

WILLIAM L HAMILTON

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RELEVANT EXPERIENCE

Graduate Student Researcher, *Stanford Network Analysis and NLP Groups* *spring 2015-present*

- Work jointly with Prof. Jure Leskovec and Prof. Dan Jurafsky.
- Combine natural language processing, network analysis, and semi-supervised machine learning to model heterogeneous social data (e.g., text + social networks).
- Act as project lead, mentoring two research assistants and one junior PhD student.

Head Teaching Assistant, *Stanford University, CS 224W* *fall 2016*

- Managed TAs and designed assignments for 200+ student course on *Social and Information Networks*.

Research Scientist Intern, *Amazon Inc.* *summer 2014*

- Worked on demand forecasting in the Amazon Web Services (AWS) division.
- Implemented a novel framework to predict customer demand for various AWS cloud services and performed large-scale econometric/statistical analyses.

Software Development Engineer Intern, *Amazon Inc.* *summer 2013*

- Worked on capacity management/planning for Amazon Web Services (AWS) division.
- Designed, implemented, and tested a robust and scalable parallel time-series prediction framework.

Undergraduate Student Researcher, *McGill Reasoning and Learning Lab* *summer 2012 - spring 2014*

- Worked with Prof. Joelle Pineau on reinforcement learning and time-series prediction.

Research Assistant, *McGill Cognitive Science (Gold Lab)* *summer 2011 - fall 2011*

- Designed and implemented evolutionary game theory simulations.

EDUCATION

PhD in Computer Science — GPA 4.00/4.00 *Expected Graduation: 2019*
Stanford University, Stanford, CA, USA

MSc in Computer Science (joint with B.Sc.) — GPA 4.00/4.00 *Graduated: October 2014*

BSc in Computer Science — GPA 3.96/4.00 *Graduated: May 2013*
McGill University, Montreal, QC, Canada

PUBLICATIONS

- W.L. Hamilton, K. Clark, J. Leskovec, and D. Jurafsky. Inducing Domain-Specific Sentiment Lexicons from Unlabeled Corpora. *Empirical Methods in Natural Language Processing (EMNLP)*. 2016.
- W.L. Hamilton, J. Leskovec, and D. Jurafsky. Cultural Shift or Linguistic Drift? Comparing Two Computational Measures of Semantic Change. (Short paper). *Empirical Methods in Natural Language Processing (EMNLP)*. 2016.
- A. Wang, W.L. Hamilton, and J. Leskovec. Learning Linguistic Descriptors of User Roles in Online Communities. *Empirical Methods in Natural Language Processing Workshop on Computational Social Science (EMNLP, NLP+CSS Workshop)*. 2016.
- W.L. Hamilton, J. Leskovec, and D. Jurafsky. Diachronic Word Embeddings Reveal Statistical Laws of Semantic Change. *Association for Computational Linguistics (ACL)*. 2016.
- V. Prabhakaran, W.L. Hamilton, D. McFarland, D. Jurafsky. Predicting the Rise and Fall of Scientific Topics from Trends in their Rhetorical Framing. *Association for Computational Linguistics (ACL)*. 2016.

- W.L. Hamilton. Compressed Predictive State Representation. Master's Thesis, *McGill University*. (**Canadian AI MSc Thesis Award**). 2014.
- W.L. Hamilton, M.M. Fard, and J. Pineau. Efficient Learning and Planning with Compressed Predictive States. *Journal of Machine Learning Research*. 2014.
- B. Balle*, W.L. Hamilton*, and J. Pineau. Methods of Moments for Learning Stochastic Languages: Unified Presentation and Empirical Comparison. *International Conference on Machine Learning (ICML)*. 2014. (* equal contributions).
- W.L. Hamilton, M.M. Fard, J. Pineau. Modelling Sparse Dynamical Systems with Compressed Predictive State Representations. *International Conference on Machine Learning (ICML)*. 2013.

OPEN SOURCE PROJECTS

HistWords, <https://github.com/williamleif/histwords>

- Tools and data for learning word embeddings over large historical corpora.

SocialSent, <https://github.com/williamleif/socialsent>

- Suite of algorithms for inducing domain-specific sentiment lexicons from seed words and unlabeled data.

REVIEWING ACTIVITIES

Association for Computational Linguistics (ACL)	2016, 2017
AAAI International Conference on the Web and Social Media (ICWSM)	2016, 2017
Neural Information Processing Systems (NIPS)	2014, 2015
International Conference on Machine Learning (ICML)	2014

SELECTED AWARDS

SAP Stanford Graduate Fellowship (tuition and expenses for PhD) Stanford University	2014
Alexander Graham Bell Graduate Scholarship (tuition and expenses for MSc, PhD stipend) Natural Sciences and Engineering Research Council of Canada (NSERC)	2013-2014
Mathematical and Computational Sciences Research Award McGill University	2012
Undergraduate Researcher of the Year (Honorable Mention) Computing Research Association of North America	2013
JW McConnell Scholarship (tuition and expenses for BSc) McGill University	2009 - 2013
Undergraduate Science Research Award Natural Sciences and Engineering Research Council of Canada (NSERC)	2012
Governor General's Academic Medal Saskatchewan Provincial School Board, Canada	2009

RELEVANT COURSEWORK

Machine Learning, Applied Machine Learning, Natural Language Processing, Deep Learning for Natural Language Processing, Computer Vision, Social and Economic Networks, Algorithmic Game Theory, Probabilistic Analysis of Algorithms, Artificial Intelligence, Probability and Statistics, Advanced Algorithms and Data Structures, Numerical Optimization, Lexical Semantics, Operating Systems, Software Design, Programming Language Theory, Discrete Mathematics, Advanced Calculus, Cryptography