

# Xuelei Hu

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Education	2006	The Chinese University of Hong Kong	Hong Kong
	Doctor of Philosophy, Computer Science and Engineering		
	<ul style="list-style-type: none"> <li>Thesis title: investigation on Bayesian Ying-Yang learning for model selection in unsupervised learning.</li> </ul>		
	2001	Nanjing University of Science and Technology	Nanjing
	Master, Pattern Recognition and Intelligence System (Summa Cum Laude)		
	<ul style="list-style-type: none"> <li>Thesis title: Computer assisted puncture based on stereo vision techniques.</li> </ul>		
	1999	Nanjing University of Science and Technology	Nanjing
	Bachelor, Computer Software (Summa Cum Laude)		
	<ul style="list-style-type: none"> <li>Thesis title: X-ray image real time processing used for the computer aided puncture based on two X-ray devices.</li> </ul>		
Research Experience	2006.4 - present	School of Computer Science and Technology, Nanjing University of Science and Technology	Nanjing
	Associate Professor		
	<ul style="list-style-type: none"> <li>Leading several research projects on machine learning and related applications, e.g. robot perception, network security, and business intelligence.</li> <li>Developing novel and efficient machine learning methods for real world applications.</li> </ul>		
	2009.2 – 2010.2	Robotics Institute, Carnegie Mellon University	Pittsburgh USA
	Visiting Postdoctoral Fellow (Advisor: Prof. Fernando De la Torre)		
	<ul style="list-style-type: none"> <li>Researched in the areas of computer vision, component analysis, machine learning and intelligent robots.</li> <li>Investigated on image correspondence, subspace methods, and active learning methods.</li> </ul>		
	2005.9 – 2006.3	School of Computer Science and Technology, Nanjing University of Science and Technology	Nanjing
	Assistant Professor		
	<ul style="list-style-type: none"> <li>Participated in several research projects on machine learning, data mining, computer vision, and autonomous vehicle.</li> <li>Investigated on model selection and regularization methods, particularly learning sparse representations for classification, regression, and density estimation.</li> </ul>		
	2001.9 – 2005.9	Department of Computer Science and Engineering, The Chinese University of Hong Kong	Hong Kong
	Doctoral Research (Advisor: Prof. Lei Xu)		
	<ul style="list-style-type: none"> <li>Analyzed model selection methods in unsupervised learning such as principal component analysis (PCA), factor analysis, clustering, and density estimation.</li> <li>Developed data smoothing regularization method for small sample size problem.</li> </ul>		

