

# CURRICULUM VITAE

MICHAEL WAYNE GOODMAN

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## PERSONAL

Location: Singapore

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## EDUCATION

04/2010–06/2018 University of Washington, U.S.A

**Ph.D. in Linguistics**

Dissertation: *Semantic Operations for Transfer-based Machine Translation* (see below for description)

Co-chairs: Emily M. Bender and Francis Bond

09/2007–08/2009 University of Washington, U.S.A.

**M.A. in Computational Linguistics**

Thesis: *Egad: Efficiently Evaluating and Extracting Errors from Deep Grammars* (see below for description)

Advisor: Emily M. Bender

09/2002–08/2007 Oregon State University, U.S.A.

**B.S. in Computer Science**

Focus: Artificial Intelligence and Machine Learning

Minor: Japanese

09/2003–06/2004 Waseda University, Japan

Study Abroad. Focused studies on language (particularly Japanese dialects) and culture.

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## DISSERTATION FOR PH.D. IN COMPUTATIONAL LINGUISTICS

Semantic-transfer based machine translation relies on rules to transfer semantic material from one language to another, but it is impractical to manually craft all the rules for a full solution. In this work, I extend previous work in the automatic augmentation of transfer grammars by extracting aligned semantic fragments. Unlike previous research, my system works directly with Dependency Minimal Recursion Semantics and is not limited by the presence of templates for matching fragments. I was able to match the performance of the previous state of the art system with fewer language-dependent resources.

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## THESIS FOR M.A. IN COMPUTATIONAL LINGUISTICS

Precision grammars have the ability to generate as well as parse text. By parsing input text to a semantic representation, then generating new sentences from these semantics, likely sources of error can be located

in the asymmetries between the parses and realizations. Using this method, the generation coverage of the Japanese grammar Jacy was improved nearly 20% with only four weeks of grammar development time.

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## HONORS

- 2015 Excellence in Linguistics Research Graduate Fellowship, University of Washington
- 2003–2004 Japanese Ministry of Education (Monbusho) Scholarship to study at Waseda University

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## JOURNAL PUBLICATIONS

- 06/2016 F. Xia, W. Lewis, M. W. Goodman, G. Slayden, R. Georgi, J. Crowgey, E. M. Bender. “Enriching a Massively Multilingual Database of Interlinear Glossed Text”. *Language Resources and Evaluation*, vol 50(2) pp 321–349. 2016.
- 04/2015 M. W. Goodman, J. Crowgey, F. Xia, E. M. Bender. “Xigt: Extensible Interlinear Glossed Text for Natural Language Processing”. *Language Resources and Evaluation*, vol 49(2) pp 455–485. 2015.

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## CONFERENCE PUBLICATIONS

- 05/2020 F. Bond, L. M. da Costa, M. W. Goodman, J. P. McCrae, A. Lohk. “Some Issues with Building a Multilingual Wordnet”. In *Proceedings of The 12th Language Resources and Evaluation Conference (LREC)*. 2020.
- 10/2019 M. W. Goodman. “A Python Library for Deep Linguistic Resources”. In *Proceedings of the 2019 Pacific Neighborhood Consortium Annual Conference and Joint Meetings (PNC)*. 2019.
- 09/2019 M. W. Goodman. “AMR Normalization for Fairer Evaluation”. In *Proceedings of the 33rd Pacific Asia Conference on Language, Information, and Computation (PACLIC 33)*. 2019.
- 04/2019 V. Hajdik, J. Buys, M. W. Goodman, E. M. Bender. “Neural Text Generation from Rich Semantic Representations”. In *Proceedings of the 2019 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. 2019.
- 05/2018 M. W. Goodman, R. Georgi, F. Xia. “PDF-to-Text Reanalysis for Linguistic Data Mining”. In *Proceedings of LREC, Miyazaki, Japan*, 2018.
- 08/2016 R. Georgi, M. W. Goodman, F. Xia. “A Web-Framework for ODIN Annotation”. In *Proceedings of the ACL 2016 System Demonstrations, Berlin, Germany*. 2016.
- 06/2016 D. Flickinger, M. W. Goodman, W. Packard. “UW-Stanford System Description for AESW 2016 Shared Task on Grammatical Error Detection”. In *Proceedings of the 11th Workshop on Innovative Use of NLP for Building Educational Applications, San Diego, USA*. 2016.
- 05/2016 A. Copestake, G. Emerson, M. W. Goodman, M. Horvat, A. Kuhnle, E. Muszynska. “Resources for building applications with Dependency Minimal Recursion Semantics”. In *Proceedings of LREC, Portorož, Slovenia*, 2016.

