

Siwei Lyu

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Education

- 2001 – 2005 **Dartmouth College, Hanover, NH**
Ph.D. in Computer Science, August 2005
Dissertation: *Natural Image Statistics for Digital Image Forensics*
Advisor: Prof. Hany Farid
- 1997 – 2000 **Peking University, Beijing, China**
M.S. in Computer Science and Technology, June 2000
Thesis: *Component-based Software Architecture for Multimedia Authoring Systems*
Advisor: Prof. Xuan Wang
- 1993 – 1997 **Peking University, Beijing, China**
B.S. in Information Science, June 1997
Thesis: *A Survey of Multimedia Authoring Systems*

Professional Experience

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|----------------|--------------------------------|---|
| 2016 – 2019 | Associate Editor | IEEE Transactions on Information Forensics and Security |
| 2017 – 2019 | Elected Member | IEEE Signal Processing Society
Information Forensics and Security Technical Committee |
| 2014 – present | Associate Professor | Computer Science Department
University at Albany, State University of New York |
| 2008 – 2014 | Assistant Professor | Computer Science Department
University at Albany, State University of New York |
| 2005 – 2008 | Postdoctoral Researcher | Howard Hughes Medical Institute
Center for Neural Science, New York University
<u>Advisor</u> : Prof. Eero Simoncelli |
| 2000 – 2001 | Assistant Researcher | Microsoft Research Asia, Beijing, China |
| 1999 | Research Intern | Samsung Software Center, Seoul, Korea |

Awards and Honors

- 2017 SUNY Albany President's Award for Excellence in Research and Creative Activities
- 2016 IEEE Senior Member
- 2015 Faculty Research Award Category A (FRAP-A) of SUNY Albany
- 2015 Distinguished Dissertation Award of SUNY Albany (Amanda Danko's Ph.D. thesis)
- 2012 Distinguished Dissertation Award of SUNY Albany (Xunyu Pan's Ph.D. thesis)
- 2012 Faculty Research Award Category A (FRAP-A) of SUNY Albany
- 2011 IEEE Signal Processing Society **Best Paper Award**
- 2010 National Science Foundation Early Faculty Career Development (**CAREER**) Award
- 2009 Faculty Research Award Category A (FRAP-A) of SUNY Albany
- 2004 Graduate Student Poster Award, Dartmouth College
- 2000 Distinguished Graduate Award, Peking University
- 1999 Award for Excellent Student, Beijing City
- 1999 Award for Excellence in Graduate Study, Peking University
- 1999 Samsung Scholarship
- 1999 Microsoft Scholarship

Research Funding

External Funding

- 2016 – 2018 Co-PI (with Dr. A. Hoogs of Kitware, Prof. H. Farid of Dartmouth College, Prof. A. Efros, Prof. T. Darrel of UC Berkeley and Prof. S.F. Chang of Columbia University), DARPA Media Forensics (MediFor) Program for the project *Photons, Pixels, Photoshop and the Internet: Analyzing the Life-Cycle Integrity of Visual Media*. (total: \$2,000,000, U. Albany portion: \$328,000)
- 2015 – 2018 Co-PI (with Prof. J. Trinkle of RPI), National Science Foundation National Robotics Initiative (NRI) Grant (IIS-1537257) for the project *Continuation: A Dynamic Bayesian Approach to Real-Time Estimation and Filtering in Grasp Acquisition and Other Contact Tasks*. (total: \$560,000, U. Albany portion: \$220,000)
- 2013 – 2015 Co-PI (with Dr. P. Tu of GE Global Research Center), National Institute of Justice GMS Award (2013-IJ-CX-K010) for the project *Practitioner Centric Video Analysis*. (total: \$500,000, U. Albany portion: \$100,000).
- 2013 – 2016 PI, National Science Foundation Research Grant (CCF-1319800) for the project *Blind Noise Estimation Using Signal Statistics in Random Band-Pass Domains*. (\$400,000).
- 2012 – 2015 Co-PI (with Prof. J. Trinkle of RPI), National Science Foundation National Robotics Initiative (NRI) Grant (IIS-1208463) for the project *A Dynamic Bayesian Approach to Real-Time Estimation and Filtering in Grasp Acquisition and Other Contact Tasks*. (total: \$560,000, U. Albany portion: \$210,000)
- 2011 – 2013 Co-PI (with Dr. P. Tu of GE Global Research Center), National Institute of Justice for the project *Recognizing Group Behavior in Surveillance Videos*. (\$40,000).
- 2010 – 2015 PI, National Science Foundation Early Faculty Career Development (CAREER) Award (IIS-0953373) for the project *A New Statistical Framework for Natural Images with Applications in Vision* (\$500,000).
- 2010 – 2011 Co-PI (with C. T. Lawson, S. S. Ravi and J. Hwang), University Transportation Research Center (UTRC) – Region II for the project *Compressing and Mining GPS Stream Data* (\$99,848).
- 2009 – 2011 Co-PI (with J. Gangolly, S. S. Ravi, D. Rosenkrantz, and J. Hwang), IBM Research Center for the project *Statistical Patterns to Detect Financial Fraud* (\$40,000).

