Curriculum Vitæ of Xiuwen Liu

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Ohio State University Columbus, Ohio	Computer and Information Science	Ph.D., December, 1999
Ohio State University Columbus, Ohio	Computer and Information Science	M.S., June, 1996
Ohio State University Columbus, Ohio	Geodetic Science and Surveying	M.S., March, 1995
Tsinghua University Beijing, China	Computer Science and Technology	B.E., July, 1989

Professional Experience

Assistant Professor	Dept. of Computer Science Florida State University, Tallahassee, Florida	August, 2000-Present
Research Scientist	Dept. of Computer and Information Science, Ohio State University, Columbus, Ohio	October, 1999-July, 2000
Adjunct Professor	Dept. of Computer Science Franklin University, Columbus, Ohio	August, 1999-July, 2000
Assistant Lecturer	Dept. of Computer Science and Technology Tsinghua University, Beijing, China	August, 1989-February, 1993

Publications

(i) Refereed Journal Publications

A. Srivastava and X. Liu, "Tools for Application-Driven Dimension Reduction," Neurocomputing, in press, 2005.

A. Srivastava, S. H. Joshi, W. Mio, and X. Liu, "Statistical shape analysis: Clustering, learning and testing," IEEE Transactions on Pattern Recognition and Machine Intelligence, vol. 27, no. 4, pp. 590-602, 2005.

C. Waring and X. Liu, "Face detection using spectral histograms and SVM," IEEE Transactions on Systems, Man and Cybernetics - Part B, vol. 35, no. 3, 2005.

X. Liu, A. Srivastava, and Kyle Gallivan, "Optimal linear representations of images for object recognition," IEEE Transactions on Pattern Recognition and Machine Intelligence, vol. 26, no. 5, pp. 662–666, 2004.

X. Liu, A. Srivastava, and D. L. Wang, "Intrinsic generalization analysis of low dimensional representations," *Neural Networks*, vol. 16, no. 5/6, pp. 537–545, 2003.

X. Liu and L. Cheng, "Independent spectral representations of images for recognition," *Journal of the Optical Society of America*, A, vol. 20, no. 7, pp. 1271–1282, 2003.

X. Liu and D. L. Wang, "Texture classification using spectral histograms," *IEEE Transactions on Image Processing*, vol. 12, no. 6, pp. 661–670, 2003.

A. Srivastava and X. Liu, "Statistical hypothesis pruning for face recognition from IR images," *Journal of Image and Vision Computing*, vol. 21, no. 7, pp. 651–660, 2003.

X. Liu and D. L. Wang, "A spectral histogram model for texton modeling and texture discrimination," *Vision Research*, vol. 42, no. 23, pp. 2617–2634, 2002.

S. C. Zhu and X. Liu, "Learning in Gibbsian fields: How accurate and how fast can it be?" *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 24, no. 7, pp. 1001–1006, 2002.

A. Srivastava, X. Liu, and U. Grenander, "Universal analytical forms for modeling image probabilities," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 24, no. 9, pp. 1200–1214, 2002.

D. L. Wang and X. Liu, "Scene analysis by integrating primitive segmentation and associative memory," *IEEE Transactions on Systems, Man, and Cybernetics*, vol. 32, no. 3, pp. 254–268, 2002.

X. Liu, K. Chen, and D. L. Wang, "Extraction of hydrographic regions from remote sensing images using an oscillator network with weight adaptation," *IEEE Transactions On GeoScience and Remote Sensing*, vol. 39, no. 1, pp. 207-211, 2001.

K. Chen, D. L. Wang, and X. Liu, "Weight adaptation and oscillatory correlation for image segmentation," *IEEE Transactions on Neural Networks*, vol. 11, no. 5, pp. 1106-1123, 2000.

Y. N. Wu, S. C. Zhu, and X. Liu, "Equivalence of Julesz and Gibbs ensembles and asymmetric distance of texture perception," *International Journal of Computer Vision*, vol. 38, no. 3, pp. 245-261, 2000.

X. Liu, D. L. Wang, and J. R. Ramirez. "Boundary detection by contextual nonlinear smoothing," *Pattern Recognition*, vol. 33, no. 2, pp. 263-280, 2000.

S. C. Zhu, X. Liu, and Y. N. Wu, "Exploring texture ensembles by efficient Markov chain Monte Carlo - Toward a 'trichromacy' theory of texture," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 22, no. 6, pp. 554-569, 2000.

X. Liu and D. L. Wang, "Range image segmentation using an oscillatory network," *IEEE Transactions on Neural Networks*, vol. 10, no. 3, pp. 564-573, 1999.

(ii) Refereed Conference Papers

W. Mio, Q. Zhang and X. Liu, "Nonlinearity and optimal component analysis," In *the Proceedings of the International Conference on Neural Networks*, 2005.

