CURRICULUM VITÆ

ADDRESS

Le Song

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EDUCATION

2003 – 2008	*Ph.D. in Computer Science* University of Sydney and National ICT Australia, Australia Thesis Advisor: Alex Smola Thesis Committee: Bob Williamson, Carlos Guestrin and Lawrence Saul
	M.Sc. in Computer Science University of Sydney, Australia Thesis Advisor: Masahiro Takatsuka and Peter Eades
1998 – 2002	*B.S. in Computer Science* South China University of Technology, China

AWARDS

2010 – 2015	NIH 1R01GM093156 (Ad hoc Co-PI): Time/Space-Varying Networks of Molecular Interactions: A New Paradigm for Studying Dynamic Biological Regulation and Pathways, $2,237,288.
2008 – 2011	Lane Fellowship from Carnegie Mellon University
2010	**Best Paper** at International Conference on Machine Learning
2007 & 2009	Travel Fellowship from International Society for Computational Biology
2004 – 2008	National ICT Australia Graduate Scholarship
2005 & 2007	Travel Fellowship from Neural Information Processing Systems
2007	Travel Fellowship from International Conference on Machine Learning
2004	First Student Prize in IEEE information visualization contest
2001	Meritorious in Internatinoal Mathematical Contest in Modeling
2001	First Prize in National Mathematical Contest in Modeling
2000 – 2002	Undergraduate Scholarship at South China University of Technology

POSITIONS HELD

2011 – Present	*Research Scientist*, Google Research Manager: Fernando Pereira Working on large scale learning package for internet data
2008 – 2011	*Postdoc Research Fellow*, School of Computer Science, Carnegie Mellon University Advisors: Eric Xing, Carlos Guestrin, Geoff Gordon, and Jeff Schneider Developing nonparametric probablistic graphical models, modeling and analyzing complex social and biological data
2008	*Visiting Researcher*, Statistical Machine Learning, National ICT Australia, Australia Supervior: Alex Smola

Analyzing sensor time series recorded from Australian national sports team, segmenting time series and detecting change points

2005 – 2008 *Machine Learning Consultant* (Part-Time), Brain Resource Company, Australia
Supervisor: Evian Gordon
Analyzing electroencephalogram (EEG) time series, and developing EEG source localization and visualization toolkit

2004 *Research Programmer* (Part-Time), School of Physics, University of Sydney, Australia
Supervisor: Dixon Kwok
Developing parallel simulator for plasma physics problems

TEACHING

2008 – Present *Graduate Student Co-supervision* (with Eric Xing at CMU)

1. Fall 2008 – Spring 2009, Wenjie Fu (now at Facebook)
2. Fall 2008 – present, Mladen Kolar
3. Fall 2009 – present, Qirong Ho

Spring 2010 *Guest Lecturer* (with Bob Murphy at CMU) for Computational Genomics
This course focuses on modern machine learning methodologies for computational problems in molecular biology and genetics.

Fall 2009 *Guest Lecturer* (with Eric Xing at CMU) for Probabilistic Graphical Models
This is an advanced machine learning course covering probabilistic graphical models for efficient inference, decision-making and learning.

Spring 2004 *Teaching Assistant* for Object-Oriented Analysis and Design at University of Sydney