Internal Funding

- 2017 co-PI with Prof. Y. Ying of Math Department, The Presidential Innovation Fund for Research and Scholarship of SUNY Albany for the project *Advanced Metric Learning for Big Data Analysis*. (\$45,000).
- 2015 – 2018 PI, Faculty Research Award Program Category A (FRAP-A) of SUNY Albany for the project *3D Tracking Visualization from Surveillance Videos*. (\$10,000).
- 2012 – 2015 PI, Faculty Research Award Program Category A (FRAP-A) of SUNY Albany for the project *Exposing Digital Forgeries Using Blind Local Noise Level Estimation*. (\$10,000).
- 2009 – 2012 PI, Faculty Research Award Program Category A (FRAP-A) of SUNY Albany for the project *Seeing the Unseen: Natural Image Statistics for Digital Forensics*. (\$10,000).

Publications

Journal Articles

1. Dawei Du, Honggang Qi, Longyin Wen, Qingming Huang, Tian Qi, and Siwei Lyu. Geometric hypergraph learning for visual tracking. *IEEE Transactions on Cybernetics*, (to appear), 2017. (impact factor: 4.209).

2. Longyin Wen, Zhen Lei, Ming-Ching Chang, Honggang Qi, and Siwei Lyu. Multi-camera multi-target tracking with space-time-view hyper-graph. *International Journal of Computer Vision*, (to appear) 2016. (impact factor: 4.270).
3. Dawei Du, Honggang Qi, Wenbo Li, Longyin Wen, Qingming Huang, and Siwei Lyu. Online deformable object tracking based on structure-aware hyper-graph. *IEEE Transactions on Image Processing*, (accepted), 2016. (impact factor: 3.625).
4. Yan Kong, Weiming Dong, Xing Mei, Chongyang Ma, Tong-Yee Lee, Siwei Lyu, Feiyue Huang, and Xiaopeng Zhang. Measuring and predicting visual importance of similar objects. *IEEE Transactions on Visualization and Computer Graphics*, (accepted), 2016. (impact factor: 2.168).
5. Longyin Wen, Zhen Lei, Siwei Lyu, Stan Z. Li, and Ming-Hsuan Yang. Exploiting hierarchical dense structures on hypergraphs for multi-object tracking. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, (to appear), 2016. (impact factor: 4.908).
6. Baoyuan Wu, Siwei Lyu, Baogang Hu, and Qiang Ji. Multi-label learning with missing labels for image annotation and facial action unit recognition. *Pattern Recognition*, 48(7):2279–2289, 2015. (impact factor: 2.584).
7. Siwei Lyu, Xunyu Pan, and Xing Zhang. Exposing region splicing forgeries with blind local noise estimation. *International Journal of Computer Vision*, 110(2):202–221, November 2014. (impact factor: 4.270).
8. Siwei Lyu. Divisive normalization as an efficient coding transform: Justification and effectiveness. *Neural Computation*, 23(11):2942–2973, November 2011. (impact factor: 1.884).
9. Xunyu Pan and Siwei Lyu. Region duplication detection using image feature matching. *IEEE Transactions on Information Forensics and Security*, 5(4):857–867, December 2010. (impact factor: 1.340).
10. Siwei Lyu and Eero P. Simoncelli. Nonlinear extraction of ‘independent components’ of natural images using radial Gaussianization. *Neural Computation*, 18(6):1–35, June 2009, **Featured on the cover page**. (impact factor: 1.884).
11. Siwei Lyu and Eero P. Simoncelli. Modeling multiscale subbands of photographic images with fields of Gaussian scale mixtures. *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 31(4):693–706, April 2009. (impact factor: 4.908).
12. Siwei Lyu and Hany Farid. Steganalysis using higher-order image statistics. *IEEE Transactions on Information Forensics and Security*, 1(1):111–119, January 2006, **IEEE Signal Processing Society Best Paper Award**. (impact factor: 1.340, Google Scholar citations as of March 15, 2017: 362).
13. Dan Rockmore, Siwei Lyu, and Hany Farid. A digital technique for authentication in the arts. *International Foundation for Art Research (IFAR) Journal*, 8(2):21–29, 2006. (invited feature article).
14. Siwei Lyu and Hany Farid. How realistic is photorealistic? *IEEE Transactions on Signal Processing*, 53(2):845–850, February 2005. (impact factor: 2.628, Google Scholar citations as of March 15, 2017: 254).
15. Siwei Lyu, Dan Rockmore, and Hany Farid. A digital technique for art authentication. *Proceedings of the National Academy of Sciences*, 101(49):17006–17010, November 2004. (impact factor: 9.681).