W. Mio, D. Badlyans, and X. Liu, "Non-parametric information geometry and multi-scale models of texture," In *the Proceedings of the European Signal Processing Conference*, 2005.

A. Srivastava, X. Liu, W. Mio, and E. Klassen, "Efficient computational approaches to planar shape theory," In *the Proceedings of Neural Information Processing Systems*, 2003.

X. Liu, A. Srivastava, and D. Sun, "Learning optimal representations for image retrieval applications," In *the Proceedings of the International Conference on Image and Video Retrieval*, 2003.

X. Liu, A. Srivastava, and K. Gallivan, "Optimal linear representations of images for object recognition," In *the Proceedings of the International Conference on Computer Vision and Pattern Recognition*, vol. I, pp. 229–234, 2003.

X. Liu, A. Srivastava, and D. L. Wang, "On intrinsic generalization of low dimensional representations of images for recognition," In *the Proceedings of the International Joint Conference on Neural Networks*, 2003.

X. Liu and A. Srivastava, "Integrated learning of linear representations," In *the Proceedings of the International Joint Conference on Neural Networks*, 2003.

C. Waring and X. Liu, "Spectral histogram based face detection," In *the Proceedings of the International Joint Conference on Neural Networks*, 2003.

L. Cheng and X. Liu, "Sparse linear representations for recognition," In *the Proceedings of the International Joint Conference on Neural Networks*, 2003.

Q. Zhang and X. Liu, "Hierarchical learning of optimal linear representations," In *the Proceedings of the International Joint Conference on Neural Networks*, 2003.

X. Liu and L. Cheng, "Independent filters for texture classification," In *the Proceedings of the International Conference on Image Processing*, vol. 3, pp. 113–116, 2002.

X. Liu and A. Srivastava, "Spaces and subspaces of images for recognition," In *the Proceedings of the International Conference on Image Processing*, vol. 3, pp. 313–316, 2002.

X. Liu and A. Srivastava, "A spectral representation for appearance-based classification and recognition," In *the Proceedings of the International Conference on Pattern Recognition*, vol. 1, pp. 37–40, 2002.

A. Srivastava, X. Liu, and U. Grenander, "Analytical image models and their applications," In *the Proceedings of the Seventh European Conference on Computer Vision*, vol. 1, pp. 37–51, 2002.

X. Liu and D. L. Wang, "Appearance-based recognition using perceptual components," In *the Proceedings of the International Joint Conference on Neural Networks*, vol. 3, pp. 1943-1948, 2001.

X. Liu and A. Srivastava, "3D object recognition using perceptual components," In *the Proceedings of the International Joint Conference on Neural Networks*, vol. 1, pp. 553-558, 2001.

X. Liu and D. L. Wang, "A spectral histogram model for textons and texture discrimination," In *the Proceedings of the International Joint Conference on Neural Networks*, vol. 2, pp. 1083-1088, 2001.

A. Srivastava, X. Liu, B. Thomasson, and C. Hesher, "Spectral probability models for IR face recognition," In *the Proceedings of the International Workshop on Computer Vision Beyond Visual Spectrum*, 2001.

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X. Liu, D. L. Wang, and A. Srivastava, "Image segmentation using local spectral histograms," In *the Proceedings of the International Conference on Image Processing*, 2001.

A. Srivastava, X. Liu, and U. Grenander, "Analytical models for reduced spectral representations of images," In *the Proceedings of the International Conference on Image Processing*, 2001.

S. C. Zhu and X. Liu, "Learning in Gibbsian fields: How accurate and how fast can it be?" In *the Proceedings of IEEE Conference on Computer Vision and Pattern Recognition*, 2000.

X. Liu and D. L. Wang, "Perceptual organization based on temporal dynamics," In *the Proceedings of Neural Information Processing Systems*, pp. 38–44, 1999.

Y. N. Wu, S. C. Zhu, and X. Liu, "The equivalence of Julesz ensemble and Gibbs ensemble," In *the Proceedings of International Conference on Computer Vision*, 1999.

X. Liu and D. L. Wang, "A boundary-pair representation for perception modeling," In *the Proceedings* of the International Joint Conference on Neural Networks, 1999.

X. Liu and D. L. Wang, "Modeling perceptual organization using temporal dynamics," In *the Proceedings of the International Joint Conference on Neural Networks*, 1999.

X. Liu, "A prototype system for extracting hydrographic regions from digital orthophoto quadrangle images," In *the Proceedings of GIS/LIS*, pp. 382-393, 1998.

X. Liu, D. L. Wang, and J. R. Ramirez, "Oriented statistical nonlinear smoothing filter," In *the Proceedings of the International Conference on Image Processing*, pp. 848-852, 1998.

X. Liu, D. L. Wang, and J. R. Ramirez, "A two-layer neural network for robust image segmentation and its application in revising hydrographic features," In *the International Archives of Photogrammetry and Remote Sensing*, vol. 32, pp. 464-472, 1998.

