

Curriculum Vitae Jun Zhou

N234, CS&IT Bulding
Research School of Computer Science
The Australian National University
Canberra, ACT 0200, Australia

Office: +61 2 61258171
Mobile: +61 4 02697704
jun.zhou@anu.edu.au
<http://users.rsise.anu.edu.au/~junzhou>

Education

- 11/2006 Ph.D. in Computing Science
University of Alberta, Edmonton, Canada
- 04/2002 M.S. in Computer Science
Concordia University, Montreal, Canada
- 07/1998 B.E. in International Business
Nanjing University of Science & Technology, Nanjing, P.R. China
- 07/1996 B.S. in Computer Science
Nanjing University of Science & Technology, Nanjing, P.R. China
-

Working Experience

- 08/2011 ~ now Research Fellow
Research School of Computer Science (RSCS), the Australian National University (ANU), Canberra, Australia
Work on model/data fusion for ocean biogeochemistry modelling on high performance computing platform. Research also includes computer vision, image processing, pattern recognition and their parallel computing implementation.
- 09/2011 ~ now Visiting Scientist
CSIRO Mathematics, Informatics and Statistics, Canberra, Australia
- 08/2007 ~ 04/2012 Researcher/Visitor
Canberra Laboratory, NICTA, Canberra, Australia
Work with the computer vision group.
- Develop visual information processing algorithms and computational methods for feature detection, object representation, recognition and classification on large scale databases. These include development of efficient methods on data fusion for environment modelling.
 - Study human-assisted image interpretation mechanism. Model human perception process and study its relation with spatial features in the image. Model human inputs and develop online learning algorithms for interactive image interpretation.
 - Develop framework for multi-camera information fusion and pattern recognition across a wide area coverage setting. Explore applications to spectral imaging, remote sensing, object recognition, and surveillance.

08/2007 ~ 05/2011 Adjunct Lecturer/Research Fellow
 College of Engineering and Computer Science (CECS), the Australian National University, Canberra, Australia
 Teach and supervise students at PhD, Master's and undergraduate levels.

07/2009 ~ 06/2011 Conjoint Lecturer
 School of Engineering & Information Technology, UNSW@ADFA, Canberra, Australia
 Supervise PhD student.

10/2006 ~ 08/2007 Consultant/Research Scientist
 Intetech Consulting Inc., Edmonton, Canada
 Worked on a rail road feature detection project from EBA Engineering Consultants Ltd.. Developed algorithms for image processing, feature extraction, object recognition, as well as on-line and off-line machine learning algorithms for object recognition.

09/2002 ~ 10/2006 Research Assistant
 Department of Computing Science, University of Alberta, Edmonton, Canada
 Developed a human-computer interaction framework for remote sensing image interpretation and map revision. This framework includes human-computer interface, linear feature extraction algorithm, object tracking algorithms based on Hidden Markov Model and Bayesian filtering, as well as online machine learning algorithms with the human guidance. The developed framework enables computers to learn from human experiences.

09/1999 ~ 08/2002 Research Assistant
 Centre for Pattern Recognition and Machine Intelligence, Montreal, Concordia University
 Developed a bank cheque legal amount segmentation algorithm, which is based on learning from feedbacks from neural network and Hidden Markov Model classifiers.

Teaching

10/2011 Lectures on Introduction to Computer Vision, NJUST

1st Semester, 2008 Computer Vision and Image Understanding: Theories and Research (ENGN8530)
 CECS, ANU

2st Semester, 2008 Project course: Artificial Intelligence (COMP8740)
 Project course: Human Centred Computing (COMP8780)
 CECS, ANU

01/2003 ~ 04/2006 Teaching Assistant for the following courses:
 Object-oriented Programming, Numerical Analysis
 Department of Computing Science, University of Alberta

01/2000 ~ 04/2002 Teaching Assistant for the following courses:
 Java Programming, Operating Systems, Computer Graphics
 Department of Computer Science, Concordia University

Student Supervision

Quang Nguyen	Graduated with PhD degree in 2010. Co-supervisor
Pattaraporn Khuwuthyakorn	4th year PhD, ANU. Primary supervisor
Cong Phuoc Huynh	4th year PhD, ANU. Co-supervisor
Mahmudul Hasan	3rd year PhD, UNSW@ADFA. Co-supervisor
Lin Gu	2nd year PhD, ANU. Primary supervisor
Haifeng Zhao	Visiting student from NJUST China since 09/2008 for 2 years. Co-supervisor
Shouheng Li	Honour student, ANU
He Chen	Honour student, ANU
Xuefei Chen	Honour student, ANU
Anqi Mao	Honour Student, ANU

