# Shengbo Guo, BSc, MSc, PhD Candidate


**Contact Information**

Locked Bag 8001
Canberra
ACT
2601
Australia

*Tel:* +61 2 6267 6295
*Fax:* +61 2 6267 6220
*Mobile:*+61 4 3181 0978
Shengbo.Guo@anu.edu.au
`http://users.rsise.anu.edu.au/~sguo/`


**Research Interests**

Machine learning, decision making, graphical models, approximate inference, information retrieval, Gaussian processes, data mining, signal processing, pattern recognition, and information theory.

**Research Objective**

My research objective is to develop new models and machine learning algorithms for diverse applications.

So far, I have focused on addressing three problems for making optimal recommendations as below:

- **Bayesian Preference Elicitation**: recommendation quality for different users depends on the users' unknown utility functions. Thus, to make optimal recommendation for a specific user, we have to understand the users' utility functions. In this project, we develop an efficient and effective Bayesian framework for eliciting a user's unknown utility functions. (NIPS 2009 & AISTATS 2010, accepted)
- **Multi-Task Preference Elicitation**: Given different users' preference information, how can we make use of the information in order to minimize the elicitation effort for a new user? (NIPS 2010, accepted)
- **Diversity in Set-based Recommendation**: it often increases a user's satisfactions by recommending a set of items, i.e., set-based recommendations. Diversity plays an important role in such setting. We propose the first fully principled derivation of a criterion that balances relevance versus diversity of search results in information retrieval. (SIGIR 2010, accepted)

**Education**

**Australian National University**, Canberra, ACT Australia

Ph.D. Candidate, Research School of Information Sciences and Engineering,
Secondary to National Information and Communication Technology, Australia (NICTA)

**Expected graduation date**: 2010
**Thesis title**: Bayesian Recommender Systems: Models and Algorithms
**Supervisors**: Prof. Bob Williamson and Dr. Scott Sanner

**University of Science and Technology of China**, Hefei, Anhui, China

M.Sc., Automation, from Sep. 2004 to July, 2007

**Henan University of Science and Technology**, Luoyang, Henan, China

B.Sc., Computer Science and Technology, from Sep., 2000 to July, 2004

**Honors and Awards**

Endeavor Postgraduate Award (EPA), Department of Education, Science and Training, Australian Government, 2007

Outstanding Postgraduate Award, Hefei Institute of Intelligent Machines, Chinese Academy of Science, 2006

## Publications

Edwin Bonilla, ***Shengbo Guo***, Scott Sanner: Gaussian Process Preference Elicitation, NIPS 2010, accepted.

***Shengbo Guo***, Scott Sanner: A Latent Variable Graphical Model Derivation of Diversity Objectives for Set-based Retrieval, under review.

***Shengbo Guo***, Scott Sanner: Probabilistic Latent Maximal Marginal Relevance, SIGIR 2010, accepted.

***Shengbo Guo***, Scott Sanner: Real-time Multiattribute Bayesian Preference Elicitation with Pairwise Comparison Queries, AISTATS 2010, accepted.

***Shengbo Guo***, Scott Sanner: Multiattribute Bayesian Preference Elicitation with Pairwise Comparison Queries, ISNN 2010, accepted.

***Shengbo Guo***, Scott Sanner: Real-time Multiattribute Bayesian Preference Elicitation with Pairwise Comparison Queries, NIPS 2009, accepted.

Yu Zhang, ***Sheng-Bo Guo***, Jun Hu, Ann Hodgkinson: Choosing Business Collaborators Using Computing Intelligence Methods. ICIC (1) 2008: 529-535.

***Sheng-Bo Guo***, Ying Wang, Xing Yan, Longnian Lin, Joe Tsien, De-Shuang Huang: Long-Range Temporal Correlations in the Spontaneous in vivo Activity of Interneuron in the Mouse Hippocampus. ICIC (2) 2007: 1339-1344.

***Sheng-Bo Guo***, Michael R. Lyu, Tat-Ming Lok: Gene Selection Based on Mutual Information for the Classification of Multi-class Cancer. ICIC (3) 2006: 454–463.

Zhi-Kai Huang, De-Shuang Huang, Ji-Xiang Du, Zhong-Hua Quan, ***Sheng-Bo Guo***: Bark Classification Based on Gabor Filter Features Using RBPNN Neural Network. ICONIP (2) 2006: 80-87

## International Talks

- *Probabilistic Latent Maximal Marginal Relevance*, 26 May 2010, Yahoo! Research, Barcelona, Spain.
- *Probabilistic Latent Maximal Marginal Relevance*, 19 May 2010, Google Research, Zurich, Switzerland.
- *A Latent Variable Graphical Model Derivation of Diversity for Set-based Retrieval*, 7 May 2010, INRIA, Paris, France.
- *Real-time Multiattribute Bayesian Preference Elicitation with Pairwise Comparison Queries*, 4 May 2010, National University of Singapore, Singapore.

## Referees

- Robert C. Williamson, The Scientific Director of NICTA and a Professor in ANU

  **Email** Bob.Williamson@anu.edu.au

  **Phone** +61 (0)2 6267 6212

  **WWW** `http://axiom.anu.edu.au/~williams/`

  **Mailing Address** NICTA, Tower A, 7 London Circuit, Canberra, ACT 2601, Australia

- Scott Sanner, Senior Researcher, NICTA

  **Email** Scott.Sanner@nicta.com.au

  **Phone** +61 (0)2 6267 6330

  **WWW** `http://users.rsise.anu.edu.au/~ssanner/`

**Mailing Address** NICTA, Tower A, 7 London Circuit, Canberra, ACT 2601, Australia

- Wray Buntine, Principal Researcher, NICTA

  **Email** Wray.Buntine@nicta.com.au

  **Phone** +61 (0)2 6267 6323

  **WWW** `http://www.nicta.com.au/people/buntinew`

  **Mailing Address** NICTA, Tower A, 7 London Circuit, Canberra, ACT 2601, Australia