Matt Gardner
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RESEARCH
INTERESTS

Machine reading, knowledge base inference, natural language understanding, probabilistic graphical models

EDUCATION

Carnegie Mellon University, Pittsburgh, Pennsylvania

Ph.D., Computer Science (Language Technologies), Anticipated Fall 2015
- Advisor: Professor Tom Mitchell
- Research Area: Knowledge base inference, natural language understanding

Brigham Young University, Provo, Utah USA

M.S., Computer Science, August 2011
- Thesis title: *A Speculative Approach to Parallelization in Particle Swarm Optimization*
- Advisor: Professor Kevin Seppi

B.S., Computer Science, April 2010
- Graduated summa cum laude (GPA 4.0) and with University honors
- Minors in Physics and Mathematics
- Honors Thesis title: *Speculative Evaluation in Particle Swarm Optimization*
- Advisor: Professor Kevin Seppi

AWARDS

Brigham Young University
- Hertz Fellowship Finalist, 2011 (one of 50 in the nation from all of the physical sciences)
- National Merit Scholarship, 2004–2010
- Awarded a research grant from the Office of Research and Creative Activities in both 2008 and 2009
- Inducted into the Phi Kappa Phi Honors Society, 2009
- Scholarship from NAACL to attend the Johns Hopkins University Human Language Technologies summer school in 2010.

ACADEMIC
EXPERIENCE

Carnegie Mellon University, Pittsburgh, PA, USA

Teaching Assistant   **September 2013 to May 2014**
- 11-721: Grammars and Lexicons, with Professor Lori Levin. Lectured several times, tutored students, and graded homework and reports.
- 11-712: Lab in Natural Language Processing, with Professor Noah Smith. Tutored students and graded homework and reports.

Brigham Young University, Provo, Utah USA

Teaching Assistant   **May 2010 to June 2010**
- CS 470: Introduction to Artificial Intelligence, with Professor Kevin Seppi. Helped create new curriculum for the class, tutored students, and graded homework and reports.
- CS 677: Bayesian Inference, with Professor Kevin Seppi. Tutored students and graded homework and reports.

Professional Experience

Allen Institute for Artificial Intelligence, Seattle, Washington, USA

Research Scientist Intern **August 2014 to October 2014**
- Worked on using inference over knowledge bases for a question answering system. The goal of AI2 is to pass a fourth grade science exam by using knowledge acquired automatically from text. I applied random walk inference over an automatically acquired knowledge base to this task.

Google, Inc., Mountain View, California, USA

Software Engineering Intern with Google Research **May 2014 to August 2014**
- Worked on using Google's Knowledge Graph to improve performance on textual analysis, with specific application in coreference resolution.

Google, Inc., Pittsburgh, Pennsylvania, USA

Software Engineering Intern in Google Shopping **May 2013 to August 2013**
- Worked on search box infrastructure, to enable new search experiences for shopping.

Google, Inc., Pittsburgh, Pennsylvania, USA

Software Engineering Intern in Product Search **May 2011 to August 2011**
- Applied active learning and decision theory to improve the budget-constrained use of human annotators to label data.

Google, Inc., Irvine, California USA

Software Engineering Intern for the TV Ads Team **May 2009 to August 2009**
- Used machine learning techniques to attribute calls received by advertisers to specific ads played on TV networks. Official blog post about the project can be found at: http://google-tvads.blogspot.com/2010/01/track-cost-per-call-data-through-google.html.
- Gave several presentations to the machine learning lunch group.

Journal and conference publications

T. Mitchell, W. Cohen, E. Hruschka, P. Talukdar, **M. Gardner**, 20 others. Never Ending Learning. In: *AAAI*, 2015.

Matt Gardner, Partha Talukdar, Jayant Krishnamurthy, and Tom Mitchell. Incorporating Vector Space Similarity in Random Walk Inference over Knowledge Base. In: *EMNLP*, 2014.

Matt Gardner, Partha Pratim Talukdar, Bryan Kisiel, and Tom Mitchell. Improving Learning and Inference in a Large Knowledge-base using Latent Syntactic Cues. In: *EMNLP*, 2013.

Matthew Gardner, Andrew McNabb, and Kevin Seppi. A Speculative Approach to Parallelization in Particle Swarm Optimization. In: *Swarm Intelligence*, 2012.

Matthew Gardner, Andrew McNabb, and Kevin Seppi. Speculative Evaluation in Particle Swarm Optimization. In: *Parallel Problem Solving in Nature, 2010.*

Andrew McNabb, **Matthew Gardner**, and Kevin Seppi. An Exploration of Topologies and Communication in Large Particle Swarms. In: *Congress on Evolutionary Computation, 2009.*

WORKSHOP AND
OTHER REFEREED
PUBLICATIONS

Matt Gardner, Partha Talukdar, and Tom Mitchell. Combining Vector Space Embeddings with Symbolic Logical Inference over Open-Domain Text. In: AAAI Symposium on Knowledge Representation and Reasoning, 2015.

Archna Batia, Michael Deeringer, **Matthew Gardner**, Carlos Ramrez, Lori Levin, Owen Rambow. Repurposing Treebanks. In: The Twelfth Workshop on Treebanks and Linguistic Theories (TLT12), 2013.

Matthew Gardner. Adding Distributional Semantics to Knowledge Base Entities through Web-scale Entity Linking. In the Automatic Knowledge Base Construction and Web-scale Knowledge Extraction workshop, *NAACL* 2012.

Benjamin Frandsen, Vayee Vue, **Matthew Gardner**, Kevin Seppi, Branton Campbell. Quantitative modeling of diffuse scattering from a relaxor ferroelectric. Presented at *International Union of Crystallography 2011*.

Matthew Gardner, J. Lutes, J. Lund, J. Hansen, D. Walker, E. Ringger, K. Seppi. The Topic Browser: An Interactive Tool for Browsing Topic Models. In the Challenges of Data Visualization workshop at *Neural Information Processing Systems, 2010*.

Matthew Gardner and Eric Ringger. Automatic Topic Discovery in 100 Years of General Conference Talks. Presented at the *50th Anniversary BYU Studies Symposium, 2010*.

ACADEMIC
SERVICE

Reviewer for ICML, EMNLP, ACL, and the AKBC-WEKEX workshop.

On the program and organizing committee of the North American Computational Linguistics Olymiad.