

Jason Naradowsky

Department of Computer Science
University of Massachusetts Amherst
140 Governors Drive
Amherst, MA 01003

<http://cs.umass.edu/~narad>
narad@cs.umass.edu

Research Interests

Statistical NLP, Graphical Models, Belief Propagation, Joint inference,
Machine Translation, Morphologically Rich Languages, Language Acquisition

Education

- 2008–2014 **PhD in Computer Science**, *University of Massachusetts Amherst*.
Advisor: David A. Smith
- 2011–2004 **PhD in Computer Science**, *Macquarie University*.
Advisor: Mark Johnson
- 2008 **MSc, Artificial Intelligence**, *University of Edinburgh*.
Thesis: Improving Morphology Induction with Phonological Rules
Advisor: Sharon Goldwater
- 2007 **MS, Computational Linguistics**, *State University of New York at Buffalo*.
Thesis: The Effect of Frequencies and Unseen Events on Parser Portability
Advisor: Doug Roland
- 2006 **MA, Human Computer Interaction**, *State University of New York at Oswego*.
Thesis: Neural Networks for Automated Design Evaluation
Advisor: Craig Graci
- 2001–2005 **BS, Computer Science**, *State University of New York at Oswego*.
- 2001–2005 **BA, Linguistics**, *State University of New York at Oswego*.
Specialization: Artificial Intelligence, with Honors
Minor: Cognitive Science

Summer Schools

- 2007 Linguistic Society of America Summer Institute 2007
Stanford University, Palo Alto, CA

Doctoral Thesis

Title *Learning with Joint Inference and Latent Linguistic Structure in Graphical Models*
Supervisors David A. Smith and Mark Johnson
Committee Ben Marlin, Andrew McCallum, Joe Pater, and Kristina Toutanova

Description Developed a modeling framework for constructing joint factor graph models of NLP problems, and described how syntactic variables can be marginalized over during training to produce task-specific syntactic distributions without the need for treebanks.

Research Experience

2014–current **Postdoctoral Research Associate**

University College London, London, England

Continuing research in large-scale factor graph models, task-directed parsing models, matrix factorization and low-rank logic embeddings.

2012 **Visiting Researcher**

Nara Institute of Science and Technology (NAIST), Nara, Japan

Advisor: Yuji Matsumoto

Explored techniques of incorporating syntactic information into sequence models for part-of-speech tagging in inflectional languages. Developed novel coarse-to-fine approaches based on relaxations to marginal inference.

2010 **Research Intern**

Microsoft Research, Redmond, WA

Advisor: Kristina Toutanova

Research in morpheme-based alignment models for machine translation. Resulted in a model for joint morpheme segmentation and alignment based on the HMM alignment model which improved alignment quality and outperformed all previous results on monolingual morphological segmentation for Arabic.

2008–2011 **Research Assistant**

Computer Science Department, University of Massachusetts Amherst

Advisors: Andrew McCallum and David A. Smith

Research in unsupervised language learning, topic-modeling, parsing, and joint inference.

2008 **Google Summer of Code 2008**

Project: Dependency Parsing in the Natural Language Toolkit

Advisors: Sebastian Riedel and Jason Baldridge

Implemented a suite of four dependency parsers, relevant interfaces, and readers for commonly-used corpora.

2005–2006 **Research Assistant**

Psychology Department, State University of New York at Oswego

Advisors: Lin Qiu and Songmei Han

Research on cross-cultural HCI and adaptive feedback systems. Developed web applications for testing interface usability and, in a separate project, augmented a program to provide adaptive natural language critiques for Java code. Conducted a set of experiments using undergraduate student participants for both projects.

Teaching Experience

Fall 2009 Grader, Computer Science Department, University of Massachusetts Amherst

Class: CMPSCI 585: Introduction to Natural Language Processing
Instructor: David A. Smith

Advising

Undergraduate Committee
Elias Zeidan, Marlboro College, 2013

Publications

Refereed Conference Proceedings

- [1] Jason Naradowsky, Sebastian Riedel, and David Smith. Improving nlp through marginalization of hidden syntactic structure. In *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2012.
- [2] Jason Naradowsky, Tim Vieira, and David A. Smith. Grammarless parsing for joint inference. In *24th International Conference on Computational Linguistics (COLING)*, Mumbai, India, 2012.
- [3] John Lee, Jason Naradowsky, and David Smith. A discriminative model for joint morphological disambiguation and dependency parsing. In *Association for Computational Linguistics (ACL)*, 2011.
- [4] Jason Naradowsky and Kristina Toutanova. Unsupervised bilingual morpheme segmentation and alignment with context-rich hidden semi-markov models. In *Association for Computational Linguistics (ACL)*, 2011.
- [5] David Mimno, Hanna Wallach, Jason Naradowsky, David Smith, and Andrew McCallum. Polylingual topic models. In *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2009.
- [6] Jason Naradowsky and Sharon Goldwater. Improving morphology induction by learning spelling rules. In *International Joint Conference on AI (IJCAI)*, pages 1531–1537, 2009.

Workshop Proceedings

- [1] Jason Naradowsky, Joe Pater, and David Smith. Feature induction for online constraint-based phonology acquisition. In *The Northeast Computational Phonology Workshop (NECPhon)*, New Haven, Connecticut, 2011.
- [2] Jason Naradowsky, Joe Pater, David Smith, and Robert Staubs. Learning hidden metrical structure with a log-linear model of grammar. In *Computational Modelling of Sound Pattern Acquisition*, pages 59–60, Edmonton, 2010.
- [3] David Mimno, Hanna Wallach, Limin Yao, and Jason Naradowsky. Polylingual topic models. In *The Learning Workshop (Snowbird)*, Clearwater, Florida, 2009.

Professional Service

Reviewer for NESCAI 2010, EMNLP 2010, ACL 2011, CoNLL 2011, EMNLP 2011, and IJCNLP 2011, EACL 2012, ACL 2012, ACL-SRW 2012, EMNLP 2012, ACL 2013, IJCNLP 2013, ACL 2014, EMNLP 2014

Awards and Achievements

- 2014 Best Reviewer, ACL 2014
- 2012 East Asia and Pacific Summer Institute (EAPSI Fellowship)
National Science Foundation
- 2012 Best Reviewer, EMNLP 2012
- 2011 Cotutelle International Macquarie University Research Scholarship (iMQRES)
Macquarie University
- 2011 Institute for Computational and Experimental Study of Language (ICESL) Seed Grant
University of Massachusetts Amherst
- 2005 Oebele Van Dyk Outstanding Senior in Computer Science Award
State University of New York at Oswego
- 2001-2005 Presidential Scholarship
State University of New York at Oswego

Personal Details

Citizenship: USA

Date of Birth: July 9th, 1983

Languages: English (native), Latin (reading), Japanese, Arabic (beginner)

Programming Languages: Scala, Java, Ruby, LISP, Clojure