	1999.9 – 2001.7	School of Computer Science and Technology, Nanjing University of Science and Technology	Nanjing
	Master's Research (Advisor: Prof. Jingyu Yang)		
	<ul style="list-style-type: none"> <li>▪ Participated in "Computer Assisted Puncture" project (Key Project in the National Science &amp; Technology Pillar Program).</li> <li>▪ Applied computer vision technology to the computer assisted puncture and designed a demonstration system of computer assisted lung puncture.</li> </ul>		
Research Grants	Principal Investigator		
	<ul style="list-style-type: none"> <li>▪ "Active Learning and It's Applications", Science and Technology Activities Grant for Returned Scholars, Ministry of Human Resources of China, Jan. 2011 - Dec. 2013.</li> <li>▪ "Active Learning for Mobile Robotic Perception", National Natural Science Foundation of China (NSFC), No. 60705020, Jan. 2008 - Dec. 2010.</li> <li>▪ "Active Learning for Robotic Perception", Natural Science Foundation of Jiangsu Province, No. BK2007594, July. 2007 - Dec. 2009.</li> <li>▪ "Network Intrusion Detection based on Machine Learning Techniques", "The Six Top Talents" of Jiangsu Province Grant, No. 07-E-015, Jan. 2008 - Dec. 2010.</li> <li>▪ "Automatic Dimension Reduction Methods", Scientific Research Foundation of Nanjing University of Science and Technology Grant, Jan. 2007 - Dec. 2008.</li> <li>▪ "Investigation on Model Selection Methods in Machine Learning", Scientific Research Foundation for Returned Scholars of Nanjing University of Science and Technology, Jan. 2005 - Dec. 2007.</li> </ul>		
	Co-Principal Investigator		
	<ul style="list-style-type: none"> <li>▪ "Research on Correlation Projection Analysis for Feature Extraction", National Natural Science Foundation of China (NSFC), No. 60773172, Jan. 2008 - Dec. 2010.</li> <li>▪ "Research on Heritage of Knowledge and Experience of Famous Herbalist Doctors", Key Projects in the National Science &amp; Technology Pillar Program in the Eleventh Five-year Plan Period, Jan. 2006 – Dec. 2010.</li> </ul>		
Publications	Please see List of Publications on page 4.		
Reviews	Journals		
	<ul style="list-style-type: none"> <li>▪ IEEE Transactions on Pattern Analysis and Machine Intelligence</li> <li>▪ IEEE Transaction on Neural Networks,</li> <li>▪ Journal of Machine Learning Research,</li> <li>▪ Neurocomputing</li> </ul>		
	Conferences		
	<ul style="list-style-type: none"> <li>▪ CVPR, ICONIP, ISNN, ICMLC, ICNSC, ACCV.</li> </ul>		
	Grants		
	<ul style="list-style-type: none"> <li>▪ National Natural Science Foundation of China</li> </ul>		
Conference Program Committees	<ul style="list-style-type: none"> <li>▪ International Symposium on Neural Networks 2007</li> <li>▪ International Conference on Machine Learning and Cybernetics 2007</li> <li>▪ International Conference on Machine Learning and Cybernetics 2008</li> <li>▪ IEEE International Conference on Networking, Sensing and Control 2008</li> </ul>		

Teaching Experience	2006 - present	Nanjing University of Science and Technology	Nanjing
	Associate Professor		
	<ul style="list-style-type: none"> <li>▪ Supervising master students and undergraduate final year projects.</li> <li>▪ Teaching postgraduate courses in Machine Learning, Artificial Intelligence, Seminar on Machine Learning Theory and Applications, and undergraduate course in Data Structure.</li> </ul>		
	2001 - 2004	The Chinese University of Hong Kong	Hong Kong
	Teaching Assistant		
	<ul style="list-style-type: none"> <li>▪ Assisted with courses in Introduction to Theoretical Computer Science, Numerical Computation, Design and Analysis of Algorithms, Computer Organization, Digital Logic &amp; Systems, Computer System Architecture, Computer Design.</li> </ul>		
Awards and Honors	<ul style="list-style-type: none"> <li>▪ Outstanding Research Award, Nanjing University of Science and Technology, 2007.</li> <li>▪ Postgraduate Studentship, the Chinese University of Hong Kong, 2001 - 2004.</li> <li>▪ Excellent Graduate Student, Nanjing University of Science and Technology, 2001.</li> <li>▪ Outstanding Graduate Prize, China North Industries Group Corporation, 1999.</li> <li>▪ Top Class Scholarship, Nanjing University of Science and Technology, 1995 – 1999 (only awarded to 1% outstanding students).</li> </ul>		
Program Skills	Matlab, C/C++.		
Language	English, Chinese.		

## List of Publications

(As of Nov 2011)