Prestigious Conference Papers

16. Yang Yang, Longyin Wen, Siwei Lyu, and Stan Z. Li. Learning multi-level descriptors for person re-identification. In *31st AAAI Conference on Artificial Intelligence (AAAI-17)*, San Francisco, CA, 2017. (Acceptance rate 26% of 2132 submissions).
17. Yiming Ying, Longyin Wen, and Siwei Lyu. Stochastic online auc maximization. In *Advances in Neural Information Processing Systems (NIPS)*, Barcelona, Spain, December 2016. (**Oral**, Acceptance rate 1.8% of 2500 submissions).
18. Martin Boissier, Yiming Ying, Siwei Lyu, and Dingxuan Zhou. Fast convergence of online pairwise learning algorithms. In *The 19th International Conference on Artificial Intelligence and Statistics (AISTATS)*, Cadiz, Spain, 2016 (Acceptance rate 31% of 537 submissions).

19. Baoyuan Wu, Siwei Lyu, and Bernard S. Ghanem. Multi-label learning to missing labels and class imbalance. In *30th AAAI Conference on Artificial Intelligence (AAAI-16)*, Pheonix, AZ, 2016 (Acceptance rate 26% of 2132 submissions).
20. Xin Wang, Yiming Ying, Ming-Ching Chang, and Siwei Lyu. Co-regularized PLSA for multi-modal learning. In *30th AAAI Conference on Artificial Intelligence (AAAI-16)*, Pheonix, AZ, 2016 (Acceptance rate 26% of 2132 submissions).
21. Wenbo Li, Longyin Wen, Mooi Choo Chua, and Siwei Lyu. Category-blind human action recognition: A practical recognition system. In *IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015 (Acceptance rate 30% of 1698 submissions).
22. Baoyuan Wu, Siwei Lyu, and Bernard S. Ghanem. ML-MG: Multi-label learning with missing labels using a mixed graph. In *IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015 (Acceptance rate 30% of 1698 submissions).
23. Xing Mei, Honggang Qi, Baogang Hu, and Siwei Lyu. Improving image restoration with soft-rounding. In *IEEE International Conference on Computer Vision (ICCV)*, Santiago, Chile, 2015 (Acceptance rate 30% of 1698 submissions).
24. Xing Mei, Weiming Dong, Baogang Hu, and Siwei Lyu. UniHIST: A unified framework for image restoration with histogram. In *IEEE Conference on Computer Vision and Patten Recognition (CVPR)*, Boston, MA, 2015. (Acceptance rate 30% of 2400 submissions).
25. Shuai Li, Siwei Lyu, Jeff Trinkle, and Wolfart Burgard. An evaluation of particle filters for contact-slam problems. In *IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, Hamburg, Germany, 2015 (Acceptance rate 46% of 2134 submissions).
26. Ming-Ching Chang, Honggang Qi, Xin Wang, Hong Cheng, and Siwei Lyu. Fast online upper body pose estimation from video. In *British Machine Vision Conference (BMVC)*, Swansea, England, 2015 (Acceptance rate 33% of 553 submissions).
27. Yelin Kim, Jixu Chen, Ming-Ching Chang, Xin Wang, Emily M. Provost, and Siwei Lyu. Joint event localization and classification of human action videos with event transitions. In *IEEE International Conference on Automatic Face and Gesture Recognition (FG)*, Ljubljana, Slovenia, 2015. (**Oral**, Acceptance rate 12% of 221 submissions)
28. Shuai Li, Siwei Lyu, and Jeff Trinkle. State estimation for dynamic systems with intermittent contact. In *IEEE Conference on Robotics and Automation (ICRA)*, Seattle, WA, 2015. (**Oral**, Acceptance rate 41% of 2275 submissions)
29. Xing Zhang and Siwei Lyu. Variational EM learning of deep stack Boltzmann networks with deep boltzmann machines. In *International Conference on Artificial Neural Networks (ICANN)*, Hamburg, Germany, 2014.
30. Xing Zhang and Siwei Lyu. Using projection kurtosis concentration of natural images for blind noise covariance matrix estimation. In *IEEE Conference on Computer Vision and Patten Recognition (CVPR)*, Columbus, OH, 2014. (Acceptance rate 30% of 1807 submissions)
31. Siwei Lyu and Xin Wang. On algorithms of sparse multi-factor nonnegative matrix factorization. In *Advances in Neural Information Processing Systems (NIPS)*, Lake Tahoe, NV, 2013. (Acceptance rate 25% of 1420 submissions)
32. Baoyuan Wu, Siwei Lyu, Baogang Hu, and Qiang Ji. Simultaneous clustering and tracklet linking for multi-face tracking in videos. In *IEEE International Conference on Computer Vision (ICCV)*, Sydney, Austrilia, 2013. (Acceptance rate 29% of 1505 submissions)
33. Zuoguan Wang, Siwei Lyu, and Qiang Ji. Deep feature learning using target priors with applications in ECoG signal decoding for BCI. In *International Joint Conference on Artificial Intelligence (IJCAI)*, Beijing, China, August 2013. (**Oral**, Acceptance rate 28% of 1473 submissions)
34. Li Zhang, Siwei Lyu, and Jeff Trinkle. A dynamic Bayesian approach to simultaneous estimation and filtering in grasp acquisition. In *IEEE Conference on Robotics and Automation (ICRA)*, Karsrueger, Germany, 2013. (**Oral**, Acceptance rate 39% of 2265 submissions)

