavylonis, “Automated Tracking of Biopolymer Growth and Network Deformation with TSOAX,” In *Scientific Reports*, 9(1), p. 1717, 2019.

Y. Ma, T. Xu, X. Huang, X. Wang, C. Li, J. Jerwick, Y. Ning, X. Zeng, B. Wang, Y. Wang, Z. Zhang, X. Zhang, C. Zhou, “Computer-Aided Diagnosis of Label-Free 3D Optical Coherence Microscopy Images of Human Cervical Tissue,” In *IEEE Trans. on Biomedical Engineering*, 66(9): 2447-2456, 2019.

Z. H. Shen, J. Wang, J. Y. Jiang, S. X. Huang, Y. H. Lin, C. W. Nan, L. Chen, and Y. Shen, “Phase-field modeling and machine learning of electric-thermal-mechanical breakdown of polymer-based dielectrics,” In *Nature Communications*, Vol. 10, No. 1, p. 1843, 2019.

Y. Song, R. Fan, S. Huang, Z. Zhu, and R. Tong, “A three-stage real-time detector for traffic signs in large panoramas,” In *Computational Visual Media*, 2019.

H. Zhang, T. Xu, H. Li, S. Zhang, X. Wang, X. Huang, D. Metaxas, “StackGAN++: Realistic Image Synthesis with Stacked Generative Adversarial Networks,” In *IEEE Trans. On Pattern Analysis and Machine Intelligence*, Vol. 41, No. 8, pp. 1947-1962, 2018.

Y. Xue, T. Xu, H. Zhang, L. R. Long, and X. Huang, “SegAN: Adversarial Network with Multi-scale L1 Loss for Medical Image Segmentation,” In *Neuroinformatics*, 16(3-4):383-392, 2018.

J. Yao, Z. Xu, X. Huang, J. Huang, “An efficient algorithm for dynamic MRI using low-rank and total variation regularizations,” In *Medical Image Analysis*, Vol. 44, pp. 14-27, 2018.

S. Wan, H.C. Lee, X. Huang, T. Xu, T. Xu, X. Zeng, Z. Zhang, Y. Sheikine, J.L. Connolly, J.G. Fujimoto, C. Zhou, “Integrated local binary pattern texture features for classification of breast tissue imaged by Optical Coherence Microscopy,” In *Medical Image Analysis*, Vol. 38, pp. 104-116, 2017.

- T. Xu, H. Zhang, C. Xin, E. Kim, L.R. Long, Z. Xue, S. Antani, X. Huang, "Multi-feature based benchmark for cervical dysplasia classification evaluation," In *Pattern Recognition*, Vol. 63, pp. 468-475, 2017.
- T. Xu, D. Vavylonis, F.C. Tsai, G.H. Koenderink, W. Nie, E. Yusuf, I.J. Lee, J.Q. Wu, X. Huang, "SOAX: A software for quantification of 3D biopolymer networks," In *Scientific Reports*, 13;5:9081, 2015. (Software link: <http://www.cse.lehigh.edu/~idealab/soax/>)
- D. Song, E. Kim, X. Huang, J. Patruno, H. Munoz-Avila, J. Heflin, L.R. Long, S. Antani, "Multi-modal Entity Coreference for Cervical Dysplasia Diagnosis," In *IEEE Trans. on Medical Imaging (TMI)*, Vol. 34, No. 1, pp. 229-45, 2015.
- M. Cheng, N.J. Mitra, X. Huang, P.H.S. Torr, S.M. Hu, "Global Contrast Based Salient Region Detection," In *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 37, No. 3, pp. 569-82, 2015.
- H. Li, X. Huang, J. Huang, S. Zhang, "Feature Matching with Affine-Function Transformation Models," In *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 36, No. 12, pp. 2407-22, 2014.
- T. Xu, D. Vavylonis, X. Huang, "3D Actin Network Centerline Extraction with Multiple Active Contours," In *Medical Image Analysis*, Vol. 18, No. 2, pp. 272-284, 2014.
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- M. Cheng, N.J. Mitra, X. Huang, S.M. Hu, "SalientShape: Group Saliency in Image Collections," In *The Visual Computer*, Vol. 30, No. 4, pp. 443-453, 2014.
- T. Xu, F. Li, D-H T. Nguyen, C.S. Chen, C. Zhou, X. Huang, "Delineating 3D Angiogenic Sprouting in OCT Images via Multiple Active Contours," In *Lecture Notes in Computer Science (LNCS)*, Vol. 8090: *Augmented Reality Environments for Medical Imaging and Computer-Assisted Interventions*, pp. 231-240, 2013.
- H. Li, X. Huang, L. He, "Object Matching Using A Locally Affine Invariant and Linear Programming Techniques," In *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 35, No. 2, pp. 411-424, 2013.
- X. Huang, Y. Zhu, H. Li, H. Guan, V. Potesil, Y. Song, T. Kubota, X. Zhou, "Automatic Tumour Delineation in Whole Body PET/CT Images," In *International Journal of Biomedical Engineering and Technology (IJBET)*, Vol. 8, No. 2/3, pp. 182-199, 2012.
- X. Huang, H. Li, Y. Zhu, "Hybrid Deformable Image Registration using a Closed-form Free Form Deformation Approach," In *International Journal of Biomedical Engineering and Technology (IJBET)*, Vol. 8, No. 2/3, pp. 245-258, 2012.
- H. Li, T. Shen, X. Huang, "Approximately Global Optimization for Robust Alignment of Generalized Shapes," In *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 33, No. 6, pp. 1116-1131, 2011.
- E. Kim, X. Huang, G. Tan, "Markup SVG - An Online Content Aware Image Abstraction and Annotation Tool," In *IEEE Trans. on Multimedia (TMM)*, Vol. 13, No. 5, pp. 993-1006, 2011.
- T. Shen, H. Li, X. Huang, "Active Volume Models for Medical Image Segmentation," In *IEEE Trans. on Medical Imaging (TMI)*, Vol. 30, No. 3, pp. 774-791, 2011.
- W. Wang, X. Huang, A. Esmaili, "Texture Based Foam Segmentation and Analysis," In *Industrial & Engineering Chemistry Research*, Vol. 50, No. 10, pp. 6071-6081, 2011.
- M. B. Smith, H. Li, T. Shen, X. Huang, E. Yusuf, D. Vavylonis, "Segmentation and Tracking of Cytoskeletal Filaments using Open Active Contours," In *Cytoskeleton*, Vol. 67, No. 11, pp. 693-705, November 2010.
- M. Cheng, F.L. Zhang, N. J. Mitra, X. Huang, S.M. Hu, "RepFinder: Finding Approximately Repeated Scene Elements for Image Editing," In *ACM Trans. on Graphics*, Vol. 29, No. 4, 2010. Also in *SIGGRAPH*, 2010.
- Y. Zhu, X. Huang, W. Wang, D. Lopresti, L. R. Long, S. Antani, Z. Xue, G. Thoma, "Balancing the Role of

Priors in Multi-Observer Segmentation Evaluation,” In *Journal of Signal Processing Systems: Special Issue on Biomedical Imaging*, Vol. 55, No. 1-3, pp. 185-207, Springer New York, 2009.

