Xinhua Zhang

Personal Particulars	Date of Birth:	August 15, 1981	Gender: Male
	Marital Status:	Single	Nationality: Chinese

Contact Information

Computer Sciences Laboratory
Building 115, RSISE, CECS
Australian National University
Canberra ACT 0200 Australia

Tel: +61-2-61251760 (office), +61-402556837 (mobile)
Fax: +61-2-62307499
E-mail: xinhua.zhang@anu.edu.au
WWW: http://www.rsise.anu.edu.au/~xzhang

Research Interests

statistical machine learning, data mining and pattern recognition. Specialization in graphical models, kernel methods, semi-supervised learning, exponential families, reinforcement learning, Gaussian processes, and Bregman divergence.
Applications: image processing, font and calligraphy learning using image analogy, traffic control, named entity recognition, text categorization, and sensor networks.

Education

Australian National University (ANU), Canberra, Australia

    Ph.D. Candidate, Computer Science   **March 2006 ∼ present**

- Advisors: S V N Vishwanathan, Alex Smola, Nic Schraudolph

National University of Singapore (NUS), Singapore

    MSc, Computer Science, **CAP**: 4.83/5.0 (5 A+ out of 6 courses)   **Jan 2004 ∼ Jan 2006**

- Thesis: *Hyperparameter Learning for Graph Based Semi-supervised Learning Algorithms*
- Advisor: Wee Sun Lee

Shanghai Jiao Tong University (SJTU), Shanghai, China

    BE, Computer Science, **GPA**: 3.85/4.0   **September 1999 ∼ July 2003**

- Exchange student (with full scholarship) for Final Year Project
  at Nanyang Technological University, Singapore   January 2003 ∼ June 2003
- Gifted Class of Computer Science   July 2001 ∼ January 2003
- Teaching Reform Class (SJTU honour class)   September 1999 ∼ July 2001

Publications

[1] Li Cheng, S V N Vishwanathan, *Xinhua Zhang*, 2008. "*Consistent Image Analogies using Semi-supervised Learning*",
IEEE Conference on Computer Vision and Pattern Recognition (CVPR 2008).

[2] *Xinhua Zhang*, Douglas Aberdeen, S V N Vishwanathan, 2007. "*Conditional Random Fields for Multi-agent Reinforcement Learning*",
International Conference on Machine Learning (ICML 2007).
ICML 2007 Best Student Paper Award Winner
A 2-page abstract was accepted by the Learning Workshop (snowbird 2007).

[3] *Xinhua Zhang* and Wee Sun Lee, 2006. "*Hyperparameter Learning for Graph Based Semi-supervised Learning Algorithms*",
Neural Information Processing Systems (NIPS 2006).

[4] *Zhang, Xinhua* and Loh K K, Peter, "*A Fault-tolerant Routing Strategy for Fibonacci-class Cubes*", Accepted by the 10th Asia-Pacific Computer Systems Architecture Conference, Oct. 2005. Also in the Springer-Verlag "Lecture Notes in Computer Science" series.

[5] Loh K K, Peter and *Zhang, Xinhua*, "*A Fault-tolerant Routing Strategy for Gaussian Cube Using Gaussian Tree*", Proc. 2003 International Conference on Parallel Processing Workshops, Kaosiung, China. Oct. 2003.

[6] Xiang Yan, *Xinhua Zhang*, and Liang Huang, "*A Light Intensity Model with Connected Set Algorithm*", Journal of Engineering Mathematics, Vol. 20, No. 5, 2003. (in Chinese)

[7] Wee Sun Lee, *Xinhua Zhang*, and Yee Whye Teh, "*Semi-Supervised Learning in Reproducing Kernel Hilbert Spaces Using Local Invariances*", NUS Technical Report TRB3/06.

[8] *Zhang, Xinhua* and Lee, Wee Sun, "*Semi-supervised Learning using Kernel Self-consistent Labelling*", *Submitted* to International Conference on Machine Learning (ICML 2005).

[9] *Zhang, Xinhua*, "*Building Maximum Entropy Text Classifiers Using Semi-supervised Learning*", Graduate Research Paper (NUS), 2004.

CONFERENCE PRESENTATIONS AND ATTENDANCE	ICML 2007 in Corvallis, Oregon, USA to present [2]
	NIPS 2006 in Vancouver, Canada to present [3]
	Volunteer for International Conference on Algorithmic Learning Theory (ALT 2005) and Discovery Science (DS 2005) in Singapore.

