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## EDUCATION

2001–2005            Ph.D. Computer Science, Dartmouth College.  
1997–2000           M.S. Computer Science, Peking University.  
1993–1997           B.S. Information Science, Peking University

## EXPERIENCE

2008–present        Assistant Professor, Computer Science Department, SUNY Albany  
2005–2008           Research Associate, Howard Hughes Medical Institute, and  
                          Center for Neural Science, Courant Institute of Mathematical Sciences  
                          New York University.  
2002–2005           Research Assistant, Department of Computer Science, Dartmouth College.  
2000–2001           Assistant Researcher, Microsoft Research Asia.  
1998–2000           Engineer, Founder Electronics Inc., Beijing, China.

## PUBLICATIONS

### *Peer-reviewed Journal Papers*

1. **S. Lyu** and E. P. Simoncelli. Modeling Wavelet Subbands of Photographic Images with Fields of Gaussian Scale Mixtures. *IEEE Transaction on Pattern Analysis and Machine Intelligence*, (in press)
2. **S. Lyu** and H. Farid. Steganalysis Using Higher-Order Image Statistics. *IEEE Transactions on Information Forensics and Security*, 1(1):111-119, 2006
3. **S. Lyu** and H. Farid. How Realistic is Photorealistic?. *IEEE Transactions on Signal Processing*, 53(2):845-850, 2005
4. **S. Lyu**, D. Rockmore, and H. Farid. A Digital Technique for Art Authentication. *Proceedings of National Academy of Science*, 101(49):17006-17010, 2004
5. **S. Lyu**, Y. Zou, and M. Li. Recognizing Handwritten Geometrical Shapes with SVMs. *Journal of Pattern Recognition* (in Chinese), 29(3):19-23, 2002
6. D. Yang, **S. Lyu**, and X. Wang. An Automatic System to Recognize and Authenticate Seal Images. *Journal of Minicomputer Systems* (in Chinese), 54(6):23-28, 1999

### *Peer-reviewed Conference Papers*

1. **S. Lyu** and E. P. Simoncelli. Nonlinear Image Representation Using Neighborhood Normalization, *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, Anchorage, AK, 2008. (Acceptance rate 24%)
2. **S. Lyu** and E. P. Simoncelli. Statistical Modeling of Images with Fields of Gaussian Scale Mixtures. *Advances in Neural Information Processing Systems (NIPS)*, Vancouver, Canada, 2006. (Acceptance rate 26%)
3. **S. Lyu**. Kernels for Unordered Sets: the Gaussian Mixture Approach *European Conference on Machine Learning (ECML)*, Porto, Portugal, 2005. (Acceptance rate 10%)
4. **S. Lyu**. Mercer Kernels for Object Recognition with Local Features *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, San Diego, CA, 2005. (Acceptance rate 26%)
5. **S. Lyu**. Infomax Boosting. *IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, San Diego, CA, 2005. (Acceptance rate 26%)
6. **S. Lyu**. Automatic Image Orientation Determination with Natural Image Statistics. *ACM Multimedia*, Singapore, 2005. (Acceptance rate 32%)
7. M. K. Johnson, **S. Lyu** and H. Farid. Steganalysis in Recorded Speech. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2005
8. **S. Lyu** and H. Farid. Steganalysis Using Color Wavelet Statistics and One-Class Support Vector Machines. *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2004
9. H. Farid and **S. Lyu**. Higher-Order Wavelet Statistics and their Application to Digital Forensics. *IEEE Workshop on Statistical Analysis in Computer Vision (in conjunction with CVPR)*, Madison, WI, 2003
10. **S. Lyu** and H. Farid. Detecting Hidden Messages Using Higher-Order Statistics and Support Vector Machines. *5th International Workshop on Information Hiding*, Noordwijkerhout, The Netherlands, 2002. (Acceptance rate 24%)

#### *Books and Book Chapters*

1. **S. Lyu**. Natural Image Statistics in Digital Image Forensics, VDM publishing, 2008
2. **S. Lyu**, Active Scripting Language, in *Software Architecture Design with COM* (in Chinese), Editor A. Pan, Mechanics Publishing House, China, 2003

#### *Non Peer-reviewed Articles*

1. **S. Lyu** and E. P. Simoncelli. Statistically and Perceptually Motivated Nonlinear Image Representation. (invited paper) *SPIE Symposium on Electronic Imaging*, San Jose, CA, 2007
2. D. Rockmore, **S. Lyu**, and H. Farid. A Digital Technique for Authentication in the Arts. *International Foundation for Art Research (IFAR) Journal*, 8(2):21-29, 2006
3. **S. Lyu**, D. Rockmore, and H. Farid. Wavelet Analysis for Art Authentication. *Art+Math = X Conference*, Boulder, CO, 2005

4. **S. Lyu.** Automatic Image Orientation Determination with Natural Image Statistics. TR2005-545, Department of Computer Science, Dartmouth College, 2005
5. **S. Lyu.** Mercer Kernels for Object Recognition with Local Features. TR2004-520, Department of Computer Science, Dartmouth College, 2004
6. **S. Lyu, D. Rockmore, and H. Farid.** Digital Art Forensics. TR2003-466, Department of Computer Science, Dartmouth College, 2003
7. **S. Lyu and A. Pan.** Introduction to Active Scripting Techniques Computer World Magazine (in Chinese), 2000
8. **S. Lyu and A. Pan.** Building ActiveX Components with Active Template Library. Computer World Magazine (in Chinese), 1999