X. Huang, D. Metaxas, “Metamorphs: Deformable Shape and Appearance Models,” In *IEEE Trans. Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 30, No. 8, pp. 1444-1459, 2008.

X. Huang, N. Paragios, D. Metaxas, “Shape Registration in Implicit Spaces using Information Theory and Free Form Deformations,” In *IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI)*, Vol. 28, No. 8, pp. 1303-1318, 2006.

Y. Wang, X. Huang, C.-S. Lee, S. Zhang, Z. Li, D. Samaras, D. Metaxas, A. Elgammal, and P. Huang, “High Resolution Acquisition, Learning and Transfer of Dynamic 3-D Facial Expressions,” In *Computer Graphics Forum*, Vol. 23, No. 3, pp. 677-686, 2004. Also in *Eurographics*, 2004.

### Book Chapters

T. Xu, C. Zhou, X. Huang, “Model-based Curvilinear Network Extraction toward Quantitative Microscopy,” In *Biomedical Image Segmentation: Advances and Trends*, Chapter 9, A. El-Baz, X. Jiang and J. S. Suri (Editors), CRC Press, November 2016.

E. Kim, X. Huang, “A Data Driven Approach to Cervigram Image Analysis and Classification,” In *Color Medical Image Analysis*, M. Emre Celebi and Gerald Schaefer (Editors), Springer, 2012.

T. Shen, S. Zhang, J. Huang, X. Huang, D. Metaxas, “Integrating Shape and Texture in 3D Deformable Models: From Metamorphs to Active Volume Models,” In *Multi Modality State-of-the-Art Medical Image Segmentation and Registration Methodologies*, Volume I, Chapter 1, A.S. El-Baz, R. Acharya U, and M. Mirmehdi (Editors), Springer, March 2011.

Z. Qian, X. Huang, L. Axel, D. Metaxas, “Automatic Segmentation of Cardiac Tagged MRI,” In *Medical Image Analysis: Methodologies and Applications*, N. Paragios, J. Duncan, and N. Ayache (Editors), Springer, 2010.

X. Huang, G. Tsechpenakis, “Medical Image Segmentation,” In *Information Discovery on Electronic Health Records*, V. Hristidis (Editor), Chapman & Hall, Chapter 10, 2009.

X. Huang, C. Xu, Y. Song, “Fast Nonrigid Image Registration using Salient Region Feature and Free Form Deformations,” In *Encyclopedia of Healthcare Information Systems*, N. Wickramasinghe and E. Geisler (Editors), Medical Information Science Reference, 2008.

D. Metaxas, X. Huang, T. Chen, “Integrating Shape and Texture in Deformable Models: From Hybrid Methods to Metamorphs,” In *Mathematical Models in Computer Vision: The Handbook*, N. Paragios, Y. Chen and O. Faugeras (Editors), Springer, 2005.

N. Paragios, M. Taron, X. Huang, M. Rousson, and D. Metaxas, “On the Representation of Shapes Using Implicit Functions,” In *Statistics and Analysis of Shapes*, H. Krim and A. Yezzi (Editors), Springer Verlag, 2005.

### Refereed Highly Selective Conference Papers

Y. Xue, Q. Zhou, J. Ye, L. R. Long, S. Antani, C. Cornwell, Z. Xue, X. Huang, “Synthetic Augmentation and Feature-based Filtering for Improved Cervical Histopathology Image Classification,” In *Proc. Of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, 2019.

Y. Xue, X. Huang, “Improved Disease Classification in Chest X-rays with Transferred Features from Report Generation,” In *Proc. of International Conf. on Information Processing in Medical Imaging (IPMI)*, pp. 125-138, 2019. (Oral presentation)

Y. Xue, T. Xu, L.R. Long, Z. Xue, S. Antani, G.R. Thoma, X. Huang, “Multimodal Recurrent Model with Attention for Automated Radiology Report Generation,” In *Proc. Of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 457-466, 2018.

T. Xu, P. Zhang, Q. Huang, H. Zhang, Z. Gan, X. Huang, X. He, “AttnGAN: Fine-Grained Text to Image Generation with Attentional Generative Adversarial Networks,” In *Proc. Of IEEE Conf. on Computer Vision and Pattern Recognition (CVPR)*, 2018.