35. Jixu Chen, Xiaoming Liu, and Siwei Lyu. Boosting with side information. In *Asian Conference on Computer Vision (ACCV)*, Daejeon, Korea, 2012. (Acceptance rate 27%)
36. Zuoguan Wang, Siwei Lyu, G. Schalk, K. Miller, and Qiang Ji. Learning with target priors. In *Advances in Neural Information Processing Systems (NIPS)*, Lake Tahoe, NV, 2012. (Acceptance rate 24% of 1467 submissions)
37. Xunyu Pan, Xing Zhang, and Siwei Lyu. Exposing image splicing with inconsistent local noise variances. In *IEEE International Conference on Computational Photography*, Seattle, WA, 2012. (Acceptance rate 20% of 120 submissions)
38. Siwei Lyu. Unifying non-maximum likelihood learning objectives with minimum KL contraction. In *Advances in Neural Information Processing Systems (NIPS)*, Granada, Spain, 2011. (Acceptance rate 22% of 1400 submissions)
39. Siwei Lyu. Divisive normalization: Justification and effectiveness as efficient coding transform. In *Advances in Neural Information Processing Systems (NIPS)*, Vancouver, Canada, 2010. (Acceptance rate 24% of 1219 submissions)
40. Siwei Lyu. Interpretation and generalization of score matching. In *The International Conference on Uncertainty in Artificial Intelligence (UAI)*, Montreal, QC, Canada, June 2009. (**Oral**, Acceptance rate 12%)
41. Siwei Lyu. An implicit Markov random field model for natural images in multi-scale oriented representations. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Miami Beach, FL, June 2009. (Acceptance rate 26% of 1464 submissions)
42. Siwei Lyu and Eero P. Simoncelli. Reducing statistical dependencies in natural signals using radial Gaussianization. In *Advances in Neural Information Processing Systems (NIPS)*, Vancouver, Canada, 2008. (**Oral**, Acceptance rate 2.7% of 1022 submissions)
43. Siwei Lyu and Eero P. Simoncelli. Nonlinear image representation using divisive normalization. In *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Anchorage, AK, June 2008. (Acceptance rate 24% of 1593 submissions)
44. Siwei Lyu and Eero P. Simoncelli. Statistical modeling of images with fields of Gaussian scale mixtures. In *Advances in Neural Information Processing Systems (NIPS)*, Vancouver, Canada, 2006. (Acceptance rate 26%)
45. Siwei Lyu. Kernels for unordered sets: the Gaussian mixture approach. In *European Conference on Machine Learning (ECML)*, Porto, Portugal, 2005. (**Oral**, Acceptance rate 10%)
46. Siwei Lyu. Mercer kernels for object recognition with local features. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, San Diego, CA, 2005. (Acceptance rate 26%)
47. Siwei Lyu. Infomax boosting. In *IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)*, San Diego, CA, 2005. (Acceptance rate 26%)
48. Siwei Lyu. Automatic image orientation determination with natural image statistics. In *ACM Multimedia*, Singapore, 2005. (Acceptance rate 32%)
49. Siwei Lyu and Hany Farid. Detecting hidden messages using higher-order statistics and support vector machines. In *5th International Workshop on Information Hiding*, Noordwijkerhout, The Netherlands, 2002. (Acceptance rate 24%, Google Scholar citations as of March 15, 2017: 500)

Other Peer-Reviewed Conference/Workshop Papers

50. Andrew Pulver and Siwei Lyu. Lstm with working memory. In *International Joint Conference on Neural Networks (IJCNN)*, Anchorage, AK, 2017.
51. Shuai Li, Siwei Lyu, and Jeff Trinkle. Contact aware robotics manipulation. In *Work Shop on Tactile Sensing for Manipulation: New progress and Challenges (in conjunction with IEEE RAS-Humanoids)*, Cancun, Mexico, 2016.