JOURNAL PUBLICATIONS

1. E. Xing, W. Fu, and L. Song (2010). A state-space mixed membership blockmodel for dynamic network tomography. *Annals of Applied Statistics*, 4(2), pp. 535–566.
2. M. Kolar, L. Song, A. Ahmed, and E. Xing (2010). Estimating time-varying networks. *Annals of Applied Statistics*, 4(1), pp. 94–123.
3. N. Quadrianto, A. Smola, L. Song and T. Tuytelaars (2010). Kernelized sorting. *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 32(10), pp. 1809–1821.
4. L. Song, M. Kolar, E. Xing. (2009). KELLER: estimating time-varying interactions between genes. *Bioinformatics (ISMB)*, 25(12), pp. i128–i136.
5. L. Williams, J. Gatt, S. Kuan, C. Dobson-Stone, D. Palmer, R. Paul, L. Song, P. Costa, P. Schofield and E. Gordon (2009). A polymorphism of the maoa gene is associated with emotional brain markers and personality traits on an antisocial index. *Nature Neuropsychopharmacology*, vol 34, pp. 1797–1809.
6. L. Song, A. Smola, A. Getton, J. Bedo and K. Borgwardt. (2008). Feature selection via dependence maximization. *Journal of Machine Learning Researches*.
7. L. Song, J. Bedo, K. Borgwardt, A. Getton and A. Smola. (2007). Gene selection via the BAHSIC family of algorithms. *Bioinformatics (ISMB)* 23(13), i490–i498.
8. L. Williams, D. Palmer, B. Liddell, L. Song and E. Gordon. (2006). The 'when' and 'where' of perceiving signals of threat versus non-threat. *NeuroImage*, vol 31, pp. 458–467.
9. S.Q. Liu, and L. Song. (2005). Curvature relation of wave front and wave changing in external field. *Applied Mathematics and Mechanics*, 26(7), pp. 929–937.
10. S.Q. Liu, and L. Song. (2004). Numerical analysis of Lobster stomatogastric nervous system. *Acta Biophysica Sinica*, 20(3), pp. 217–224.

ALL PUBLICATIONS

⋆ *Kernel Methods and Nonparametric Graphical Models*

1. A. Parikh, L. Song and E. Xing (2011). A spectral algorithm for latent tree graphical models. *28th International Conference on Machine Learning (ICML 2011)*.
2. L. Song, A. Gretton, D. Bickson, Y. Low and C. Guestrin (2011). Kernel belief propagation. *Artifical Intelligence and Statistics (AISTATS 2011)*.
3. L. Song, B. Boots, S. Siddiqi, G. Gordon and A. Smola (2010). Hilbert space embedding of hidden Markov model. *27th Internal Conference on Machine Learning (ICML 2010)* (**Best Paper**).
4. L. Song, A. Gretton and C. Guestrin (2010). Nonparametric tree graphical models. *Artificial Intelligence and Statistics (AISTATS 2010)*.
5. T. Huang, L. Song and J. Schneider (2010). Learning nonlinear dynamic models from non-sequenced Data. *Artificial Intelligence and Statistics (AISTATS 2010)*.
6. N. Quadrianto, A. Smola, L. Song and T. Tuytelaars (2010). Kernelized sorting. *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 32(10), pp. 1809–1821.
7. L. Song, J. Huang, A. Smola and K. Fukumizu (2009). Hilbert space embedding of conditional distribution with applications to dynamical systems. *26th International Conference on Machine Learning* (*ICML* 2009).
8. X. Zhang, L. Song, A. Gretton and A. Smola. (2008). Kernel measures of independence for non-iid data. *Advances in Neural Information Processing Systems 21* (*NIPS* 2008).
9. N. Quadrianto, L. Song and A. Smola. (2008). Kernelized sorting. *Advances in Neural Information Processing Systems 21* (*NIPS* 2008).
10. L. Song, X. Zhang, A. Smola, A. Gretton and B. Schölkopf. Tailoring density estimation via reproducing kernel moment matching. (2008). *25th International Conference on Machine Learning* (*ICML* 2008).
11. L. Song, A. Smola, A. Getton, J. Bedo and K. Borgwardt. (2008). Feature selection via dependence maximization. *Journal of Machine Learning Researches*.
12. L. Song, A. Smola, K. Borgwardt and A. Getton. (2007). Colored maximum variance unfolding. *Advances in Neural Information Processing Systems 20* (*NIPS* 2007).
13. A. Gretton, K. Fukumizu, C.H. Teo, L. Song, B. Schölkopf and A. Smola. (2007). A kernel statistical test of independence. *Advances in Neural Information Processing Systems 20* (*NIPS* 2007).
14. A. Smola, A. Gretton, L. Song and B. Schölkopf. (2007). A Hilbert space embedding for distributions. *18th International Conference on Algorithmic Learning Theory* (Invited paper at *ALT* 2007).
15. L. Song, A. Smola, Arthur Gretton, K. Borgwardt and J. Bedo. (2007). Supervised feature selection via dependence estimation. *24th International Conference on Machine Learning* (*ICML* 2007).
16. L. Song, A. Smola, Arthur Gretton and K. Borgwardt. (2007). A dependence maximization view of clustering. *24th International Conference on Machine Learning* (*ICML* 2007).