External Funding, Awards and Scholarships

2012 ~ 2015	Discovery Early Career Researcher Award Project title: “Interactive Computer Vision for Image Interpretation” \$375,000 for three years
01/2010 ~ 06/2011	Principle investigator. Project title: “Graph-based Representations of Remotely Sensed Data for Geoindexing Applications” International Science Linkages (ISL) funding awarded by the Department of Innovation Industry, Sciences and Research, Australian Government. Value: \$85,000. Other project member: Dr. Antonio Robles-Kelly.
2005~2006	Province of Alberta Graduate Fellowship, University of Alberta, Canada
2002~2004	NSERC Postgraduate Scholarship B, NSERC, Canada
2002~2004	iCORE Graduate Student Scholarships, iCORE, Canada
2002~2004	Walter H. Johns Graduate Fellowship, University of Alberta, Canada
2002~2003	Faculty of Science Graduate Scholarship, University of Alberta, Canada
2000~2001	High Tuition Fee Remission Scholarship, Concordia University, Canada
2000	Partial Graduate Tuition Scholarship, Concordia University, Canada
1998	University Committee Award, Nanjing University of Science and Technology, China

Publications

Book Chapter

[1] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly, **Jun Zhou**. “Affine invariant hyperspectral image descriptors based upon harmonic analysis”. in *Machine Vision Beyond the Visible Spectrum*, Edited by Riad Hammoud, Guoliang Fan, Robert McMillan, and Katsushi Ikeuchi, to be published by Springer, 2011.

Refereed Journals

- [1] Yuntao Qian, Sen Jia, **Jun Zhou** and Antonio Robles-Kelly. "Hyperspectral unmixing Via $L_{1/2}$ sparsity-constrained nonnegative matrix factorization". *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 49, No. 11, pages 4282-4297, 2011.
- [2] Haifeng Zhao, Antonio Robles-Kelly, **Jun Zhou**, Jianfeng Lu, and Jing-Yu Yang. "Graph attribute embedding via Riemannian submersion learning". *Computer Vision and Image Understanding*, Vol. 115, No. 7, pages 962-975, 2011.
- [3] **Jun Zhou**, Zhouyu Fu, Antonio Robles-Kelly. "A Structured Learning Approach to Image Descriptor Combination". *IET Computer Vision*, Vol. 5, No. 2, pages 134-142, 2011.
- [4] Zhouyu Fu, Antonio Robles-Kelly, **Jun Zhou**. "MILIS: multiple instance learning with instance selection". *IEEE Transactions on Pattern Analysis and Machine Intelligence*, Vol. 33, No. 5, pages 958-977, 2011.
- [5] Zhouyu Fu, Antonio Robles-Kelly, **Jun Zhou**. "Mixing linear SVMs for nonlinear classification". *IEEE Transactions on Neural Networks*, Vol. 21, No. 12, pages 1963-1975, 2010.
- [6] **Jun Zhou**, Li Cheng, and Walter F. Bischof. "Spatial-temporal modeling of interactive image interpretation". *Spatial Vision*, Vol. 22, No. 5, pages 455-472, 2009.
- [7] **Jun Zhou**, Li Cheng, and Walter F. Bischof. "Online learning and novelty detection in human-guided road tracking". *IEEE Transactions on Geoscience and Remote Sensing*, Vol. 45, No. 12, pages 3967-3977, 2007.
- [8] **Jun Zhou**, Walter F. Bischof, and Terry Caelli. "Road tracking in aerial images based on human-computer interaction and Bayesian filtering". *ISPRS Journal of Photogrammetry and Remote Sensing*, Vol. 61, No. 2, pages 108-124, 2006.