### Journal Papers

- Guang Han, Chunxia Zhao, and Xuelei Hu, "A nonlinear active learning based on AUC optimization and its application to obstacle detection", *Jiqiren/ Robot*, vol. 32, no. 3, pp. 344-351, 2010.
- Xiaofeng Yang, Mingming Sun, Xuelei Hu, Jingyu Yang, "DFA-based Algorithm for Detecting Web Attacks", *Jisuanji Gongcheng/ Computer Engineering*, vol. 36, no. 13, pp. 149-150, 2010.
- Xiaofeng Yang, Mingming Sun, Xuelei Hu, Jingyu Yang, "Improved HMM model based method for detecting cyber attacks ", *Tongxin Xuebao/ Journal on Communications*, vol. 31, no. 3, pp. 95-101, 2010.
- Guang Han, Chunxia Zhao, and Xuelei Hu, "An SVM active learning algorithm and its application in obstacle detection", *Jisuanji Yanjiu yu Fazhan/ Computer Research and Development*, vol. 46, no. 11, pp. 1934-1941, 2009.
- Yujia An, Xuelei Hu, and Lei Xu, "A Comparative Investigation on Model Selection in Non-Gaussian Factor Analysis", *Journal of Mathematical Modeling and Algorithms*, vol. 5, pp. 447-473, 2006.
- Xuelei Hu, Lei Xu, "A Comparative Investigation on Subspace Dimension Determination", *Neural Networks*, vol. 17/8-9, pp. 1051-1059, 2004.
- Xuelei Hu, Lei Xu, "Investigation on Several Model Selection Criteria for Determining the Number of Cluster", *Neural Information Processing - Letters & Reviews*, vol. 4, no. 1, pp. 1-10, 2004.

### Book Chapter

- Yujia An, Xuelei Hu, and Lei Xu, "A Comparative Investigation on Model Selection in Binary Factor Analysis", in *Foundations of Data Mining and Knowledge Discovery*, Editors: T.Y. Lin, S. Ohsuga, C.J. Liao, X. Hu and S. Tsumoto, pp. 145-160, Springer, 2005.

### Conference Papers

- Xuelei Hu, Yuanjian Wang, "Active Learning with Boosting for Image based Obstacle Detection", International Workshop on Image Analysis (IWIA 2010), Nimes, France, August 24-27, 2010.
- Xiaofeng Yang, Wei Li, Mingming Sun, Xuelei Hu, Shuqin Li, Yongzhi Li, "Clustering toward detecting cyber attacks", 2010 International Conference on Computer Application and System Modeling (ICCSM 2010), pp. V12243-V12247, Shanxi, Taiyuan, China, October 22 - 24, 2010.
- Xiaofeng Yang, Mingming Sun, Xuelei Hu, Jingyu Yang, "Grammar-based Anomaly Methods for HTTP Attacks", Chinese Conference on Pattern Recognition/1st CJK Joint Workshop on Pattern Recognition (CCPR 2009), pp. 756-760, Nanjing, China, Nov. 4-6, 2009.
- Tingkai Sun, Songcan Chen, Jingyu Yang, Xuelei Hu, Pengfei Shi, "Discriminative canonical correlation analysis with missing samples", 2009 WRI World Congress on Computer Science and Information Engineering (CSIE 2009), pp. 95-99, Los Angeles, USA, March 31 - April 2, 2009.
- Xuelei Hu, Jingyu Yang, "Investigation on Sparse Kernel Density Estimator Via Harmony Data Smoothing Learning", In the Proceedings of the 4th International Symposium on Neural Networks (ISNN2007), LNCS 4491, pp. 1211-1220, Nanjing, China, June 3-7, 2007.
- Xuelei Hu, Lei Xu, "A Comparative Study on Selection of Cluster Number and Local Subspace Dimension in the Mixture PCA Models", In the Proceedings of the Third International Symposium on Neural Networks (ISNN2006), LNCS 3971, pp. 1214-1221, Chengdu, China, May 28-June 1, 2006.
- Xuelei Hu, Lei Xu, "Automatic Cluster Number Determination via BYY Harmony Learning", In the Proceedings of the First International Symposium on Neural Networks (ISNN 2004), LNCS 3173, pp. 828-833, Dalian, China, Aug. 19-21, 2004.
- Xuelei Hu, Lei Xu, "A Comparative Study of Several Cluster Number Selection Criteria", In the Proceedings of the Fourth International Conference on Intelligent Data Engineering and Automated Learning (IDEAL 2003), LNCS 2690, pp. 195-202, Hong Kong, March 21-23, 2003.
- Jianfeng Lu, Xuelei Hu, Jingyu Yang, "Design of corner detection used for calibration of X-ray device", In the Proceedings of SPIE v 4197 2000, pp. 119-123, Boston, USA, Nov. 5-8, 2000.