X. Liu and J. R. Ramirez, "Automatic extraction of hydrographic features in digital orthophoto images," In *the Proceedings of GIS/LIS*, pp. 365-373, 1997.

J. J. Loomis, X. Liu, Z. Ding, K. Fujimura, M. L. Evans, and H. Ishikawa, "Visualization of plant growth," In *the Proceedings of the IEEE Conference on Visualization*, pp. 475-478, 1997.

X. Liu and D. L. Wang, "Range image segmentation using an oscillatory network," In *the Proceedings* of the IEEE International Conference on Neural Networks, vol. 3, pp. 1656-1660, 1997.

(iii) Refereed Workshop Papers

X. Liu and A. Srivastava, "Applications of Stochastic Algorithms for Optimal Linear Representations", In *the Proceedings of ECCV Workshop on Statistical Learning in Computer Vision*, 2004.

Q. Zhang and X. Liu, "Kernel optimal component analysis," In the Proceedings of the IEEE Workshop on Learning in Computer Vision and Pattern Recognition, 2004.

Q. Zhang, X. Liu, and A. Srivastava, "Hierarchical learning of optimal linear representations," In *the Proceedings of the IEEE Workshop on Statistical Analysis in Computer Vision*, 2003.

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X. Liu and A. Srivastava, "Stochastic geometric search for optimal linear representations of images," In *the Proceedings of the International Workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition*, pp. 3–20, 2003.

(iv) Unrefereed Conference and Workshop Papers

X. Liu, "A computational framework for real-time scene interpretation," *the Proceeding of the Applied Imagery Pattern Recognition Workshop*, pp. 229–234, 2004.

G. Wall, F. Iqbal, J. Isaacs, X. Liu, and S. Foo, "Real-time texture classification using FPGA," *In the Proceeding of the Applied Imagery Pattern Recognition Workshop*, pp. 130–135, 2004.

X. Liu and Q. Zhang, "Spectral histogram representations for visual modeling," In *the Proceedings of Applied Imagery Pattern Recognition Workshop*, 2003.

Grants

PI, "Building the Florida State Vision Group," See grant, Florida State University, \$105,000, 2000-2004.

PI, "Visual hashing for efficient object recognition," First Year Assistant Professor Grant, Florida State University, \$10,000, 2001.

PI, "Computational models and algorithms for automated terrain and target recognition," National Imagery and Mapping Agency, \$287,522, 2001-2004.

PI, "Research on optimal representations of images for recognition," Florida State University Council on Research and Creativity (CRC), \$8,000, 2003.

PI, "Seeking optimal representations, classifiers, and generalizations for image based recognition," National Science Foundation, \$342,326.00, 2003-2005.

Co-PI, "Stochastic shape analysis for recognizing and tracking objects in images and videos," National Science Foundation, \$100,000, 2003-2004.

Co-PI, "A laboratory for real-time computer vision," Army Research Office, \$346,719, 2004-2005.

Co-PI, "Research on Statistical Shape Theory for Applications in Image Understanding," Army Research Office, \$322,684, 2004 - 2007.

Professional Activities

Committee Member, Joint International Conference on Neural Networks, 2003, International workshop on Energy Minimization Methods in Computer Vision and Pattern Recognition, 2005, and IEEE Workshop on Learning in Computer Vision and Pattern Recognition, 2004.

Co-Chair, IEEE Workshop on Learning in Computer Vision and Pattern Recognition, 2005.

Member, Institute of Electrical and Electronics Engineers (IEEE).

Member, IEEE Neural Network Society, IEEE Computer Society, IEEE Geoscience and Remote Society, and IEEE Signal Processing Society. Session chair, Annual Conference of GIS/LIS, 1998.

Reviewer, Surveying and Land Information Systems, IEEE Transactions on Neural Networks, Photogrammetric Engineering & Remote Sensing, Neural Computing, IEEE Transactions on Signal Processing, IEEE Transactions on Pattern Recognition and Machine Intelligence, International Journal of Computer Vision, Cognitive Systems Research, Journal of the Optical Society of America, Journal of Intelligent Systems, and Journal of Electronic Imaging.

Honors and Awards

Young Investigator Award, IEEE Neural Network Society, 2004.

Marr Prize Nomination, International Conference on Computer Vision, 1999.

Outstanding Research Award, Department of Computer and Information Science, The Ohio State University, 1999.

Travel Fellowship Award, Annual Conference on Neural Information Processing Systems, 1999.

Travel Fellowship and Best Presentation Awards, International Joint Conference on Neural Networks, 1999.

Presidential Fellowship, The Ohio State University, 1998 - 1999.

Travel Fellowship Award, International Joint Conference on Neural Networks, 1998.

Royalties Payments, Sedona GeoServices, Inc., 1996 - 1997.

University Fellowship, The Ohio State University, Columbus, Ohio, 1993-1994.

Member, the National Honor Society of Phi Kappa Phi.