52. Honggang Qi, Andrew Pulver, and Siwei Lyu. Using 3D face model for forensic analysis of lighting environment. In *IEEE Workshop on Information Forensics and Security (WIFS)*, Abu Dhabi, UAE, 2016 (Acceptance rate 32% out of 108 submissions).
53. Yueming Yang, Ming-Ching Chang, Longyin Wen, Peter Tu, Honggang Qi, and Siwei Lyu. Efficient large-scale photometric reconstruction using divide-recon-fuse 3D structure from motion. In *International Conference on Advanced Video and Signal-Based Surveillance (AVSS)*, Colorado Springs, CO, 2016.
54. Martin Boissier, Yiming Ying, Siwei Lyu, and Dingxuan Zhou. Fast convergence of online pairwise learning algorithms. In *NIPS Workshop on Optimization for Machine Learning*, Montreal, QC, Canada, 2015.
55. (as participating team). The visual object tracking VOTITR2015 challenge results. In *ICCV Workshop on Visual Object Tracking Challenge*, Santiago, Chile, 2015.
56. (as participating team). The visual object tracking VOT2015 challenge results. In *ICCV Workshop on Visual Object Tracking Challenge*, Santiago, Chile, 2015.
57. Yueming Yang, Ming-Ching Chang, and Siwei Lyu. Seeing as it happens: Real time 3d video event visualization. In *IEEE Conference on Image Processing (ICIP)*, Québec City, Canada, 2015.
58. Andrew Pulver, Ming-Ching Chang, and Siwei Lyu. Shot segmentation and grouping for ptz camera videos. In *Annual Symposium on Information Assurance (ASIA)*, Albany, NY, 2015.
59. Amanda Danko and Siwei Lyu. Fused methods for visual saliency estimation. In *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2015.
60. Amanda Danko and Siwei Lyu. Better together: Fusing visual saliency methods for retrieving perceptually similar images. In *IEEE Conference on Consumer Electronics (ICCE)*, Las Vegas, NV, 2015.
61. Shuai Li, Siwei Lyu, Jeff Trinkle, and Wolfart Burgard. An evaluation of particle filters for contact-SLAM problems. In *RSS Workshop on Information-based Grasp and Manipulation Planning*, Berkeley, CA, 2014.
62. Xing Mei, Baogang Hu, and Siwei Lyu. Non-blind image restoration with symmetric generalized Pareto priors. In *IEEE Conference on Image Processing (ICIP)*, Paris, France, 2014.
63. Xing Zhang and Siwei Lyu. Blind estimation of pixel brightness transform. In *IEEE Conference on Image Processing (ICIP)*, Paris, France, 2014.
64. Eric Lifshin, Siwei Lyu, Yudal P. Kandel, and Richard L. Moore. The use of regularized least squares minimization for the deconvolution of SEM images. In *Microscopy & Microanalysis*, Hartford, CT, 2014.
65. Eric Lifshin, Yudal P. Kandel, Richard L. Moore, and Siwei Lyu. Improved SEM image resolution through the use of image restoration techniques. In *Microscopy & Microanalysis*, Hartford, CT, 2014. (invited paper).
66. Weiyi Sun, Jianwei Zhang, Hui Jin, and Siwei Lyu. Analyzing online knowledge building discourse using probabilistic topic models. In *International Conference of the Learning Sciences (ICLS)*, Boulder, CO, 2014. (Acceptance rate 30% of 749 submissions).
67. Weiyi Sun, Jianwei Zhang, Hui Jin, and Siwei Lyu. Probabilistic topic analysis of online knowledge building discourse. In *NIPS Workshop on Data Driven Education*, Lake Tahoe, NV, 2014.
68. Siwei Lyu. An upper-bound on second-order dependency. In *IEEE International Conference and China Forum on Signal and Information Processing (ChinaSIP)*, Beijing, China, July 2013.
69. Siwei Lyu. Bayesian supervised learning with non-Gaussian latent variables. In *IEEE International Conference and China Forum on Signal and Information Processing (ChinaSIP)*, Beijing, China, July 2013.
70. Xunyu Pan, Xing Zhang, and Siwei Lyu. Detecting splicing in digital audios using local noise level estimation. In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Kyoto, Japan, 2012.
71. Xunyu Pan, Xing Zhang, and Siwei Lyu. Blind local noise estimation for medical images reconstructed from rapid acquisition. In *SPIE Symposium on Medical Imaging*, San Diego, CA, 2012.