⋆ *Learning and Analysis of Time-Varying Networks*

1. Q. Ho, L. Song and E. Xing (2011). Evolving cluster mixed-membership blockmodel for time-varying networks. *Artifical Intelligence and Statistics (AISTATS 2011)*.
2. Q. Ho, A. Parikh, L. Song and E. Xing (2011). Multiscale community blockmodel for network exploration. *Artifical Intelligence and Statistics (AISTATS 2011)*.

3. E. Xing, W. Fu, and L. Song (2010). A state-space mixed membership blockmodel for dynamic network tomography. *Annals of Applied Statistics*, 4(2), pp. 535–566.
4. M. Kolar, L. Song, A. Ahmed, and E. Xing (2010). Estimating time-varying networks. *Annals of Applied Statistics*, 4(1), pp. 94–123.
5. L. Song, M. Kolar and E. Xing (2009). Time-varying dynamic Bayesian networks. *Advances in Neural Information Processing Systems 22* (*NIPS* 2009).
6. M. Kolar, L. Song and E. Xing (2009). Sparsistent learning of varying-coefficient models with structural changes. *Advances in Neural Information Processing Systems 22* (*NIPS* 2009).
7. W. Fu, L. Song and E. Xing (2009). Dynamic mixed membership blockmodel for evolving networks. *26th International Conference on Machine Learning* (*ICML* 2009).

⋆ *Computational Biology and Computational Neuroscience*

1. R. Curtis, A. Yuen, L. Song, A. Goyal and E. Xing (2011). TVNViewer: An interactive visualization tool for exploring networks that change over time or space. *Bioinformatics*, 27(13), pp.1880-1.
2. L. Song, M. Kolar, E. Xing. (2009). KELLER: estimating time-varying interactions between genes. *Bioinformatics (ISMB)*, 25(12), pp. i128–i136.
3. L. Williams, J. Gatt, S. Kuan, C. Dobson-Stone, D. Palmer, R. Paul, L. Song, P. Costa, P. Schofield and E. Gordon (2009). A polymorphism of the maoa gene is associated with emotional brain markers and personality traits on an antisocial index. *Nature Neuropsychopharmacology*, vol 34, pp. 1797–1809.
4. L. Song, J. Bedo, K. Borgwardt, A. Getton and A. Smola. (2007). Gene selection via the BAHSIC family of algorithms. *Bioinformatics (ISMB)* 23(13), i490–i498.
5. L. Williams, D. Palmer, B. Liddell, L. Song and E. Gordon. (2006). The 'when' and 'where' of perceiving signals of threat versus non-threat. *NeuroImage*, vol 31, pp. 458–467.
6. L. Song, and J. Epps. (2006). Classifying EEG for brain-computer interfaces: learning optimal filters for dynamical system features. *23rd International Conference on Machine Learning* (*ICML* 2006).
7. L. Song, and J. Epps. (2006). Improving the separability of EEG signals during motor imagery with an efficient circular Laplacian. *31st IEEE International Conference on Acoustics, Speech, and Signal Processing* (*ICASSP* 2006).
8. L. Song, E. Gordon, and E. Gysels. (2005). Phase synchrony rate for the recognition of motor imagery in brain-computer interface. *Advances in Neural Information Processing Systems 18* (*NIPS* 2005).
9. L. Song. (2005). Desynchronization network analysis for the recognition of imagined movement. *27th IEEE International Conference of the Engineering in Medicine and Biology Society* (*EMBC* 2005).