- H. Zhang, T. Xu, H. Li, S. Zhang, X. Wang, X. Huang, D. Metaxas, "StackGAN: Text to Photo-realistic Image Synthesis with Stacked Generative Adversarial Networks," In *Proc. of International Conf. on Computer Vision (ICCV)*, 2017. (Oral presentation)
- T. Xu, H. Zhang, X. Huang, S. Zhang, D. Metaxas, "Multimodal Deep Learning for Cervical Dysplasia Diagnosis," In *Proc. of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS Vol. 9901, pp. 115-123, 2016.
- H. Zhang, T. Xu, M. Elhoseiny, X. Huang, S. Zhang, A. Elgammal, D. Metaxas, "SPDA-CNN: Unifying Semantic Part Detection and Abstraction for Fine-Grained Recognition," In *Proc. of IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 1143-1152, 2016.
- Z. Zhu, D. Liang, S. Zhang, X. Huang, B. Li, S. Hu, "Traffic-Sign Detection and Classification in the Wild," In *Proc. of IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 2110-2118, 2016.
- J. Yao, Z. Xu, X. Huang, J. Huang, "Accelerated Dynamic MRI Reconstruction with Total Variation and Nuclear Norm Regularization," In *Proc. of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS Vol. 9350, pp. 635-642, 2015.
- Y. Li, C. Chen, X. Huang, J. Huang, "Instrument Tracking via Online Learning in Retinal Microsurgery," In *Proc. of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS Vol. 8673, pp. 464-71, 2014. (MICCAI Young Scientist Paper Award Runners up, Oral presentation)
- E. Kim, H. Li, X. Huang, "A Hierarchical Image Clustering Cosegmentation Framework," In *Proc. of IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 686-693, 2012.
- M. Gao, J. Huang, X. Huang, S. Zhang, D. Metaxas, "Simplified Labeling Process for Medical Image Segmentation," In *Proc. of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 387-394, 2012.
- T. Shen, X. Huang, H. Li, E. Kim, S. Zhang, J. Huang, "A 3D Laplacian-Driven Parametric Deformable Model," In *Proc. of International Conf. on Computer Vision (ICCV)*, pp. 279-286, 2011.
- H. Li, J. Huang, S. Zhang, X. Huang, "Optimal Object Matching via Convexification and Composition," In *Proc. of International Conf. on Computer Vision (ICCV)*, pp. 33-40, 2011.
- H. Li, T. Shen, X. Huang, "Actin Filament Segmentation Using Dynamic Programming," In *Proc. of 22nd International Conf. on Information Processing in Medical Imaging (IPMI)*, pp. 411-423, 2011.
- E. Kim, X. Huang, J. Heflin, "Finding VIPS - A Visual Image Persons Search Using a Content Property Reasoner and Web Ontology," In *Proc. of IEEE International Conf. on Multimedia & Expo (ICME)*, 2011.
- M. Cheng, G. X. Zhang, N. J. Mitra, X. Huang, S. M. Hu, "Global Contrast based Salient Region Detection," In *Proc. of IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 409-416, 2011.
- S. Zhang, J. Huang, M. Uzumbas, T. Shen, F. Delis, X. Huang, N. Volkow, P. Thanos, D. N. Metaxas, "3D Segmentation of Rodent Brain Structures Using Hierarchical Shape Priors and Deformable Models," In *Proc. of 14th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 611-618, 2011.
- H. Li, T. Shen, D. Vavylonis, X. Huang, "Actin Filament Segmentation Using Spatiotemporal Active-Surface and Active-Contour Models," In *Proc. of International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 86-94, 2010.
- H. Li, E. Kim, X. Huang, L. He, "Object Matching with a Locally Affine-Invariant Constraint," In *Proc. of IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 1641-1648, 2010.
- J. Huang, X. Huang, D. Metaxas, "Learning with Dynamic Group Sparsity," In *Proc. of IEEE International Conf. on Computer Vision (ICCV)*, pp. 64-71, 2009.
- T. Shen, X. Huang, "3D Medical Image Segmentation by Multiple-Surface Active Volume Models," In *Proc. of the 12th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-5762, pp. 1059-1066, 2009.

- H. Li, T. Shen, D. Vavylonis, X. Huang, "Actin Filament Tracking Based on Particle Filters and Stretching Open Active Contour Models," In *Proc. of the 12th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-5762, pp. 673-681, 2009.
- H. Li, T. Shen, X. Huang, "Global Optimization for Alignment of Generalized Shapes," In *Proc. of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 856-863, 2009.
- T. Shen, H. Li, Z. Qian, X. Huang, "Active Volume Models for 3D Medical Image Segmentation," In *Proc. of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 707-714, 2009.
- J. Huang, Z. Qian, X. Huang, D. Metaxas, L. Axel, "Tag Separation in Cardiac Tagged MRI," In *Proc. of the 11th Annual International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-5242, pp. 289-297, 2008.
- T. Shen, Y. Zhu, X. Huang, J. Huang, D. Metaxas, L. Axel, "Active Volume Models with Probabilistic Object Boundary Prediction Module," In *Proc. of the 11th Annual International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-5241, pp. 331-341, 2008.
- J. Huang, X. Huang, D. Metaxas, "Simultaneous Image Transformation and Sparse Representation Recovery," In *Proc. of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 1-8, 2008.
- J. Huang, X. Huang, D. Metaxas, "Optimization and Learning for Registration of Moving Dynamic Textures," In *Proc. Of IEEE International Conf. on Computer Vision (ICCV)*, pp. 1-8, 2007.
- J. Huang, X. Huang, D. Metaxas, and L. Axel, "Adaptive Metamorphs Model for 3D Medical Image Segmentation," In *Proc. of the 10th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, pp. 302-310, 2007.
- L. Wolf, X. Huang, I. Martin, and D. Metaxas, "Patch-based Texture Edges and Segmentation," In *Proc. of the 9th European Conf. on Computer Vision (ECCV)*, LNCS 3952, pp. 481-493, 2006.
- W. He, X. Huang, D. Metaxas, and X. Ying, "Efficient Learning by Combining Confidence-rated Classifiers to Incorporate Unlabeled Medical Data," In *Proc. of the 8th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-3749, pp. 745-752, 2005.
- X. Huang, D. Metaxas, and T. Chen, "Metamorphs: Deformable Shape and Texture Models," In *Proc. of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 496-503, 2004.
- X. Huang, Z. Li, and D. Metaxas, "Learning Coupled Prior Shape and Appearance Models for Segmentation," In *Proc. of the 7th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-3216, pp. 60-69, 2004.
- X. Huang, N. Paragios, and D. Metaxas, "Establishing Local Correspondences towards Compact Representations of Anatomical Structures," In *Proc. of the 6th International Conf. on Medical Image Computing and Computer Assisted Intervention (MICCAI)*, LNCS-2879, pp. 926-934, 2003.
- M. Singh, and X. Huang, "Computing Layered Surface Representations: An Algorithm for Detecting and Separating Transparent Overlays," In *Proc. of the IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR)*, pp. 11-18, 2003.

#### **Other Refereed Conference and Workshop Papers**

- Q. Zhang, Y. Xue, X. Huang, "Online Training Strategies for Body Part Segmentation in Infant Movement Videos," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, 2019.
- Y. Xue, T. Xu, X. Huang, "Adversarial Learning with Multi-Scale Loss for Skin Lesion Segmentation," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, 2018.
- T. Xu, C. Xin, L.R. Long, S. Antani, Z. Xue, E. Kim, X. Huang, "A New Image Data Set and Benchmark for Cervical Dysplasia Classification Evaluation," In *Proc. of the 6th International Workshop on Machine Learning in Medical Imaging (MLMI)*, LNCS Vol. 9352, pp. 26-35, 2015.