- 04/2015 F. Xia, M. W. Goodman, R. Georgi, G. Slayden, W. Lewis. “Enriching, Editing, and Representing Interlinear Glossed Text”. A. Gelbukh, ed. *Lecture Notes in Computer Science*, vol 9041 pp 32–46. 2015.
- 06/2014 E. M. Bender, J. Crowgey, M. W. Goodman, F. Xia. “Learning Grammar Specifications from IGT: A Case Study of Chintang”. In *Proceedings of the Workshop on the Use of Computational Methods in the Study of Endangered Languages*, pp 43–53, ACL 2014, Baltimore, Maryland.
- 05/2014 F. Xia, W. Lewis, M. W. Goodman, J. Crowgey, E. M. Bender. “Enriching ODIN”. In *Proceedings of LREC, Reykjavik, Iceland, 2014*.
- 08/2013 E. M. Bender, M. W. Goodman, J. Crowgey, F. Xia. “Towards Creating Precision Grammars from Interlinear Glossed Text: Inferring Large-Scale Typological Properties”. In *Proceedings of the ACL 2013 LaTeCH workshop, Sofia, Bugaria. 2013*.
- 02/2013 M. W. Goodman. “Generation of Machine-Readable Morphological Rules from Human-Readable Input”. *University of Washington Working Papers in Linguistics*: 30. 2013.
- 01/2012 E. M. Bender, D. Wax, M. W. Goodman. “From IGT to Precision Grammar: French Verbal Morphology”. *LSA Annual Meeting Extended Abstracts*. 2012.
- 07/2010 E. M. Bender, S. Drellishak, A. Fokkens, M. W. Goodman, D. P. Mills, L. Poulson, and S. Saleem. “Grammar Prototyping and Testing with the LinGO Grammar Matrix Customization System”. In *Proceedings of the ACL 2010 System Demonstrations, Uppsala, Sweden. 2010*.
- 08/2009 M. Goodman and F. Bond. “Using Generation for Grammar Analysis and Error Detection”. In *Proceedings of the 47th Annual Meeting of the Association for Computational Linguistics, Singapore. 2009*.
- 02/2009 J. Shen, J. Irvine, X. Bao, M. Goodman, S. Kolibaba, A. Tran, F. Carl, B. Kirschner, S. Stumpf, T. Dietterich. “Detecting and Correcting User Activity Switches: Algorithms and Interfaces”. *13th International Conference on Intelligent User Interfaces 2009 (IUI-09)*, Sanibel Island, Florida, U.S.A.

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## INVITED PRESENTATIONS

- 10/2019 M. W. Goodman, F. Bond. “Parsing with Deep Grammars”. *The 2019 Singapore Symposium on Natural Language Processing (SSNLP)*. (poster presentation)
- 07/2019 M. W. Goodman, E. M. Bender. “Neural Text Generation from Rich Semantic Representations”. *DELPH-IN Summit, Cambridge, U.K.*
- 08/2017 M. W. Goodman. “Learning Transfer Rules Without Templates”. *DELPH-IN Summit, Oslo*.
- 06/2016 M. W. Goodman. “Recent Developments in Statistical Transfer”. *DELPH-IN Summit, Stanford*.
- 05/2016 M. W. Goodman. “Semantically-headed Dependency Graphs from Precision Grammars”. *NW-NLP 2016 Poster Session, Seattle, WA*.
- 02/2015 M. W. Goodman. “Bridging Language Documentation and Data Science”. *National Taiwan University, Taipei, Taiwan*.

- 07/2014 M. W. Goodman. “Bilingual MRS Alignment”. DELPH-IN Summit, Singapore.
- 07/2010 M. W. Goodman, E. M. Bender. “INFLECTED++: Rethinking the Customization of Morphotactic Systems with the Grammar Matrix”. DELPH-IN Summit, Paris, France.
- 07/2010 M. W. Goodman, E. M. Bender. “What’s in a Word? Refining the Morphotactic Infrastructure in the LinGO Grammar Matrix Customization System”. Workshop on Morphology and Formal Grammar, Paris, France.
- 07/2009 M. Goodman. “A Parent’s Guide to Raising Grammars: Minding the Generation Gap”. DELPH-IN Summit, Barcelona, Spain.
- 08/2008 M. Goodman. “Multilingual Lexeme Translation: Using Mature Lexicons to Bootstrap Immature Ones”. DELPH-IN Summit, Kyoto, Japan.
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## TEACHING EXPERIENCE

- 08/2019–12/2019 Language and the Computer (Instructor), Nanyang Technological University
- 09/2013–12/2013 Shallow Processing Techniques for NLP (Assistant), University of Washington
- 04/2012–06/2012 Natural Language Processing Systems and Applications (Assistant), University of Washington
- 01/2012–03/2012 Advanced Statistical Models for NLP (Assistant), University of Washington
- 01/2011–03/2011 Advanced Statistical Models for NLP (Assistant), University of Washington
- 08/2010 Basics for Computational Linguistics (Guest lecturer), University of Washington
- 09/2004–04/2005 First-year Japanese Language (Assistant), Oregon State University
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## WORKING EXPERIENCE

- 02/2019–current Nanyang Technological University, Singapore  
Postdoctoral Research Fellow  
Investigated the combination of word-sense disambiguation with syntactic parsing, and instructed an introductory course on computational linguistics.
- 09/2015–03/2016; 06/2016–06/2017 University of Washington  
Research Assistant for the RiPLeS project.  
Applied the Xigt format to the ODIN corpus and coordinated the development of related software projects for enriching Xigt-encoded IGT data, performing manual annotation of the data, importing Toolbox data into Xigt, and doing complex queries over Xigt corpora. Managed the expansion of the ODIN corpus, including writing numerous tools for text extraction and web-based browsing and editing of the corpus. Interviewed and supervised undergraduate students working on REU projects.
- 04/2014–08/2015 Nanyang Technological University, Singapore  
Research Associate  
Designed and implemented software for language documentation and corpus annotation (Xigt); computational semantics (PyDelphin); and statistical transfer-based machine translation. Contributed to the development of a Chinese HPSG grammar (Zhong), the Jacy Japanese grammar, and the Open Multilingual Wordnet.