Refereed Conferences

- [1] Zhichun Fu, **Jun Zhou**, Peter Christen, and Mac Boots. "Multiple instance learning for group record linkage". *Accepted by the 16th Pacific-Asia Conference on Knowledge Discovery and Data Mining*, Kuala Lumpur, Malaysia, 2012.
- [2] Haifeng Zhao, Antonio Robles-Kelly, and **Jun Zhou**. "On the use of the Chi-squared distance for the structured learning of graph embeddings". *Accepted by Digital Image Computing: Techniques and Applications (DICTA'11)*, Noosa, Australia, 2011.
- [3] Lin Gu, Cong Huyhn, Antonio Robles-Kelly, and **Jun Zhou**. "Material-specific user colour profiles from imaging spectroscopy data". *Accepted by the 13th International Conference on Computer Vision (ICCV'11)*, Barcelona, Spain, 2011.
- [4] Yuntao Qian, **Jun Zhou**, Minchao Ye, Qi Wang. "Structured sparse model based feature selection and classification for Hyperspectral imagery". *Accepted by the IEEE International Geoscience & Remote Sensing Symposium (IGRSS'11)*, Sendai, Japan, 2011.
- [5] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly, **Jun Zhou**. "Object of Interest Detection by Saliency Learning". *Proceedings of the 11th European Conference on Computer Vision (ECCV'10)*, pages 636-649, Crete, Greece, 2010.
- [6] Yuntao Qian, Sen Jia, **Jun Zhou**, and Antonio Robles-Kelly. " $L_{1/2}$ sparsity constrained nonnegative matrix factorization for hyperspectral unmixing". *Proceedings of Digital Image Computing: Techniques and Applications (DICTA'10)*, pages 447-453, Sydney, Australia, 2010.
- [7] Mahmudul Hasan, Antonio Robles-Kelly, **Jun Zhou**, Xiuping Jia, and Mark R. Pickering. "Registration of hyperspectral and trichromatic images via cross cumulative residual entropy maximisation". *Proceedings of the 2010 International Conference on Image Processing (ICIP'10)*, pages 2329-2332, Hongkong, 2010.

- [8] **Jun Zhou** and Antonio Robles-Kelly. “Image inpainting based on local optimisation”. *Proceedings of the 20th International Conference on Pattern Recognition (ICPR'10)*, pages 4440-4443, Istanbul, Turke, 2010.
- [9] Haifeng Zhao, **Jun Zhou** and Antonio Robles-Kelly. “A structured learning approach to attributed graph embedding”. *Proceedings of the 13th International Workshop on Structural and Syntactic Pattern Recognition (SSPR'10)*, pages 70-79, Cesme, Izmir, Turkey, 2010.
- [10] Mahmudul Hasan, Xiuping Jia, Antonio Robles-Kelly, **Jun Zhou**, and Mark R. Pickering. “Multi-spectral remote sensing image registration via spatial relationship analysis on SIFT keypoints”. *Proceedings of the IEEE International Geoscience & Remote Sensing Symposium (IGRSS'10)*, pages 1011-1014, 2010.
- [11] **Jun Zhou**, Zhouyu Fu, and Antonio Robles-kelly. “Learning the optimal transformation of salient features for image classification”. *Proceedings of the Digital Image Computing: Techniques and Applications (DICTA'09)*, pages 125-131, 2009.
- [12] Haifeng Zhao, **Jun Zhou**, Antonio Robles-Kelly, Jianfeng Lu, Jing-Yu Yang, “Automatic detection of defective zebrafish embryos via shape analysis”. *Proceedings of the Digital Image Computing: Techniques and Applications*, pages 431-438, 2009.
- [13] Quang Nguyen, Antonio Robles-Kelly, and **Jun Zhou**, “A graph embedding approach to feature combination for object tracking”. *Proceedings of The Ninth Asian Conference on Computer Vision (ACCV'09)*, pages 224-235, 2009.
- [14] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly and **Jun Zhou**, “An affine invariant hyperspectral texture descriptor based upon heavy-tailed distributions and fourier analysis”. *Proceedings of the IEEE Workshop on Object Classification and Tracking Beyond the Visible Spectrum (OCTBVS'09)*, pages 112-119, 2009. (**Best Paper Award**)
- [15] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly and **Jun Zhou**. “Texture descriptors via stable distributions”. *Proceedings of the Digital Image Computing: Techniques and Applications (DICTA'08)*, pages 214-219, Canberra, Australia, December 1-3, 2008.
- [16] Jyun-Hao Huang, Ali Zia, **Jun Zhou**, and Antonio Robles-Kelly. “Content-based image retrieval via subspace-projected salient features”. *Proceedings of the Digital Image Computing: Techniques and Applications (DICTA'08)*, pages 593-399, Canberra, Australia, December 1-3, 2008.
- [17] **Jun Zhou** and Antonio Robles-Kelly. “A quasi-random sampling approach to image retrieval”. *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR'08)*, pages 1-8, Anchorage, AK, June 23-28, 2008.
- [18] **Jun Zhou**, Li Cheng, and Walter F. Bischof. “Prediction and change detection in sequential data for interactive applications”. *Proceedings of The 23rd AAAI Conference on Artificial Intelligence (AAAI'08)*, pages 805-810, Chicago, IL, July 13-17, 2008.
- [19] **Jun Zhou**, Li Cheng, Terry Caelli, and Walter F. Bischof. “Influence of human inputs on semi-automatic image interpretation”. *Proceedings of The 12th International Conference on Human-Computer Interaction (HCI'07)*, Beijing, China, 2007.
- [20] **Jun Zhou**, Walter F. Bischof, and Arturo Sanchez-Azofeifa. “Extracting lines in noisy image using directional information”. *Proceedings of the 18th International Conference on Pattern Recognition (ICPR'06)*, pages 215-218, Hong Kong, China, August 21-24, 2006.
- [21] **Jun Zhou**, Li Cheng, and Walter F. Bischof. “A novel learning approach for semiautomatic road tracking”. *Proceedings of the 4th International Workshop on Pattern Recognition in Remote Sensing (PRRS'06)*, pages 61-64, Hong Kong, China, August 20, 2006.