- T. Xu, E. Kim, X. Huang, "Adjustable AdaBoost Classifier and Pyramid Features for Image-Based Cervical Cancer Diagnosis," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 281-285, 2015. (Best Student Paper Award Finalist)
- S. Wan, X. Huang, H.C. Lee, J.G. Fujimoto, C. Zhou, "Spoke-LBP and Ring-LBP: New Texture Features for Tissue Classification," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 195-199, 2015.
- S. Huang, M. Gao, D. Yang, X. Huang, A. Elgammal, X. Zhang, "Unbalanced Graph-Based Transduction on Superpixels for Automatic Cervigram Image Segmentation," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 1556-1559, 2015.
- T. Xu, X. Huang, E. Kim, L.R. Long, S. Antani, "Multi-test Cervical Cancer Diagnosis with Missing Data Estimation," In *Proc. of SPIE, Medical Imaging: Computer-Aided Diagnosis*, Vol. 9414, 2015.
- S. Wan, X. Huang, C. Zhou, "OCM Image Texture Analysis for Tissue Classification," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 93-96, 2014.
- S. Wan, X. Huang, "A New Variant of ICP for Efficient 3D Point-Set Registration," In *Proc. of International Conf. on Computational Visual Media (CVM)*, 2013.
- X. Cui, S. Zhang, J. Huang, X. Huang, D. Metaxas, L. Axel, "Left Endocardium Segmentation using Spatio-temporal Metamorphs," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 226-229, 2012.
- T. Xu, H. Li, T. Shen, N. Ojkic, D. Vavylonis, X. Huang, "Extraction and Analysis of Actin Networks based on Open Active Contour Models," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 1334-1340, 2011.
- Y. Yu, J. Huang, S. Zhang, C. Restif, X. Huang, D. Metaxas, "Group Sparsity based Classification for Cervigram Segmentation," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 1425-1429, 2011.
- E. Kim, S. Antani, X. Huang, L.R. Long, D. Demner-Fushman, "Using Relevant Regions in Image Search and Query Refinement for Medical CBIR," In *Proc. of SPIE, Medical Imaging: Advanced PACS-based Imaging Informatics and Therapeutic Applications*, 2011.
- E. Kim, X. Huang, "Crowdsourcing Image Segmentation using SVG," In *Proc. of 9th International Conference on Scalable Vector Graphics*, 2011.
- S. Zhang, J. Huang, M. Uzunbas, T. Shen, F. Delis, X. Huang, N. Volkow, P. Thanos, D. Metaxas, "3D Segmentation of Rodent Brain Structures using Active Volume Model with Shape Priors," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 433-436, 2011.
- E. Kim, T. Shen, X. Huang, "A Parallel Cellular Automata with Label Priors for Interactive Brain Tumor Segmentation," In *Proc. of 23rd IEEE International Conf. on Computer-Based Medical Systems (CBMS)*, 2010.
- E. Kim, X. Huang, G. Tan, L.R. Long, S. Antani, "A Hierarchical SVG Image Abstraction Layer for Medical Imaging," In *Proc. Of SPIE, Medical Imaging: Advanced PACS-based Imaging Informatics and Therapeutic Applications*, Vol. 7628, 2010.
- S. Zhang, J. Huang, W. Wang, X. Huang, D. Metaxas, "Cervigram Image Segmentation based on Reconstructive Sparse Representations," In *Proc. Of SPIE, Medical Imaging: Image Processing*, Vol. 7623, 2010.
- S. Zhang, J. Huang, D. Metaxas, W. Wang, X. Huang, "Discriminative Sparse Representations for Cervigram Image Segmentation," In *Proc. of the IEEE Int'l Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 133-136, 2010.
- E. Kim, W. Wang, H. Li, X. Huang, "A Parallel Annealing Method for Automatic Color Cervigram Image Segmentation," In *Proc. of the MICCAI-GRID Workshop: Medical Imaging on GRID, HPC and GPU Infrastructures*, 2009.
- D. Lopresti, X. Zhou, X. Huang, G. Tan, "Document Analysis Support for the Manual Auditing of Elections,"

- In *Proc. of the 10th International Conf. on Document Analysis and Recognition (ICDAR)*, pp. 733-737, 2009.
- H. Li, T. Shen, M. B. Smith, I. Fujiwara, D. Vavylonis, and X. Huang, "Automated Actin Filament Segmentation, Tracking, and Tip Elongation Measurements based on Open Active Contour Models," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 1302-1305, 2009.
- W. Wang, Y. Zhu, X. Huang, D. Lopresti, Z. Xue, L. R. Long, S. Antani, and G. Thoma, "A Classifier Ensemble based on Performance Level Estimation," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 342-345, 2009.
- Y. Zhu, T. Shen, D. Lopresti, and X. Huang, "Interactive Polygons in Region-based Deformable Contours for Medical Images," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 37-40, 2009.
- W. Wang, X. Huang, "Distance Guided Selection of the Best Base Classifier in an Ensemble with Application to Cervigram Image Segmentation," In *Proc. Of the IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA)*, pp. 109-116, Miami FL, 2009.
- H. Li, T. Shen, M. B. Smith, I. Fujiwara, D. Vavylonis and X. Huang, "Automated Actin Filament Length Measurements in TIRFM Images Using Open Active Contours," Abstract in Biophysics Society 53rd Annual Meeting, Boston, 2009.
- Y. Artan, X. Huang, "Combining Multiple  $2\nu$ -SVM Classifiers for Tissue Segmentation," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 488-491, 2008.
- Y. Zhu, X. Huang, D. Lopresti, L. R. Long, S. Antani, Z. Xue, and G. Thoma, "Web-Based Multi-Observer Segmentation Evaluation Tool," In *Proc. Of the 21st IEEE International Symposium on Computer-Based Medical Systems (CBMS)*, pp. 167-169, 2008.
- X. Huang, W. Wang, Z. Xue, S. Antani, L. R. Long, J. Jeronimo, "Cluster Features for Lesion Detection in Digital Cervigrams," In *Proc. Of SPIE, Medical Imaging: Image Processing*, Vol. 6914, 2008.
- Y. Song, X. Huang, B. Mueller, and B. Mychalczak, "Phase Impact Factor: A Novel Parameter for Determining Optimal CT Phase in 4D Radiation Therapy Treatment Planning for Mobile Lung Cancer," In *Proc. Of SPIE, Medical Imaging: Visualization, Image-guided Procedures, and Modeling*, Vol. 6918, 2008.
- W. Qu, X. Huang, Y. Jia, "Segmentation in Noisy Medical Images Using PCA Model Based Particle Filtering," In *Proc. Of SPIE, Medical Imaging: Image Processing*, Vol. 6914, 2008.
- K. Okada, X. Huang, "Robust Click-Point Linking: Matching Visually Dissimilar Local Regions," In *Proc. Of IEEE International Workshop on Beyond Multiview Geometry: Robust Estimation and Organization of Shapes from Multiple Cues*, pp.1-8, 2007.
- J. Huang, X. Huang, D. Metaxas, and L. Axel, "Dynamic Texture based Heart Localization and Segmentation in 4-D Cardiac Images," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 852-855, 2007.
- V. Potesil, X. Huang, X. S. Zhou, "Automated tumor delineation using joint PET/CT information," In *Proc. Of SPIE, Medical Imaging: Computer-aided Diagnosis*, Vol. 6514, 2007.
- X. Huang, X. S. Zhou, A. Krishnan, "The efficacy of computer detection of kidney in PET/CT images and kidney SUV statistics in PET images," In *Radiological Society of North America Scientific Assembly and Annual Meeting (RSNA)*, 2006.
- X. Huang, D. Metaxas, L. G. Menon, P. Mayer-Kuckuk, J. R. Bertino, and D. Banerjee, "Recovering 3D Tumor Locations from 2D Bioluminescence Images and Registration with CT Images," In *Proc. of SPIE, Biomedical Optics Conference: Multimodal Biomedical Imaging*, Vol. 6081, 2006.
- J. Huang, X. Huang, D. Metaxas, and D. Banerjee, "3D Tumor Shape Reconstruction from 2D Bioluminescence Images," In *Proc. of the IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, pp. 606-609, 2006.

