Jennifer A. Gillenwater

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EDUCATION

University of Pennsylvania, Philadelphia, PA
Ph.D. in Computer Science, December 2014. GPA: 3.93

Rice University, Houston, TX
B.S. in Electrical Engineering, Magna Cum Laude, May 2008. GPA: 3.91

Hong Kong University of Science and Technology, Hong Kong, China
Study abroad, Spring 2007. GPA: 4.27

EXPERIENCE

Postdoc in Electrical Engineering: January-June 2015
University of Washington, Seattle, WA

Continued research on thesis topic (determinantal point processes) and investigated properties of related submodular functions.

Summer Intern—Research: Summer 2011, 2012; Fall 2012
Google Research, Mountain View, CA

Implemented determinantal point process algorithms—methods for balancing quality and diversity for subset selection problems—for photo and music applications.

Course Instructor: Fall 2011
University of Pennsylvania, Philadelphia, PA

Designed and taught *Intelligent Game Agents* with two other graduate students. Focused on teaching basic AI concepts in the context of programming competitions based on the annual Google AI Challenge task.

Summer Intern—Research: Summer 2010
Microsoft Research, Redmond, WA

Proposed a method for supervised learning of dependency parsers for the task of re-ranking documents retrieved for long search queries.

Teaching Assistant: Fall 2009, 2010, 2012; Spring 2010
University of Pennsylvania, Philadelphia, PA

Aided with *CIS 520: Machine Learning* (fall) and *CIS 521: Intro to Artificial Intelligence* (spring) by designing homeworks and exams, crafting and presenting recitation lectures, and holding office hours.

Summer Intern—Software Testing: Summer 2008
Microsoft, Redmond, WA

Analyzed performance bottlenecks in the conversion of Word, PowerPoint, Excel, and other document types to HTML as a part of the Office Live Workspaces team.

Summer Intern—Computer Science: Summer 2007
USC/ISI, Los Angeles, CA

Explored new probability-based methods of incorporating context into syntax-based translation rules for a statistical machine translation system.

SKILLS

Programming experience in Java, C#, C++, MATLAB, Python, and Perl.

AWARDS

NIPS 2014 Outstanding Reviewer Award

New York Academy of Sciences Machine Learning Symposium:
2nd (2014, 2011) and 4th (2010) place presenter award

NSF Graduate Research Fellowship: Fall 2010 - Spring 2013

NSF IGERT Traineeship in Language Sciences: Fall 2008 - Spring 2010

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RESEARCH
INTERESTS

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Machine learning:
graphical models, submodular functions, spectral methods, semi-supervised learning

Natural language processing:
part-of-speech tagging, parsing, word alignment, summarization, information retrieval

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PUBLICATIONS **Thesis**

[1] J. Gillenwater. *Approximate Inference for Determinantal Point Processes.* PhD thesis, University of Pennsylvania, 2014.

Journals

[2] J. Gillenwater, K. Ganchev, J. Graça, F. Pereira, and B. Taskar. Posterior Sparsity in Unsupervised Dependency Parsing. *Journal of Machine Learning Research (JMLR)*, 2011.

[3] K. Ganchev, J. Graça, J. Gillenwater, and B. Taskar. Posterior Regularization for Structured Latent Variable Models. *Journal of Machine Learning Research (JMLR)*, 2010.

Conferences

[4] J. Gillenwater, R. Iyer, B. Lusch, R. Kidambi, and J. Bilmes. Submodular Hamming Metrics. In *Proc. Neural Information Processing Systems (NIPS)*, 2015.

[5] J. Gillenwater, A. Kulesza, E. Fox, and B. Taskar. Expectation-Maximization for Learning Determinantal Point Processes. In *Proc. Neural Information Processing Systems (NIPS)*, 2014.

[6] L. He, J. Gillenwater, and B. Taskar. Graph-Based Posterior Regularization for Semi-Supervised Structured Prediction. In *Proc. Conference on Computational Natural Language Learning (CoNLL)*, 2013.

[7] J. Gillenwater, X. He, J. Gao, and L. Deng. End-to-End Learning of Parsing Models for Information Retrieval. In *Proc. International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2013.

[8] J. Gillenwater, A. Kulesza, and B. Taskar. Near-Optimal MAP Inference for Determinantal Point Processes. In *Proc. Neural Information Processing Systems (NIPS)*, 2012.

[9] J. Gillenwater, A. Kulesza, and B. Taskar. Discovering Diverse and Salient Threads in Document Collections. In *Proc. Empirical Methods in Natural Language Processing (EMNLP)*, 2012.

[10] J. Gillenwater, K. Ganchev, J. Graça, F. Pereira, and B. Taskar. Sparsity in Dependency Grammar Induction. In *Proc. Association for Computational Linguistics (ACL)*, 2010.

[11] K. Ganchev, J. Gillenwater, and B. Taskar. Dependency Grammar Induction via Bitext Projection Constraints. In *Proc. Association for Computational Linguistics (ACL)*, 2009.

[12] J. Gillenwater, G. Malecha, C. Salama, A. Zhu, W. Taha, J. Grundy, and J. O'Leary. Synthesizable High Level Hardware Descriptions. In *Proc. Partial Evaluation and Program Manipulation (PEPM)*, 2008.

Workshops, Colloquiums, Symposiums, Tech Reports, etc.

[13] J. Gillenwater. Maximization of Non-Monotone Submodular Functions. Technical Report MS-CIS-14-01, University of Pennsylvania, 2014.

[14] L. He, J. Gillenwater, and B. Taskar. Graph-Based Posterior Regularization for Semi-Supervised Structured Prediction. In *Proc. New York Academy of Sciences (NYAS) Machine Learning Symposium*, 2014.

[15] J. Gillenwater, A. Kulesza, and B. Taskar. Large-Scale Modeling of Diverse Paths using Structured k-DPPs. In *Proc. New York Academy of Sciences (NYAS) Machine Learning Symposium*, 2011.

[16] J. Gillenwater, A. Kulesza, and B. Taskar. Large-Scale Modeling of Diverse Paths using Structured k-DPPs. In *Proc. Mid-Atlantic Student Colloquium on Speech, Language, and Learning*, 2011.

[17] J. Gillenwater, K. Ganchev, J. Graça, F. Pereira, and B. Taskar. Sparsity in Dependency Grammar Induction. In *Proc. New York Academy of Sciences (NYAS) Machine Learning Symposium*, 2010.

[18] J. Gillenwater, K. Ganchev, J. Graça, F. Pereira, and B. Taskar. Sparsity in Grammar Induction. In *Proc. Neural Information Processing Systems (NIPS) Grammar Induction Workshop*, 2009.

[19] J. Gillenwater, G. Malecha, C. Salama, A. Zhu, W. Taha, J. Grundy, and J. O'Leary. Formalizing and Enhancing Verilog. In *Proc. Technology and Talent for the 21st Century (TECHCON)*, 2007.

[20] J. Gillenwater, G. Malecha, C. Salama, A. Zhu, W. Taha, J. Grundy, and J. O'Leary. Formalizing and Enhancing Verilog. In *Proc. Workshop on Hardware Design and Functional Languages (HFL)*, 2007.