72. Xunyu Pan, Xing Zhang, and Siwei Lyu. Exposing image forgery with blind noise estimation. In *ACM Workshop on Multimedia and Security (MM&Sec)*, Niagara Falls, NY, 2011.
73. Siwei Lyu. Estimating vignetting function from a single image for image authentication. In *ACM Workshop on Multimedia and Security (MM&Sec)*, Rome, Italy, 2010.
74. Siwei Lyu. Single image vignetting correction with natural image statistics in derivative domains. In *IEEE Conference on Image Processing (ICIP)*, Hongkong, September 2010.
75. Xunyu Pan and Siwei Lyu. Detecting image region duplication using SIFT features. In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Dallas, USA, 2010.
76. Siwei Lyu. Nonnegative matrix factorization with matrix exponentiation. In *IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, Dallas, USA, 2010.
77. Siwei Lyu and Eero P. Simoncelli. Statistically and perceptually motivated nonlinear image representation. In *IS&T/SPIE 19th Annual Symposium of Electronic Imaging*, San Jose, CA, 2007 (invited paper).
78. Siwei Lyu, Dan Rockmore, and Hany Farid. Wavelet analysis for art authentication. In *Art+Math=X*, Boulder, CO, 2005.
79. Micah Kimo Johnson, Siwei Lyu, and Hany Farid. Steganalysis of recorded speech. In *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2005.
80. Siwei Lyu and Hany Farid. Steganalysis using color wavelet statistics and one-class support vector machines. In *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2004. Google Scholar citations as of March 15, 2017: 179)
81. Hany Farid and Siwei Lyu. Higher-order wavelet statistics and their application to digital forensics. In *CVPR Workshop on Statistical Analysis in Computer Vision*, Madison, Wisconsin, 2003. (Google Scholar citations as of March 15, 2017: 188)

Book & Book Chapters

1. Siwei Lyu. Natural image statistics for digital image forensics. In H. T. Sencar and N. Memon, editors, *Digital Image Forensics: There is More to a Picture than Meets the Eye*. Springer, 2012.
2. Siwei Lyu. *Natural Image Statistics in Digital Image Forensics*. VDM Verlag, 2008.

Patents

1. Method and System for Separating Text and Drawings in Digital Ink. U.S. Patent 7298903 (B2), 2007
2. Method and System for Representing and Displaying Digital Ink. U.S. Patent 7450125 (B2), 2008, U.S. Patent 7057615 (B2), 2006, and E.U. Patent EP1271407, 2003
3. Computer Readable Medium for Expressing and Displaying Digital Ink and Computer System. Japan Patent JP2003141100, 2005

Professional Service

Professional Memberships	IEEE Senior Member (2016 –), Member (2005 – 2016), Student Member (2001 – 2005). ACM Member (2008 –)
Professional Service	Associate Editor, IEEE Transactions on Information Forensics and Security (2016-2019); Member of IEEE SPS Information Forensics and Security Technical Committee (2017-2019).
Conference Organizer	Area Chair, IEEE International Conference on Image Processing (2017); Organizing Committee, IEEE Conference on Advances in Video and Signal based Surveillance (2019). Challenge Co-Chair, IEEE Conference on Advances in Video and Signal based Surveillance (2017). Co-Chair, special session on <i>Digital Media Forensics</i> in the First IEEE ChinaSIP Conference (2013).
Journal Reviewer	IEEE Transactions on Pattern Analysis and Machine Intelligence; IEEE Transactions on Image Processing; IEEE Transactions on Signal Processing; IEEE Transactions on Information Forensics and Security; International Journal on Computer Vision; Journal of Machine Learning Research, Journal of Neural Computation.

Conference Reviewer	Many conferences in machine learning and computer vision, including ECCV, ACM SIGGRAPH, CVPR, ICCV, and NIPS.
Proposal Reviewer	Review panelist for the US National Science Foundation (2009, 2010, 2012, 2013, 2014, 2015); Proposal reviewer for The European Research Consortium for Informatics and Mathematics (2011).
Program Committee	Chinese Conference on Pattern Recognition (2016); IEEE Workshop on Computer Vision Methods in Blind Image Forensics (2011); Annual Symposium on Information Assurance (ASIA 2011); CVPR Workshop on Vision of Unseen (2009).
Expert Witness	Medical malpractice case in Cincinnati, OH (2013).