- H. Guan, T. Kubota, X. Huang, X. S. Zhou, M. Turk, "Automatic Hot Spot Detection and Segmentation in Whole Body FDG-PET Images," In *Proc. of the IEEE International Conf. on Image Processing (ICIP)*, pp. 85-88, 2006.
- K. Okada, X. Huang, X. Zhou, A. Krishnan, "Robust Click-Point Linking for Longitudinal Follow-Up Studies," In *Proc. of the 3rd International Workshop on Medical Imaging and Augmented Reality (MIAR)*, pp. 252-260, 2006.
- X. Huang, Z. Qian, R. Huang, and D. Metaxas, "Deformable-model based Textured Object Segmentation," In *Proc. of the 4th International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR)*, LNCS-3757, pp. 119-135, 2005.
- Z. Qian, X. Huang, D. Metaxas, T. Chen, L. Axel, "Robust Segmentation of 4D Cardiac MRI-tagged Images via Spatio-temporal Propagation," In *Proc. Of SPIE, Medical Imaging: Physiology, Function and Structure from Medical Images*, Vol. 5746, pp. 580-591, 2005.
- X. Huang, Y. Sun, D. Metaxas, F. Sauer, and C. Xu, "Hybrid Image Registration based on Configurational Matching of Scale-Invariant Salient Region Features," In *Proc. of the 2nd IEEE Workshop on Image and Video Registration (IVR)*, 2004.
- X. Huang, S. Zhang, Y. Wang, D. Metaxas, and D. Samaras, "A Hierarchical Framework for High Resolution Facial Expression Tracking," In *Proc. of the 3rd IEEE Workshop on Articulated and Nonrigid Motion (ANM)*, 2004.
- D. Metaxas, T. Chen, X. Huang, and L. Axel, "Cardiac Segmentation from MRI-Tagged and CT Images," In *Proc. of the 8th WSEAS International Conf. on Computers, special session on Imaging and Image Processing of Dynamic Processes in biology and medicine*, 2004.
- C. Xu, X. Huang, A. Krishnan, and S. Samant, "An Automated Image-based Method for Multi-Leaf Collimator Positioning Verification in Intensity Modulated Radiation Therapy," In *Proc. of the International Conf. on Diagnostic Imaging and Analysis (ICDIA)*, 2002.

## Patents

- X. Huang, S. Wan, C. Zhou, "Diagnostic System and Method for Biological Tissue Analysis," Patent issued as USP 10019656 in July 2018.
- X. Huang, A. Krishnan, K. Okada, X. Zhou, "Robust Click-Point Linking with Geometric Configuration Context: Interactive Localized Registration Approach," Patent issued as USP 7,903,857 on Mar. 8, 2011. Also filed in Germany and China.
- X. Huang, X. Zhou, A. Jerebko, A. Krishnan, H. Guan, T. Kubota, V. Potesil, "System and Method for Whole Body Landmark Detection, Segmentation and Change Quantification in Digital Images," Patent issued as USP 7,876,938 on Jan. 25, 2011.
- D. Metaxas, D. Banerjee, and X. Huang, "System and Methods for Generating Three-dimensional Images from Two-dimensional Bioluminescence Images and Visualizing Tumor Shapes and Locations," Patent issued as USP 8,218,836 on Jul. 10, 2012.
- C. Xu, X. Huang, Y. Sun, "Fast Parametric Non-rigid Image Registration Based on Feature Correspondences," Patent issued as USP 7,596,283 on Sep. 29, 2009.
- C. Xu, X. Huang, Y. Sun, C. Chef'd'hotel, J. Guehring, F. Sauer, and S. Vogt, "Method and System for Hybrid Rigid Registration of 2D/3D Medical Images," Patent issued as USP 7,409,108 on Aug. 5, 2008.
- C. Xu, X. Huang, Y. Sun, and F. Sauer, "Method and System for Hybrid Rigid Registration based on Joint Correspondences between Scale-Invariant Salient Region Features," Patent issued as USP 7,362,920 on Apr. 22, 2008.