[22] **Jun Zhou**, Walter F. Bischof, and Terry Caelli. “Robust and efficient road tracking in aerial images”. *Proceedings of the Joint Workshop of ISPRS and DAGM on Object Extraction for 3D City Models, Road Databases and Traffic Monitoring - Concepts, Algorithms and Evaluation (CMRT'05)*, pages 35-40, Vienna, Austria, August 29-30, 2005.

[23] **Jun Zhou**, Walter F. Bischof, and Terry Caelli. “Human-computer interaction in map revision systems”. *Proceedings of the 11th International Conference on Human-Computer Interaction (HCI'05)*, Volume 3, Las Vegas, Nevada, July 22-27 2005.

[24] **Jun Zhou**, Walter F. Bischof, and Terry Caelli. “Understanding human-computer interactions in map revision”. *Proceedings of the 10th International Workshop on Structural and Syntactic Pattern Recognition (SSPR'04)*, pages 287-295, Lisbon, Portugal, August 18- 20, 2004.

[25] **Jun Zhou**, Ching Y. Suen, and Ke Liu. “A feedback-based approach for segmenting handwritten legal amounts on bank cheques”. *Proceedings of the 6th International Conference on Document Analysis and Recognition (ICDAR'01)*, pages 887-891, Seattle, Washington, 2001.

Non-refereed Publications

[1] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly and **Jun Zhou**. “A learning method for emergency plant pest detection on hyperspectral image”, *Science Exchange of the CRC for Plant Biosecurity*, 2011.

[2] Pattaraporn Khuwuthyakorn, Antonio Robles-Kelly and **Jun Zhou**. “Hyperspectral imagery for plant pest recognition”. *Global Biosecurity: Safeguarding Agriculture and the Environment*, Brisbane, Australia 2010.

[3] **Jun Zhou**, Walter F. Bischof, and Li Cheng. “Knowledge transfer in learning aerial image analysis”. *Intergraph On-line Research Library*, 2006.

[4] **Jun Zhou**, Terry Caelli, and Buang Norazwin. “Updating maps through computer vision-assisted human-computer interactions”. *NICTA/RSISE Vision Workshop*, poster, Canberra, Australia, August 25 2005.

Professional Activities

Professional Services

Patronage Chair, IEEE International Conference on Multimedia and Expo, 2011 (ICME 2011)

Program committee member, Asian Conference on Computer Vision, 2010 (ACCV 2010)

Computer Society Chapter Chair, IEEE ACT Section (12/2009~12/2010)

Local Arrangements Chair, Digital Image Computing: Techniques and Applications (DICTA 2008)

Memberships

Institute of Electrical and Electronic Engineers (IEEE)

IEEE Computer Society

Association for Computing Machinery (ACM)

Association for the Advancement of Artificial Intelligence (AAAI)

Reviewers

IEEE Transactions on Pattern Analysis and Machine Intelligence

IEEE Transactions on Geoscience and Remote Sensing

IEEE Transactions on Circuits and Systems for Video Technology
IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing
Pattern Recognition
Pattern Recognition Letter
IET Computer Vision
Pattern Analysis and Applications Journal
Photogrammetric Engineering and Remote Sensing
Journal of Real-Time Image Processing
International Journal of Geographical Information Science
Information Sciences
IEEE International Geoscience & Remote Sensing Symposium
Digital Image Computing: Techniques and Applications
Asian Conference on Computer Vision

Research Visits

University of Western Australia, Sydney, Australia, 2011
CSIRO, Hobart, Australia, 2011
CSIRO, Sydney, Australia, 2011
Zhejiang University, Hangzhou, China, 2009, 2010, 2011
Nanjing University of Science and Technology, Nanjing, China, 2009, 2010, 2011
Ordnance Survey, Southampton, UK, 2005.
NICTA Canberra Lab, Australia, 2005
Mid-Continent Mapping Centre, United States Geological Survey, Rolla, USA, 2003.