Invited Talks

- 2016 Michigan State University, Computer Science and Engineering Department; University of Electronic Science and Technology of China (UESTC), Tianjin Normal University; Tianjin University; Shenyang Institute of Automation, Chinese Academy of Sciences
- 2015 Michigan State University, Computer Science and Engineering Department; University of Electronic Science and Technology of China (UESTC)
- 2014 Kitware Co.; University of Chinese Academy of Sciences (UCAS); Nankai University Binhai College.
- 2013 Chinese Academy of Sciences, National Laboratory of Pattern Recognition; Peking University, College of Information and Computation; Yahoo! China Research Lab; Nankai University, Computer Science Department.
- 2012 Rochester Institute of Technology, Munsell Color Science Laboratory; Union College, Computer Science Department.
- 2011 Rensselaer Polytechnic Institute, Computer Science Department; Schenectady Photography Society; UC Berkeley, Redwood Center for Neural Sciences.
- 2009 IBM T.J. Watson Research Center; GE Global Research Center; New York University, Computer Science Department; Temple University, Computer Science Department; University of Pennsylvania, GRASP Lab.
- 2008 Rensselaer Polytechnic Institute, Electronic and Computer Engineering Department; Google Research Lab, New York.
- 2007 Brooklyn Polytechnic University, Computer Science Department; Columbia University, Computer Science Department; Massachusetts Institute of Technology, CSAIL; University at Albany, SUNY, Computer Science Department; Brown University, Computer Science Department; Siemens Corporate Research.
- 2005 New York University, Center for Neural Sciences; University of Pennsylvania, GRASP Lab; Massachusetts Institute of Technology, CSAIL.

Keynote Lectures and Tutorials

- 2015 University of Chinese Academy of Sciences, Beijing, China
- 2012 International Conference on Emerging Technology and Innovation, Toronto, Canada.
- 2009, 2010 NCAP Summer School on Learning in Biology and Engineering, Computer Science Department, University of Toronto, Toronto, Canada.
- 2009 International Conference on Computer Vision, Kyoto, Japan. Joint tutorial with Prof. Stefan Roth at Technische Universität Darmstadt.
- 2009 CVPR Workshop on Vision of Unseen, Anchorage, AK.

Media Coverage

- *Sleuth's Clues Lead To Frustration*, Times Union, May, 2014.
- *We're Smarter Than Buffalo and Rochester and Syracuse and ...*, Albany Business Review, March 2014.
- *Picture Imperfect, Digital Imaging: Insurers, Publishers, Law-Enforcement Agencies And Dating Sites Are Using Software That Can Detect The Digital Manipulation Of Photos*, The Economist Magazine (Technology Quarterly), March 2013.
- *Scientists Develop Method for Authenticating Digital Images by Analyzing "Noise"*, SUNY Albany News, June 2012.
- *Looking For Evidence Of Photoshop Trickery*, Law.com, June 2012.
- *Hot on the trail of photo fakers*, Times Union, May 2010.
- *UAlbany Computer Science Professor Receives Prestigious NSF Award to Develop New Tools to Detect Fake Digital Images*, SUNY Albany News, May 2012.
- *Software Detects the True Artist*, Wired News, November 2004.
- *Computer Analysis Is Bringing Science to Art*, Washington Post, November 2004.

Teaching

Undergraduate Courses

Course No.	Title	Semesters taught
CSI 431	Data Mining	Fall '08, '09, '10, '11
CSI 445	Topics in Digital Image Forensics	Spring '09, '10, '11, '12, '13
CSI 445	Topics in AI	Spring '10, Fall '10
CSI 103	Introduction to Data Analytics	Fall '12, '13

Graduate Courses

Course No.	Title	Semesters taught
CSI 531	Data Mining	Fall '08, '09, '10, '11
CSI 660	Topics in Digital Image Forensics	Spring '09, '10, '11, '12, '13, '14
CSI 660	Topics in AI	Spring '10,
CSI 635	AI (II) – Machine Learning	Fall '10, Spring '12, Spring '14

Notes

- CSI 103 is the new course I designed based on the Team-based Learning methodology that aims to provide a gentle introduction of basic statistical and computational tools used in data analytics to undergraduate students without Computer Science background.
- I redesigned the syllabus of CSI 431 to cover a wider range of topics in Data Mining include supervised and unsupervised learning, clustering and independent component analysis. I also include hand on project with MATLAB in this class.
- During Spring '11 and '12, I guest lectured at Profs. G. Berg and J. Goodall CSI 105 classes.

Advising

Post-doc Advisor

- Dr. Longyin Wen, Post-doc, 2015 – 2016
First job: Research Scientist, GE Global Research Center.

- Dr. Xing Mei, Post-doc, 2013 – 2015
First job: SnapChat Inc.

Primary Graduate Advisor

- Xunyu Pan, Ph.D. in Computer Science, SUNY Albany, 2011
Dissertation: *Local Statistical Features For Digital Image Forensics*
SUNY Albany **Distinguished Dissertation Award**, SUNY Albany, 2012
First job: Assistant Professor, Computer Science Department, Frostburg State University
- Xing Zhang, M.S. in Computer Science, SUNY Albany, 2012
First job: Novellus Inc.
- Jianting Wen, M.S. in Computer Science, SUNY Albany, 2012
First job: Facebook.
- Amanda Danko, Ph.D. in Computer Science, SUNY Albany, 2015
Dissertation: *Visual Saliency Estimation: A Cognitive Pre-Attentive and Context-Aware Approach*
SUNY Albany **Distinguished Dissertation Award**, 2015
First job: Research Scientist at USAA Research, San Antonio, TX.
- Xin Wang, Ph.D. in Computer Science, SUNY Albany graduated November, 2015
Dissertation: *Topic Analysis And Application Using Nonnegative Matrix Factorizations (NMF)*
First job: Research Scientist CuraCloud Inc., Seattle, WA
- Yueming Yang, Ph.D. in Computer Science, SUNY Albany, 2015
Dissertation: *Efficient Large-Scale Photometric Reconstruction*
First job: Research Assistant Professor, College of Mount Holyoke