## C. HONORS AND AWARDS

- Outstanding Reviewer Award, by Computers in Biology and Medicine (CBM) journal, 2015
- P.C. Rossin Assistant Professorship, Lehigh University, 2009
- Sigma Xi Scientific Research Honor Society Lehigh University Inductee, 2008
- Minority Junior Faculty Award for Career Enhancement, Christian R. and Mary F. Lindback Foundation, 2007



- Outstanding Reviewer Award at the IEEE International Conf. on Computer Vision (ICCV), 2007
- DIMACS Award for Student-initiated Research Projects, Rutgers University, 2002
- Tsinghua Excellent Student Scholarships, Tsinghua university, 1995,96,97,98

#### D. RESEARCH FUNDING

##### Competitively Awarded Research Grants

- “Groundwork for a Synchrotron MicroCT Imaging Resource for Biology (SMIRB),” National Institutes of Health, Co-PI, (with K.C. Cheng, D.V. Rossum, and P.L. Riviere), \$2,629,811, 8/15/2019 - 7/31/2023.
- “Generative Adversarial Networks for Automatic Whole Slide Imaging Dataset Expansion and Analysis,” National Institutes of Health, National Library of Medicine, PI, \$120,000, 9/24/2018 - 9/23/2020.
- “Development of a Mobile AI-based Rapid Stroke Screening Method for Emergency Rooms,” PSU College of IST seed grant, Co-PI, (with J.Z. Wang), 5/15/2019 - 5/14/2020.
- “Mapping Reservoir Rock Composition of Conventional and Unconventional Deposits with Intelligent Imaging,” PSU College of EMS Energy Institute seed grant, Co-PI, (with Z. Karpyn), \$15,000, 5/15/2019 - 5/14/2020.
- “Medical Imaging and Analysis Enhancement via PCIe-based HPEC and 3D Holography,” Pennsylvania Infrastructure Technology Alliance (PITA), PI, (with Accipiter Systems), \$40,000, 1/01/2018 - 12/31/2019.
- “Advanced Computational Methods for Anatomical and Functional Brain Data Analysis,” National Institutes of Health, National Library of Medicine, PI, \$114,000, 9/21/2015 - 9/20/2018.
- “Endoplasmic Reticulum Stress and Hyperinsulinemia in Human Type 2 Diabetes and Equine Laminitis,” Lehigh University FIG grant, Co-PI, (with L. Cassimeris), \$30,000, 6/1/2016 - 6/1/2017.
- “Modeling and Analysis of Actin Filament Organization in Yeast,” National Institutes of Health, National Institute of General Medical Sciences, Co-PI, (with D. Vavylonis), \$1,357,748, 4/01/2012 - 12/31/2017.
- “A Secure, High Performance System Interconnect Architecture for Next Generation Data Centers,” Pennsylvania Infrastructure Technology Alliance, Co-PI, (with J. Li), \$36,075, 1/01/2015 - 6/30/2016.
- “Web-based Image Annotation and Retrieval; Computer-assisted Technologies for Medical Image Segmentation and Pattern Recognition,” National Institutes of Health, National Library of Medicine, PI, \$275,000, 9/01/2010 - 8/31/2015.
- “III-CXT-Small: Collaborative Research: Structuring, Reasoning, and Querying in a Very Large Medical Image Database,” National Science Foundation, PI, (with D. Lopresti), \$229,519, 9/01/2008 - 8/31/2011.
- “Computational Analysis and Modeling of Contractile Ring Assembly,” National Institutes of Health, National Institute of General Medical Sciences, PI, (with D. Vavylonis), \$385,515, 9/01/2008 - 8/31/2011.
- “Technologies for Computer-Assisted Biomedical Image Segmentation and Content-based Image Retrieval through Web Browsers,” National Institutes of Health, National Library of Medicine, PI, \$65,000, 9/15/2009 - 9/14/2010.
- “Network computing for biomedical image processing; cervigram segmentation,” National Institutes of Health, National Library of Medicine, PI, \$55,000, 9/01/2008 - 08/31/2009.
- “Segmentation of Uterine Cervix Images by Support Vector Machine Methods,” National Institutes of Health, National Library of Medicine, PI, \$24,900, 9/20/2007 - 9/19/2008.
- “A Physically-based Heart Model for Segmentation, Motion Analysis and Disease Classification,” Christian R. and Mary F. Lindback Foundation, PI, \$20,000, 6/01/2007 - 5/31/2008.
- “Novel Methods and Applications for Chemical Image Analysis,” Pennsylvania Infrastructure Technology Alliance, PI, (with R. Nagel), \$44,000, 3/01/2008 - 8/31/2009.

##### Non-competitive Research Grants

- “Novel Methods and Applications for Chemical Image Analysis,” Air Products and Chemicals, Inc., PI, \$80,000, 9/01/2007 - 12/31/2010. Collaborators: A. Esmaili (Air Products and Chemicals, Inc.), R. Nagel (Lehigh CSE).

##### Competitively Awarded Training Grants

- “Analysis of actin cytoskeleton structures using active contours,” Biosystems Dynamics Summer Institute (BDSI), Howard Hughes Medical Institute and Lehigh University, PI, (with D. Vavylonis), \$30,000, 6/01/2010 - 8/01/2010.
- “Actin filament polymerization: modeling of elongation kinetics based on analysis of TIRFM images,” Biosystems Dynamics Summer Institute (BDSI), Howard Hughes Medical Institute and Lehigh University, PI, (with D. Vavylonis), \$29,000, 6/01/2009 - 8/01/2009.

## E. EDITORIAL REVIEW BOARD MEMBERSHIP FOR SCHOLARLY PUBLICATIONS

### Editorial Review Board Membership for Journals

Associate Editor for Computer Vision and Image Understanding (CVIU) journal, 2014-present

### Reviewer for Journals

IEEE Transactions on Pattern Analysis and Machine Intelligence  
International Journal of Computer Vision  
Medical Image Analysis  
IEEE Transactions on Medical Imaging  
Computer Vision and Image Understanding  
IEEE Transactions on Biomedical Engineering  
IEEE Transactions on Visualization and Computer Graphics  
IEEE Transactions on Image Processing  
Image and Vision Computing  
Pattern Recognition  
Signal Processing  
Machine Vision and Applications  
Graphical Models  
Computer-aided Design  
NeuroComputing  
The Visual Computer  
Computerized Medical Imaging and Graphics  
Cytometry  
International Journal of Biomedical Imaging

