

# MING-WEI CHANG

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## RESEARCH INTERESTS

Machine learning and its applications on natural language processing, information retrieval and data mining.

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## EDUCATION

<b>University of Illinois at Urbana-Champaign</b> Ph.D. Candidate, Computer Science	Urbana, IL, USA 2005-present
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- Advisor: Dan Roth

<b>National Taiwan University</b> M.S., Computer Science	Taipei, Taiwan 2001-2003
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- Thesis: “Properties of Dual SVM Solutions as Functions of Parameters and Leave-one-out Bounds for SVR”
- Advisor: Chih-Jen Lin, GPA 4.0/4.0

<b>National Taiwan University</b> B.S., Computer Science	Taipei, Taiwan 1997-2001
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- GPA 3.76/4.0, Presidential Award, 2000

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## EXPERIENCE

<b>Intern, Microsoft Research</b> , Redmond, WA, USA Machine Learning and Applied Statistics Group	Summer, 2007
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- Project: Spam filtering. With my mentor Wen-tau Yih, we propose a novel generative/discriminative hybrid model, *partitioned logistic regression*, which has several advantages over both naive Bayes and logistic regression. When applying it on large scale spam filtering, the new algorithm achieves about 25% error reduction in our experiments, compared to a traditional logistic regression. Moreover, the new algorithm allows us to build a lightweight but yet effective *personalized* spam filtering system.

<b>Intern, Siemens Corporate Research</b> , Princeton, NJ, USA Intelligent Vision and Reasoning Department	Spring, 2003.
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- Project: We investigate the possibility of detecting the internal status of a power plant by machine learning methods. Our goal is to save large amount of money by reducing the false alarm of the monitor system.
- The first Taiwanese intern of Siemens Corporate Research.

<b>Research Assistant, Machine Learning Lab, National Taiwan University</b>	2002-2003
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- Projects: Machine learning methods for electricity load forecasting. Time series segmentation using support vector machine. Automatic parameter selection for support vector machines.

**Teaching Assistant, CS Department, National Taiwan University**

2001-2002

- TAs for “Statistical Learning Theory” and “Data Mining and Machine Learning”.

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## HONORS AND AWARDS

- The Don and Betty Walker Student Scholarship Fund, ACL, 2007
- Saburo Muroga Fellowship, University of Illinois at Urbana-Champaign, 2005-2006
- Winner of *WCCI* 2002 competition on sequence recognition, 2002
- Winner of *EUNITE* world wide competition on electricity load prediction, 2001
  - Winner among 18 research teams. (56 teams registered.)
- Winner of Trend Micro Software Competition, 2000
  - Won 1,000,000 NT dollars (approximately 35,000 US) among ninety nine teams.
- Sixth Place, *ACM ICPC 2000 Asia Regional*. 2000
- Second Prize, *National College Programming Contest*. Taiwan. 1999

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## PUBLICATIONS

### Refereed Conference and Workshop Papers

- [1] Ming-Wei Chang, Dan Goldwasser, Dan Roth, and Yuancheng Tu. Unsupervised constraint driven learning for transliteration discovery. In *Proc. of the Annual Meeting of the North American Association of Computational Linguistics (NAACL)*, 2009. To be appeared.
- [2] Ming-Wei Chang, Lev Ratinov, Nick Rizzolo, and Dab Roth. Learning and inference with constraints. In *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 2008.
- [3] Ming-Wei Chang, Lev Ratinov, Dab Roth, and Vivek Srikumar. Importance of semantic representation: Dataless classification. In *Proceedings of the National Conference on Artificial Intelligence (AAAI)*, July 2008.
- [4] Ming-Wei Chang, Lev Ratinov, and Dan Roth. Constraints as prior knowledge. In *ICML Workshop on Prior Knowledge for Text and Language Processing*, pages 32–39, July 2008.
- [5] Ming wei Chang, Wen tau Yih, and Robert McCann. Personalized spam filtering for gray mail. In *Proc. of the Conference on Email and Anti-Spam*, 2008.
- [6] Ming wei Chang, Wen tau Yih, and Christopher Meek. Partitioned logistic regression for spam filtering. In *Proc. of the annual ACM SIGKDD conference*, 2008.

- [7] Ming-Wei Chang and Dan Roth. Robust feature extension algorithms. In *Learning Workshop, Snowbird*, April 2008.
- [8] Ming-Wei Chang, Lev Ratinov, and Dan Roth. Guiding semi-supervision with constraint-driven learning. In *Proc. of the Annual Meeting of the ACL*, pages 280–287, Prague, Czech Republic, June 2007. Association for Computational Linguistics.
- [9] Ming-Wei Chang, Quang Do, and Dan Roth. A pipeline model for bottom-up dependency parsing. In *Proc. of the Annual Conference on Computational Natural Language Learning (CoNLL)*, pages 186–190, New York City, June 2006. Association for Computational Linguistics.
- [10] Ming-Wei Chang, Quang Do, and Dan Roth. A pipeline framework for dependency parsing. In *Proc. of the Annual Meeting of the ACL*, pages 65–72, Sydney, Australia, July 2006. Association for Computational Linguistics.
- [11] Ming-Wei Chang, Bo-Juen Chen, and Chih-Jen Lin. EUNITE network competition: Electricity load forecasting, 2002. Winner of EUNITE world wide competition on electricity load prediction.
- [12] Ming-Wei Chang, Chih-Jen Lin, and Ruby C. Weng. Analysis of switching dynamics with competing support vector machines. In *Proceedings of IJCNN*, pages 2387–2392, 2002.
- [13] Ming-Wei Chang, Chih-Jen Lin, and Ruby C. Weng. Analysis of nonstationary time series using support vector machines. In Seong-Wan Lee and Alessandro Verri, editors, *Proceedings of SVM 2002*, Lecture Notes in Computer Science 2388, pages 160–170, New York, NY, USA, 2002. Springer-Verlag Inc.
- [14] Ming-Wei Chang, Chih-Jen Lin, and Ruby C. Weng. Adaptive deterministic annealing for two applications: competing SVR of switching dynamics and travelling salesman problems. In *Proceedings of ICONIP 2002*, pages 920–924, 2002.

## Journals

- [1] Ming-Wei Chang and Chih-Jen Lin. Leave-one-out bounds for support vector regression model selection. *Neural Computation*, 17:1188–1222, 2005.
- [2] Ming-Wei Chang, Chih-Jen Lin, and Ruby C. Weng. Analysis of switching dynamics with competing support vector machines. *IEEE Transactions on Neural Networks*, 15(3):720–727, 2004.
- [3] Bo-Juen Chen, Ming-Wei Chang, and Chih-Jen Lin. Load forecasting using support vector machines: A study on EUNITE competition 2001. *IEEE Transactions on Power Systems*, 19(4):1821–1830, November 2004.

## Book Chapters

- [1] Ming-Wei Chang, Quang Do, and Dan Roth. Multilingual dependency parsing: A pipeline approach. In Nicolas Nicolov, editor, *Recent Advances in Natural Language Processing*, pages 195–204. Springer-Verlag, July 2006.

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## PROFESSIONAL SERVICE

### Journal Paper Review

- IEEE Transactions on Neural Networks

- Machine Learning

**Program Committee**

- CoNLL, 2009
- COLING, 2008
- ACL, 2007