⋆ *Information Visualization for Large and Complex Networks*

1. W. Huang, C. Murray, X. Shen, L. Song, Y.X. Wu, and L. Zheng. (2005). Visualization and analysis of network motifs. *9th International Conference on Information Visualization* (*IV* 2005).
2. A. Ahmed, T. Dywer, S.H. Hong, C. Murray, L. Song, and Y.X. Wu. (2005). Visualization and analysis of large and complex scale-free networks. *7th IEEE VGTC Symposium on Visualization* (*EUROGRAPHICS* 2005).
3. L. Zheng, L. Song and P. Eades. (2005). Crossing minimization problems of drawing bipartite graphs in two clusters. *4th Asian-Pacific Symposium on Information Visualization* (*APVIS* 2005).

4. A. Ahmed, T. Dywer, S.H. Hong, C. Murray, L. Song, and Y.X. Wu. (2004). Wilmascope graph visualization. *10th IEEE Symposium on Information Visualization* (*IEEE INFOVIS* 2004).

5. L. Song, and M. Takatsuka. (2005). Real-time 3D finger pointing for an augmented desk. *6th Australasian User Interface Conference* (*AUIC* 2005).

⋆ *Numerical Simulation of Nonlinear Dynamical Systems*

1. S.Q. Liu, and L. Song. (2005). Curvature relation of wave front and wave changing in external field. *Applied Mathematics and Mechanics*, 26(7), pp. 929–937.

2. S.Q. Liu, and L. Song. (2004). Numerical analysis of Lobster stomatogastric nervous system. *Acta Biophysica Sinica*, 20(3), pp. 217–224.

⋆ *Others*

1. A. Smola, L. Song and C. Teo. (2009). Relative novelty detection. *Artificial Intelligence and Statistics* (*AISTATS* 2009).

2. M. Thoma, H. Cheng, A. Gretton, J. Han, H. Kriegel, A. Smola, L. Song, P. Yu, X. Yan and K. Borgwardt. (2009). Near-optimal supervised feature selection among frequent subgraphs. *SIAM International Conference on Data Mining* (*SDM* 2009).

PROFESSIONAL SERVICE

⋆ *Workshop Organizer*

NIPS 2009 Workshop on Transfer Learning for Structured Data

⋆ *Journal Reviewer*

IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI), IEEE Transactions on Neural Networks (TNN), IEEE Transactions on Knowledge and Data Engineering (TKDE), Transactions on Computational Biology and Bioinformatics (TCBB), Journal of Machine Learning Researches (JMLR), Machine Learning, Pattern Recognition, Bioinformatics

⋆ *Conference Program Committee*

International Conference in Machine Learning (ICML), Neural Information Processing Systems (NIPS), Uncertainty in Artificial Intelligence (UAI), ACM Conference on Knowledge Discovery and Data Mining (KDD), Research on Computational Biology (RECOMB), International Conference on Intelligent Systems for Molecular Biology (ISMB)

REFERENCE

Alex Smola	Principal Researcher, Yahoo! Email: alex@smola.org, Webpage: `http://alex.smola.org`
Eric Xing	Associate Professor, Carnegie Mellon University Email: epxing@cs.cmu.edu, Webpage: `http://www.cs.cmu.edu.edu/~epxing`
Carlos Guestrin	Associate Professor, Carnegie Mellon University Email: guestrin@cs.cmu.edu, Webpage: `http://www.cs.cmu.edu.edu/~guestrin`
Tony Jebara	Associate Professor, Columbia University Email: jebara@cs.columbia.edu, Webpage: `http://http://www.cs.columbia.edu/~jebara`

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