## F. SCHOLARLY PRESENTATIONS

### Invited presentations/seminars

- “SegAN: Adversarial Network with Multi-scale  $L_1$  Loss for Medical Image Segmentation,” at The National Library of Medicine, Bethesda, MD, Sept. 19, 2017.
- “StackGAN: Text to Photo-realistic Image Synthesis,” at The National Library of Medicine, Bethesda, MD, Jan. 10, 2017.
- “Cervical Cancer Screening based on Images and Multiple Integrated Data Sources,” at The National Library of Medicine, Bethesda, MD, Mar. 24, 2015.
- “Object Matching using Affine Invariants and Linear Programming,” at Zhejiang University, Hangzhou, China, Jul. 19, 2014.
- “3D Actin Network Centerline Extraction with Multiple Active Contours,” at Ohio State University, Columbus, OH, Feb. 2014.
- “A Data-driven Image Interpretation System for Making Diagnosis Decisions in Cervical Screenings,” at Tsinghua University, Beijing, China, March 2013.
- “A Parallel Cellular Automata on the GPU for Interactive Brain Tumor Segmentation,” High Performance Computing Day at Lehigh University, Apr. 2011.
- “Deformable Object Models for Segmentation and Matching,” at Drexel University, Philadelphia, PA, Feb. 2011.
- “Nonrigid Shape Registration and Object Matching,” at University of Pennsylvania, Philadelphia, PA, Dec. 2010.
- “Analysis of Actin Cytoskeleton using Active Contour and Active Surface Models,” at Janelia Farm/HHMI Conference on “What Can Computer Vision Do for Neuroscience and Vice Versa?”, Ashburn, VA, Nov. 2010.
- “Markup SVG - A Content Aware Image Abstraction for Online Image Annotation,” at Tsinghua University, Beijing, China, Sept. 2010.
- “Deformable Shape and Appearance Models for Segmentation and Registration,” at Siemens Corporate Technology, Beijing, China, Sept. 2010.
- “Object Models for Boundary Extraction with Application to Medical Image Analysis,” at Temple University, Philadelphia, PA, Sept. 2009.
- “Deformable Shape and Appearance Models for Segmentation and Registration,” at Tsinghua University, Beijing, China, Jun. 2009.
- “Computational Analysis of Cellular Images,” COT (Center for Optical Technologies) Workshop on Advanced Biophotonic Imaging Technologies at Lehigh University, Oct. 2008.

- “Extracting Quantitative Information from Pictorial Input,” Applied Statistical Sciences Roundtable Seminar at Air Products and Chemicals, Inc., Sept. 2008.
- “High Performance Computing in Biomedical Image Analysis and Visualization,” High Performance Computing Day at Lehigh University, Apr. 2008.
- “Free-form Deformable Shape and Appearance Models,” at Boston University, Boston, MA, Sept. 2007.
- “Free-form Deformable Shape and Appearance Models,” at City College and the Graduate Center, City University of New York, New York, NY, May 2007.
- “CISL: Cervical Image Segmentation by Learning from Ground Truth Database,” at National Library of Medicine, Bethesda, MD, Mar. 2007.
- “Using Implicit Shape Representation for Registration and Segmentation,” at Stevens Institute of Technology, Hoboken, NJ, Nov. 2006.
- “Free Form Deformable Models,” at Univ. of North Carolina - Chapel Hill, Chapel Hill, NC, Apr. 2006.
- “Free Form Deformable Models,” at Lehigh University, Bethlehem, PA, Mar. 2006.
- “Integrating Shape and Appearance for Deformable Modeling and Segmentation,” at Siemens Corporate Research, Princeton, NJ, Feb. 2005.
- “Integrating Shape and Appearance for Deformable Modeling and Segmentation,” at Siemens Medical Solutions, Malvern, PA, Mar. 2005.
- “Hybrid Image Registration using Salient Region Features,” at Siemens Corporate Research, Princeton, NJ, Jul. 2004.

#### **Presentations at Selected Conferences/Workshops**

- “A New Image Data Set and Benchmark for Cervical Dysplasia Classification Evaluation,” at *the 6th International Workshop on Machine Learning in Medical Imaging (MLMI)*, Munich, Germany, Oct. 2015.
- “Global Contrast based Salient Region Detection,” at *International Conference on Computational Photography (ICCP)*, Seattle, Apr. 2012.
- “Actin Filament Segmentation Using Dynamic Programming,” at *International Conf. on Information Processing in Medical Imaging (IPMI)*, Kloster Irsee, Germany, Jul. 2011.
- “Automated Actin Filament Segmentation, Tracking, and Tip Elongation Measurements based on Open Active Contour Models,” at *IEEE International Symposium on Biomedical Imaging: From Nano to Macro (ISBI)*, Boston, Jul. 2009.
- “Simultaneous Image Transformation and Sparse Representation Recovery,” at *IEEE International Conf. on Computer Vision and Pattern Recognition (CVPR)*, Anchorage, AK, Jun. 2008.
- “Cluster Features for Lesion Detection in Digital Cervigrams,” at *SPIE Medical Imaging: Image Processing Conference*, San Diego, CA, Feb. 2008.
- “Phase Impact Factor: A Novel Parameter for Determining Optimal CT Phase in 4D Radiation Therapy Treatment Planning for Mobile Lung Cancer,” at *SPIE Medical Imaging Conference: Visualization, Image-guided Procedures, and Modeling*, San Diego, CA, Feb. 2008.
- “Robust Click-point Linking: Matching Visually Dissimilar Local Regions,” at *IEEE Workshop on Beyond Multiview Geometry (BMG)*, Minneapolis, MN, Jun. 2007.
- “Deformable Model based Textured Object Segmentation,” at *Energy Minimization in Computer Vision and Pattern Recognition Workshop*, St. Augustine, FL, Oct. 2005.
- “Metamorphs: Deformable Shape and Texture Models,” at *IEEE International Conf. On Computer Vision and Pattern Recognition*, Washington D.C., Jun. 2004.
- “Hybrid Image Registration based on Configurational Matching of Scale-invariant Salient Region Features,” at *Second IEEE Workshop on Image and Video Registration*, Washington D.C., Jun. 2004.
- “Establishing Local Correspondences towards Compact Representations of Anatomical Structures,” at *Annual International Conf. on Medical Image Computing and Computer Assisted Intervention*, Montreal, Canada, Nov. 2003.
- “Computing Layered Surface Representations: An Algorithm for Detecting and Separating Transparent Overlays,” at *IEEE International Conf. on Computer Vision and Pattern Recognition*, Madison, WI, Jun. 2003.