#### *Theses*

1. **S. Lyu.** Natural Image Statistics and Their Application in Digital Forensics. Ph.D. Thesis, Department of Computer Science, Dartmouth College, 2005
2. **S. Lyu.** Component-based Software Architecture for Multimedia Authoring Systems. M.S. Thesis (in Chinese), Department of Computer Science and Technology, Peking University, 2000
3. **S. Lyu.** A Survey of Multimedia Authoring Systems. B.S. Thesis (in Chinese), Department of Information Science, Peking University, 1997

#### *Poster Presentations*

1. Optimal Image Denoising with Fields of Gaussian Scale Mixtures, *2nd Annual Machine Learning Symposium of New York Academy of Sciences*, New York, NY, 2007
2. Natural Image Statistics for Rebroadcast Detection, *Digital Identity Systems Workshop*, Brooklyn, NY, 2007
3. Statistical Modeling of Natural Images with Fields of Gaussian Scale Mixtures, *Gordon Research Conference on Sensory Coding and the Natural Environment*, Big Sky, MO, 2006
4. Art Forensics with Digital Techniques, *Graduate Appreciation Week Poster Presentation*, Best Poster Award, Dartmouth College, Hanover, NH, 2004

## **TALKS**

- Modeling Statistics of Photographic Images, Google Research Lab, New York, New York, April, 2008
- Modeling Statistics of Photographic Images, Computer Science Department, Brooklyn Polytechnic University, October, 2007
- Modeling Photographic Images with Fields of Gaussian Scale Mixtures, Computer Science Department, Columbia University, November, 2007

- Optimal Image Denoising with Fields of Gaussian Scale Mixtures, CSAIL, Massachusetts Institute of Technology, October, 2007
- Statistical Model and Non-linear Representation of Photographic Images, University of Toronto, August, 2007
- Modeling Statistics of Photographic Images, Computer Science Department, University at Albany, SUNY, April, 2007
- Statistical Model and Non-linear Representation of Photographic Images, Computer Science Department, Brown University, February, 2007
- Modeling Natural Image Statistics with Fields of Gaussian Scale Mixtures, Siemens Corporate Research, Princeton, New Jersey, February, 2007.
- Natural Image Statistics and Their Applications in Digital Forensics, Center for Neural Sciences, New York University, February, 2005
- Natural Image Statistics and Their Applications in Digital Forensics, GRASP Lab, University of Pennsylvania, February, 2005
- Natural Image Statistics and Their Applications in Digital Forensics, CSAIL, Massachusetts Institute of Technology, November, 2004
- Steganalysis with Color Image Wavelet Statistics and One Class Support, Vector Machines. SPIE EI Symposium, San Jose, CA, January, 2004
- Universal Steganalysis with Natural Image Statistics, Computer Science Department, Dartmouth College, October, 2003

**PATENTS** (Inventors are listed in alphabetic order)

- L. Chen, **S. Lyu**, J. Wang and Y. Zou. Method and System for Representing and Displaying Digital Ink. U.S. Patent US 7057615 (B2), 2006
- L. Chen, **S. Lyu**, J. Wang and Y. Zou. Method and System for Representing and Displaying Digital Ink. E.U. Patent EP1271407, 2003
- L. Chen, **S. Lyu**, J. Wang and Y. Zou. Computer Readable Medium for Expressing and displaying Digital Ink and Computer System. Japan Patent JP2003141100, application pending
- H. Ling, **S. Lyu**, J. Wang and Y. Zou. Method and System for Separating Text and Drawings in Digital Ink. U.S. Patent Application 20030007683, application pending

**AWARDS**

- Fellowship to CRA Academic Careers Workshop, Washington D.C., 2008
- Fellowship to CIAR Summer School on Learning in Computer Vision and Biology, Toronto, Canada, 2007

- NIPS travel grant, 2006
- IEEE CVPR Student travel grant, 2005
- Graduate Alumni Research Award, Dartmouth College, 2005
- Graduate Poster Award, Dartmouth College, 2004
- Dartmouth Graduate Fellowship, 2001–2005
- Kodak Fellowship, Peking University, 2000
- Samsung Scholarship, Peking University, 1999
- Graduate Excellency Award, Peking University, 1999, 2000

## TEACHING EXPERIENCE

- **Guest Instructor:** Statistical Methods for Computer Vision (CS 188), Dartmouth College, 2004
- **Guest Instructor:** Information Retrieval (CS 188), Dartmouth College, 2004
- **Teaching Assistant:** Introduction to Computer Science (CS 15), Dartmouth College, 2001-2002

## SERVICES

- Program Committee:
  - The First IEEE International Worktorial on Vision of the Unseen, in conjunction with CVPR, 2008
  - IEEE International Conference on Computer Vision, 2007
- Reviewer:
  - IEEE Transactions on Pattern Analysis and Machine Intelligence
  - IEEE Transactions on Image Processing
  - IEEE Transactions on Computer Graphics and Applications
  - Journal of Optical Society of America A
  - IEEE Transactions on Information Forensics and Security
  - IEEE Transactions on Circuits and Systems for Video Technology
  - IEEE Conference on Computer Vision and Pattern Recognition
  - International Workshop on Information Hiding
  - IEE Electronics Letters
  - IEEE Signal Processing Letters
  - Pattern Analysis and Applications

- Journal of Neurocomputing
- International Journal of Image and Video Processing
- Graduate Student Admission Committee, Computer Science Department, Dartmouth College, 2005, 2004.
- Student Member of IEEE (2001 - 2006) and ACM (2000-2001)