TEACHING ASSISTANT

Australian National University, Canberra, Australia

- COMP3620/6320 Artificial Intelligence — Semester 1, AY 2007
- COMP8650 Advanced Topics in Statistical Machine Learning — Semester 2, AY 2007

Shanghai Jiao Tong University, Shanghai, China

Information System Management — June 2002 ∼ September 2002

OTHER RESEARCH PROJECTS BESIDES ABOVE MENTIONED

Singapore-MIT Alliance (SMA), Singapore

Semi-supervised learning under SMA Computer Science program. — June 2005 ∼ March 2006

Nanyang Technological University, Singapore

Undergraduate Final Year Project — January 2003 ∼ June 2003
Developed and published new fault-tolerant routing strategies for two existing categories of interconnection networks, and a new interconnection network topology.

Shanghai Jiao Tong University, Shanghai, China

Undergraduate Research Opportunity Program (PEP/PRP) — September 2002 ∼ January 2003
A CAD environment compatible with DWG format. Task: Interpreted the framework and I/O module of the source code of *IntelliCAD*, with detailed flow charts; co-designed and co-implemented a new I/O module compatible with the un-released DWG file format of AutoCAD.

PEER REVIEW

IEEE Transactions on Pattern Recognition and Machine Intelligence (TPAMI)	2007
European Conference on Machine Learning (ECML)	2006
International Conference on Parallel Processing (ICPP)	2005

SCHOLARSHIPS AND TRAVEL GRANTS

- **Microsoft Fellowship** — 2007
- Travel grants for attending ICML 2007 (from ICML and Pascal network), and volunteering 2007
- Travel grants for attending NIPS 2006 (from Pascal network), and volunteering — 2006
- ANU-NICTA Tuition Scholarship, ANU-RSISE Stipend Scholarship, ANU-NICTA Supplementary Scholarship and IP Assignment Scholarship. — 2006 ∼ 2010
- Full research scholarship for Master candidates by National University of Singapore, covering both tuition and stipend. — January 2004 ∼ April 2005
- Full scholarship by Nanyang Technological University (Singapore) for exchange student program conducting Final Year Project, covering both tuition and stipend. — January 2003 ∼ June 2003
- Yuan Fang Special Scholarship awarded by SJTU (for top student in department) — Oct. 2002

- Pan Wenyuan Special Scholarship, awarded by SJTU (for top student in honor class) Oct. 2001
- First Prize of Excellent Academic Scholarship awarded by SJTU (for top student in class)
  2001, 2002
- First Prize of Excellent Freshman Scholarship awarded by SJTU (top student in university-wide honor class entrance exam) September 1999

PRIZES AND AWARDS

- Best Student Paper Award for International Conference on Machine Learning 2007   June 2007
- First Prize in Chinese Undergraduate Mathematical Contest for Modelling, awarded by Chinese Ministry of Education September 2002
- First Prize in Chinese Undergraduate English Contest, awarded by Chinese Ministry of Education September 2001
- Honor of University-wide *Exceptional* Student (in both rounds of selection), awarded by SJTU (for top 1% of the university) December 2000 and October 2002

ENGLISH PROFICIENCY

- IELTS: Listening: 8.0, Reading: 8.0, Writing: 8, Speaking: 8, Overall: 8.0   October 22, 2005
- TOEFL (Computer-based Test): 277, TWE (Test of Written English): 6.0   June 27, 2005
- TSE (Test of Spoken English): 55   January 18, 2003
- GRE General: 2360. Verbal: 790, Quantitative: 800, Analysis: 770   August 9, 2002

COMPUTER SKILLS

- High-level computer languages: C/C++, Java, R, Matlab, skilled in mixing C/C++ and Matlab
- Script languages: Bash Shell, Perl, Python, HTML
- Software development: Visual C++, JBuilder, UML, Rational Rose
- Database: DB2 UDB certified System Administrator, SQL
- OS and parallel platform: UNIX/LINUX/Solaris particularly on computing clusters with MPI, MPICH, Cygwin, Windows 95/98/ME/NT/2000/XP, DOS
- Numerical and machine learning packages: PETSc, TAO, macopt, LOQO, Octave, Mallet, SVM-light, libSVM, SGTlight, Weka, CRF, BNT by K. Murphy, C5.0, HTK
- Misc: LaTeX, Microsoft Office, Intel 80X86 assembly language, Xilinx, SPLUS, SAS, Mathematica
- Algorithms: Experienced programming of most standard graphical model algorithms, loopy belief propagation, Markov Chain Monte Carlo simulations, especially tree sampling; reinforcement learning with policy gradient; graph Laplacian based algorithms, miscellaneous feature engineering of natural language processing and image processing.

REFERENCES

S V N Vishwanathan: http://users.rsise.anu.edu.au/~vishy
Alex Smola: http://users.rsise.anu.edu.au/~smola
Douglas Aberdeen: doug.aberdeen@gmail.com