## G. TEACHING AND RESEARCH ADVISING

### **Courses Taught**

**Instructor**, College of Information Sciences and Technology, Penn State University

- IST 210: Organization of Data  
Taught in Fall 2018
- IST 597: Machine Learning Methods in Biomedical Image Informatics  
Taught in Spring 2019

**Instructor**, Computer Science and Engineering Dept., Lehigh University

- CSE 261: Discrete Structures  
Taught in Spring semesters 2012, 2013, 2014, 2016, 2017
- CSE 398/498: Deep Learning  
Taught in Fall 2017
- CSE 313: Computer Graphics  
Taught in Fall semesters 2006, 2007, 2008, 2009, 2011, 2012, 2013, 2014, 2015
- CSE 320/420: Biomedical Image Computing  
Taught in Fall 2009, Spring 2012, Spring 2013, Fall 2014, Fall 2015
- CSE 319/419: Image Analysis and Graphics  
Taught in Spring semesters 2007, 2008, 2009, 2010, 2011
- CSE 331: User Interface Systems and Techniques  
Taught in Fall 2008

### **Advising – Research Direction**

#### **Undergraduate Students**

Advised 34 undergraduate students for their senior project or independent study, between 2006 and 2017.

#### **Master's Students**

Advised 11 Master's students for their independent study or Master's thesis, between 2006 and 2017.

#### **Doctoral Students**

- Tian Shen, 2007-2011 (graduated with Ph.D. in May 2011; currently working as the CEO of his company, ShenZhen Beishen Healthcare Technology Co., Ltd.)
- Hongsheng Li, 2008-2012 (graduated with Ph.D. in Sep. 2012; currently working as a tenure-track assistant professor in Department of Electronic Engineering at the Chinese University of Hong Kong.)
- Edward Kim, 2008-2013 (graduated with Ph.D. in May 2013; currently working as a tenure-track assistant professor at Villanova university, Villanova, PA)
- Yaoyao Zhu, 2007-2013 (graduated with Ph.D. in May 2013; currently working as a research engineer at Checkpoint Systems, Boston, MA)
- Ting Xu, 2009-2016 (graduated with Ph.D. in August 2016; currently working as a data scientist at Konica Minolta Laboratory USA, San Mateo, CA)
- Tao Xu, 2013 - 2018 (graduated with Ph.D. in August 2018; joining Facebook Inc. as a research engineer)
- Yuan Xue, 2015 - present
- Yanglan Ou, 2018 - present

#### **Doctoral Committee Member for Other Ph.D. Students**

Served on the doctoral dissertation committees for 19 other Ph.D. students at Lehigh University and Rutgers University, between 2006 and 2017.

### **Advising – Other than Research Direction**

- Advisor for Computer Science majors from College of Arts & Sciences and College of Engineering: advising approximately 40 undergraduate students each year, at Lehigh University, 2012-18.
- First year advisor for the Class of 2019, 2020: advising approximately 10 freshmen engineering students each year, 2015-18.
- Advisor for Lehigh Integrated Business and Engineering (IBE) students who choose the Computer Science concentration: advising approximately 5 IBE-CS students each year, 2016-18.

## H. SERVICE

### Service at Penn State University

- Member of the Undergraduate Advisory Committee, 2018-present

### Service at Lehigh University

- Chair of the CSE Publicity and Web Committee, 2017-18
- Member of the Lehigh Bioengineering Faculty Search committee, 2017-18
- Member of the CSE Graduate Admissions Committee, 2006-now
- Advisor for CS majors from Engineering College and Arts & Sciences College, 2012-now
- Advisor for IBE students with CS concentration, 2016-now
- Member of a CSE Faculty Search Committee, 2008-17
- Member of the University Graduate and Research Committee, 2013-16
- Gave short talks on Candidate's day and Engineering Open House day, 2008-16
- Chair of a CSE Department Faculty Search Committee, 2013-14, 2015-16
- Chair of the CSE Department Colloquium Committee, 2011-12
- Member of the CSE Publicity and Web Committee, 2008-11
- Member of the CSE Curriculum Development Committee, 2006-08
- Member of the CSE Community Committee, 2009-11
- Member of the CSE Computer Facilities Committee, 2008-09

### Professional Service in Research Community

- Associate Editor for the Computer Vision and Image Understanding journal, since 2014.
- Handling Editor for the Computers in Biology and Medicine Journal, 2013-2018.
- Area Chair for: MICCAI 2019.
- Regular reviewer for more than 6 journals including IEEE Trans. on Pattern Analysis and Machine Intelligence (TPAMI), Medical Image Analysis (MedIA), IEEE Trans. on Medical Imaging (TMI), International Journal of Computer Vision (IJCV), Computer Vision and Image Understanding (CVIU), IEEE Trans. on Image Processing (TIP), and Computerized Medical Imaging and Graphics (CMIG), since 2005.
- Session chair and program committee member for 6th International Conference on Functional Imaging and Modeling of the Heart (FIMH), 2011.
- Co-chair and co-organizer (with D. Terzopoulos and G. Tsechpenakis) for "Deformable Models: Theory and Applications," A Special Track at International Symposium on Visual Computing (ISVC), 2009.
- Session chair and program committee member for International Workshop on High-Performance Medical Image Computing for Image-Assisted Clinical Intervention and Decision-Making, 2010.
- Program committee member for international conferences: IEEE Computer Society Conf. on Computer Vision and Pattern Recognition (CVPR), 2006-2017; International Conf. on Medical Image Computing and Computer-Assisted Intervention (MICCAI), 2007-2017; IEEE International Conf. on Computer Vision (ICCV), 2005, 2007, 2009, 2011, 2013; IEEE International Symposium on Biomedical Imaging (ISBI), 2008-2017; MICCAI workshop on High Performance Computing (HP-MICCAI), 2010-2014; IEEE International Conf. on Pattern Recognition (ICPR), 2010-2014; International Symposium on Computer-based Medical Systems (CBMS), 2010-2013; ACM Conference on Computer Graphics and Interactive Techniques (SIGGRAPH), 2011-2014; SIGGRAPH-ASIA 2011-2012; International Conf. on Computer Vision Theory and Applications, 2008, 2010; European Conf. on Computer Vision (ECCV), 2010; Asian Conf. on Computer Vision (ACCV), 2010; International Symposium on Visual Computing (ISVC), 2009, 2011; IEEE Computer Society Workshop on Mathematical Methods in Biomedical Image Analysis (MMBIA), 2009; IEEE International Conf. on Advanced Video and Signal Based Surveillance (AVSS), 2008; Graphic Interface 2008; Energy Minimization Methods in Computer Vision and Pattern Recognition (EMMCVPR) 2005.
- Panelist and reviewer for proposals submitted to: NIHR NEAT (UK) 2008, NSF-IIS-Bio 2009, NSF-IIS-Robust Intelligence 2009, NSF-IIS-Human Centered Computing 2010, NMRC TDEP 2015.