Le Song

Statistical Machine Learning Program
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EDUCATION

- **National ICT Australia** and **University of Sydney**, Australia
  Ph.D. in Computer Science, expected graduation: End of 2007.
- **University of Sydney**, Australia
  M.S. in Information Technology, graduation: January 2004.
- **South China University of Technology**, Guangzhou, China.
  B.S. in Computer Science, graduation: August 2002.
- **Recent Awards**
  1. NIPS travel fellowship (2007).
  2. ISMB travel fellowship (2007).
  3. ICML travel fellowship (2007).
  4. Scholarship of the National ICT Australia (March 2004 – present).
  5. Scholarship of the South China University of Technology (2000 – 2002).

RESEARCH INTERESTS

Statistical machine learning, kernel methods and information visualization. Applications to biological and social data analysis.

PUBLICATION

- Machine learning and analysis of biological data.
  1. A. Smola, B. Schölkopf, L. Song and A. Getton. Density estimation by kernel moment matching. (submitted to NIPS workshop on Representations and Inference on Probability Distributions).
  2. S. Kuan, J. Gatt, C. Dobson-Stone, D. Palmer, R. Paul, L. Song, E. Gordon, P. Schofield and L. Williams. A polymorphism of the MAOA gene is associated with emotional brain and behaviour markers of antisocial and psychopathic personality traits. (submitted to the Journal of Neuroscience)
  3. L. Song, A. Smola, K. Borgwardt and A. Getton. (2007). Colored maximum variance unfolding. *Advances in Neural Information Processing Systems 20* (*NIPS* 2007). (Full Oral Presentation).
  4. 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). (Poster Spotlight).
  5. L. Song, A. Smola, A. Getton, J. Bedo and K. Borgwardt. (2007). Feature selection via dependence maximization. *Journal of Machine Learning Researches*. (submitted)
  6. 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 for *ALT* 2007).
  7. L. Song, J. Bedo, K. Borgwardt, A. Getton and A. Smola. (2007). Gene selection via the BAHSIC family of algorithms. *15th Annual International Conference on Intelligent Systems for Molecular Biology* (*ISMB* 2007).

8. 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).
9. L. Song, A. Smola, Arthur Gretton and K. Borgwardt. (2007). A dependence maximization view of clustering. *24th International Conference on Machine Learning* (*ICML* 2007).
10. 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.
11. 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).
12. 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).
13. 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).
14. 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 and human-computer interaction

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* (*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.

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

Talks

1. Learning via dependence. Department of Computer Science, National University of Singapore, 2007.
2. Learning via dependence. Bioinformatics group, University of Boku, Vienna, 2007.
3. Gene selection via the BAHSIC family of algorithms. *ISMB* 2007.
4. Supervised feature selection via dependence estimation. *ICML* 2007.

5. A dependence maximization view of clustering. *ICML* 2007.
6. Learning via mean and covariance. School of Information Technology, University of Sydney, 2006.
7. Classifying EEG for brain-computer interfaces: learning optimal filters for dynamical system features. *ICML* 2006.
8. Crossing minimization problems of drawing bipartite graphs in two clusters. *APVIS* 2005.
9. Real-time 3D finger pointing for an augmented desk. *AUIC* 2005.

Skills

◇ *Programming Languages*: Matlab, C, C++, Python and Java.

◇ *Operating Systems*: MS-Windows, Linux.

◇ *Word Processor*: LaTeX, MS-Word, MS-Powerpoint.

◇ *Natural Languages*: Mandarin, Cantonese, English.

Other experience

◇ **Reviewer**

1. IEEE Transactions on Pattern Analysis and Machine Intelligence.
2. Journal of Machine Learning Researches.
3. EURASIP Journal on Applied Signal Processing.
4. Computational Intelligence and Neuroscience.
5. European Conference on Machine Learning (2006).

◇ **Volunteer**

1. International Conference on Machine Learning (2007).
2. Machine Learning Summer School in Canberra (2006).

◇ **Research Assistant**

1. Dr. Evian Gordon, Brain Resource Company and Brain Dynamics Center, University of Sydney (January 2005 – Dec 2005).
   Duty: Developing EEG source localization software.
2. Dr. Dixon Kwok, School of Physics, University of Sydney (March 2004 – July 2004)
   Duty: Parallel programming for computer simulations of plasma physics.
3. Dr. Shenquan Liu, Department of Applied Mathematics, South China University of Technology (January 2002 – January 2003)
   Duty: Computer simulations of nonlinear dynamics in biological systems.

◇ **Teaching Assistant**

1. School of Information Technologies, University of Sydney (March 2004 – July 2004)
   Course: Object-Oriented Analysis and Design.
   Duty: assist with tutorials, marking assignments and exams.

References

Prof. Alex Smola
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