- 09/2009–03/2014 University of Washington  
 Research Assistant for the AGGREGATION project.  
 Designed and implemented the architecture, algorithms, and data formats for inducing rule-based grammars from linguistic examples, evaluated and analysed results, and wrote and presented papers to conferences.
- Research Assistant for the Grammar Matrix project.  
 Developed the infrastructural code used for the Grammar Matrix and its web-based questionnaire. Duties included refactoring major components of the system, diagnosing and fixing bugs, providing technical support for users, implementing new features, revising both the theoretical and practical design of the morphotactics subsystem, and writing documentation and academic papers submitted to conferences.
- Teaching Assistant  
 Graded written and programming assignments, held office hours, monitored lectures, answered student questions.
- 02/2009–06/2009 Microsoft Research (contract with Populus Group)  
 Data acquisition specialist in the Machine Translation group.  
 Acquired and processed new sources of data for training and testing the translation systems. Configured, trained, and evaluated builds and models. Designed, executed, and evaluated experiments with different data configurations. Found and fixed bugs in the training and data processing code, as well as in the SQL queries. Improvements to training data yielded significant increases in BLEU scores across many languages, one of which being enough for the release a new system—the English–Hebrew translator.
- 10/2008–01/2009 National Institute of Information and Communications Technology (NICT/情報通信研究機構)  
 Invited Advisor for the Language Infrastructure Group.  
 Designed and implemented a debugging tool for grammar developers that characterizes the performance of each corpus item in an HPSG-based implemented grammar, then attempts to pinpoint n-grams of grammar rules most likely causing problems. Also fixed the most prevalent problems in the grammar.
- 06/2008–09/2008 University of Washington  
 Research Assistant for the Grammar Matrix project.  
 In conjunction with the thesis project, this position also involved grammar engineering and creating data used for evaluation.
- 04/2005–08/2007 Oregon State University  
 Software Developer and Undergraduate Researcher on the TaskTracer project. Implemented new functionality and user interfaces for a personal information management tool that made use of machine learning to intelligently organize documents and resources. Mentored incoming employees and lead team discussions.

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#### ACADEMIC SERVICE: PAPER REVIEWING

|            |      |
|------------|------|
| ACL        | 2020 |
| ComputEL-3 | 2019 |
| COLING     | 2018 |
| EMNLP      | 2015 |

|       |      |
|-------|------|
| LREC  | 2020 |
| SedMT | 2016 |
| UWWPL | 2011 |

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#### ACADEMIC SERVICE: OTHER

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|---------|---------------------------------------------------------------------|
| NLP-OSS | Program Committee, contributed to workshop organization, 2018, 2020 |
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#### LANGUAGE KNOWLEDGE

|          |                                                      |
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| English  | native                                               |
| Japanese | spoken: intermediate-advanced, written: intermediate |
| Mandarin | spoken: intermediate, written: intermediate          |
| Spanish  | novice-intermediate                                  |

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#### COMPUTING SKILLS

|                       |                                                                                               |
|-----------------------|-----------------------------------------------------------------------------------------------|
| Programming           | Python, Bash (sed, AWK, ...), TDL, Javascript, C, C#, Cython, Matlab/Octave, Java, Perl, Lisp |
| Data                  | XML, JSON, TOML, Pandas, SQL                                                                  |
| Large-scale Computing | HTCondor, Map/Reduce                                                                          |
| Documents             | LaTeX, Markdown, reStructuredText                                                             |
| Web                   | HTML, CSS, HTTP, REST, Apache2, D3, Flask                                                     |
| Version Control       | Git, Subversion, Mercurial                                                                    |
| Operating Systems     | Linux, Microsoft Windows                                                                      |

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## REFERENCES

**Dr. Emily M. Bender** (Ph.D. Advisor)  
Professor Phone: +1 206 543 6914  
Department of Linguistics Email: ebender@uw.edu  
University of Washington Website: <http://faculty.uw.edu/ebender>  
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**Dr. Francis Bond** (Ph.D. Co-advisor)  
Associate Professor Phone: +65 6592 1568  
Linguistics and Email: bond@ieee.org  
Multilingual Studies Website: <http://www3.ntu.edu.sg/home/fcbond/>  
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University, Level 3,  
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**Dr. Fei Xia** (Ph.D. Committee Member)  
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