Ph.D. Committee Member

- Zuoguan Wang, Ph.D. in Electrical, Computer and System Engineering, RPI, graduated 2012.
- Jan Kovsky, Ph.D. in Electrical and Computer Engineering, SUNY Binghamton, graduated 2012.
- Li Zhang, Ph.D. student in Computer Science, RPI, graduated 2013.
- Weiyi Sun, Ph.D. student in Informatics, SUNY Albany, graduated 2014.
- Vojtech Holub, Ph.D. in Electrical and Computer Engineering, SUNY Binghamton, graduated 2014.
- Shuai Li, Ph.D. student in Computer Science, RPI, graduated 2016.

Undergraduate Research Advisor

- Jeremy Birnbaum, Honor Student, Class of 2010, SUNY Albany
Now Ph.D. student in Computer Science at SUNY Albany
- Adam Polanski, Honor Student, Class of 2012, SUNY Albany

Service Contributions

Departmental and University Committees and Student Advising

- Chair of Faculty Research Committee for Computer and Electronic Engineering Department for College of Engineering and Applied Science of University at Albany, SUNY. As a result we have successfully recruited 8 faculty at different levels.
- Chair of the Departmental Analytical Exams for Ph.D. students specializing in Artificial Intelligence, Spring '14.
- "Evergreen" Teaching Faculty Search Committee for Informatics Department, Fall '13.

- Provost's team for Network Engineering Program, Fall '13.
This committee provides information and oversees the procedure of establishing an engineering program at the University.
- Curriculum Committee of College of Computing and Information, Fall '13 and '14.
This college level committee provides Dean advice on any proposals that come forth from the departments with a focus on the academic merits of the program or course changes.
- Faculty Search Committee, Fall '12, '13 and '14.
This departmental committee is responsible for reviewing the applications of candidates, preparing the list of candidates to be reviewed and recommending candidates for offers.
- Undergraduate Advisor, Fall '09 to present.
The primary responsibility include helping student selecting courses and checking transcripts to make sure that students have fulfilled all graduation requirements. In addition, I have advised a number of student regarding graduate studies and employment options. I have also advised a number of transfer students during Summer '10, '11 and '12.
- Colloquium Chair, Fall '11 to present.
The duties of Colloquium Chair include contacting speakers, scheduling colloquia and coordination travel arrangements in consultation with the Department Chair.
- Computer Oversight Committee, Fall '10 to present
This departmental committee is primarily responsible for planning, acquisition, maintenance, and upgrading of hardware and software for the department.
- Undergraduate Curriculum Committee, Fall '10 to present
This departmental committee is responsible for all matters pertaining to the undergraduate curriculum, with a focus on improving teaching and students engagement.

Other Departmental and University Service Activities

- In Fall '16, I served as the panelist for the University's Strategic Development and Planning Initiative, in charge of one of the *future papers* in the area of Engineering and Technology.
- In Summer '14, I served as the panelist to the University's ITLAL Early Faculty Career Workshop.
- In Fall '13, I served on the College's FRAP Committee. This committee is in charge of evaluating FRAP proposals from the college submitted to the university.
- In Fall '12, I represented the Computer Science Department for the "Explore Albany" event and giving incoming freshman students a symposium on "There is more than a picture to the eye: introduction to digital image forensics".
- In Spring '12, I assisted Professors S.S.Ravi and J. Hwang in the preparation of a SUNY 2020 proposal for a faculty line in the direction of Big Data Analytics. The proposal was funded by the university and as a result, one junior faculty was hired.
- In Fall '11, I wrote a SUNY 2020 proposal for a faculty line in the direction of Computer Vision.
- In June '10, I represented the College of Computing and Information and Computer Science Department during the visit of Beijing Jiaotong University of University at Albany.
- In December '09, I represented Computer Science Department to present at the CCI Editors' Breakfast with President George Philip.

- In Fall '09, together with Professors S.S. Ravi and J. Hwang, I represented the Computer Science Department for the New Student Orientation event and giving incoming freshman students a symposium on Image Forensics.
- In Fall '08, I represented the College of Computing and Information and Computer Science Department in place of Prof. G. Berg (then Department Chair) for the University Open House and giving incoming freshman students a symposium describing the basics of Computer Science.