

## Ryan Cotterell

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CONTACT INFORMATION	Department of Computer Science Johns Hopkins University Hackerman 321 3400 North Charles Street Baltimore, Maryland 21218, USA	<i>mobile:</i> (213) 905-2260 <i>email:</i> ryan.cotterell@jhu.edu <i>www:</i> ryancotterell.github.io
EDUCATION	<b>Johns Hopkins University</b> Ph.D. in Computer Science Advisors: Jason Eisner and David Yarowsky	Spring 2019 (Expected)
	<b>Ludwig-Maximilians-Universität München</b> Visiting Ph.D. Student Advisor: Hinrich Schütze	2014-2016
	<b>Johns Hopkins University</b> M.S.E. in Computer Science Advisor: Chris Callison-Burch GPA: 4.0	Spring 2017
	<b>Johns Hopkins University</b> B.A. in Cognitive Science Minor: Linguistics Advisor: Colin Wilson GPA: 3.87 ( <i>General Honors</i> ) Major GPA: 4.0 ( <i>Departmental Honors</i> )	Spring 2013
	<b>Faculty of Liberal Arts and Sciences of St. Petersburg State University</b> Study Abroad, St. Petersburg, Russia	Fall 2009
EXPERIENCE	<b>Google Research</b> , New York, NY Software Engineering Intern Host: Keith Hall	June-September 2017
	<b>Human Language Technology Center of Excellence</b> , Baltimore, MD Participant in the Summer Camp for Applied Language Exploration (SCALE) Supervisor: Benjamin Van Durme	June-August 2012
TEACHING	<b>Teaching Assistant</b> Johns Hopkins University Course: Machine Learning (600.475) Professor: Mark Dredze <i>I held discussion sessions with students to prepare them for homework problem sets.</i>	Fall 2016
	<b>Teaching Assistant</b> Johns Hopkins University Course: Automata and Computation Theory (600.271) Professor: Stephen Checkoway <i>I managed three course assistants and held weekly office hours.</i>	Spring 2014
	<b>Teaching Assistant</b> Johns Hopkins University	Fall 2013

Course: Natural Language Processing (600.465)

Professor: Jason Eisner

*I led weekly discussion sections to cement concepts and improve problem solving skills. I supervised three course assistants in grading the assignments.*

## GRANTS

### PURA (Provost Undergraduate Research Award)

Awarding body: Johns Hopkins University

Amount: \$1,000

*Awarded to investigate phonological opacity in Portuguese and Turkish.*

## AWARDS

Outstanding Paper at EACL	2017
Runner-up for Best Short Paper at NAACL	2016
Honorable Mention for Best Short Paper at EMNLP	2015
National Defense Science and Engineering Fellowship (NDSEG)	2016-2018
DAAD Long-term Research Grant, Germany	2015-2016
Fulbright Research Grant, Germany	2014-2015
George M.L. Sommerman Engineering Graduate Teaching Assistant Award Finalist	2014
Computer Science Department Outstanding Teaching Assistant	2014
Cognitive Science Undergraduate Research Award	2013

## PUBLICATIONS

### Refereed Journal Papers

1. Ryan Cotterell and Hinrich Schütze. 2017. [Joint semantic synthesis and morphological analysis of the derived word](#). *Transactions of the Association for Computational Linguistics (TACL)* 5. <https://arxiv.org/abs/1701.00946>.
2. Ryan Cotterell, Nanyun Peng, and Jason Eisner. 2015. [Modeling word forms using latent underlying morphs and phonology](#). *Transactions of the Association for Computational Linguistics (TACL)* 3:433–447. <https://tacl2013.cs.columbia.edu/ojs/index.php/tacl/article/view/480>.

### Refereed Conference Papers

3. Ryan Cotterell, Adam Poliak, Benjamin Van Durme, and Jason Eisner. 2017. [Explaining and generalizing skip-gram through exponential family principal component analysis](#). In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. <https://ryancotterell.github.io/papers/cotterell+alb.eacl17.pdf>
4. Ryan Cotterell, John Sylak-Glassman, and Christo Kirov. 2017. [Neural graphical models over strings for principal parts morphological paradigm completion](#). In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. **Outstanding Paper Award**. <https://ryancotterell.github.io/papers/cotterell+ala.eacl17.pdf>
5. Arun Kumar, Ryan Cotterell, Luís Padró, and Antoni Oliver. 2017. [Morphological analysis of the dravidian language family](#). In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. <https://ryancotterell.github.io/papers/kumar+al.eacl17.pdf>
6. Christo Kirov, John Sylak-Glassman, Rebecca Knowles Knowles, Ryan Cotterell, and Matt Post. 2017. [A rich morphological tagger for english: Exploring the cross-linguistic tradeoff between morphology and syntax](#). In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. <https://ryancotterell.github.io/papers/kirov+al.eacl17.pdf>
7. Ekaterina Vylomova, Ryan Cotterell, Timothy Baldwin, and Trevor Cohn. 2017. [Context-aware prediction of derivational word-forms](#). In *Proceedings of the 15th*

- Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. <https://ryancotterell.github.io/papers/vylomova+al.eacl17.pdf>
8. Katharina Kann, Ryan Cotterell, and Hinrich Schütze. 2017. [Neural multi-source morphological inflection](#). In *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL)*. Association for Computational Linguistics, Valencia, Spain. <https://ryancotterell.github.io/papers/kann+al.eacl17.pdf>.
  9. Ryan Cotterell, Arun Kumar, and Hinrich Schütze. 2016. [Morphological segmentation inside-out](#). In *Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Association for Computational Linguistics, Austin, Texas, pages 2325–2330. <https://aclweb.org/anthology/D16-1256>.
  10. Katharina Kann, Ryan Cotterell, and Hinrich Schütze. 2016. [Neural morphological analysis: Encoding-decoding canonical segments](#). In *Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Association for Computational Linguistics, Austin, Texas, pages 961–967. <https://aclweb.org/anthology/D16-1097>.
  11. Tim Vieira\*, Ryan Cotterell\*, and Jason Eisner. 2016. [Speed-accuracy tradeoffs in tagging with variable-order CRFs and structured sparsity](#). In *Proceedings of the 2016 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Association for Computational Linguistics, Austin, Texas, pages 1973–1978. <https://aclweb.org/anthology/D16-1206>.
  12. Ryan Cotterell, Hinrich Schütze, and Jason Eisner. 2016. [Morphological smoothing and extrapolation of word embeddings](#). In *Proceedings of the 54th Annual Meeting of the Association for Computational Linguistics (ACL)*. Association for Computational Linguistics, Berlin, Germany, pages 1651–1660. <http://www.aclweb.org/anthology/P16-1156>.
  13. Ryan Cotterell, Tim Vieira, and Hinrich Schütze. 2016. [A joint model of orthography and morphological segmentation](#). In *Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*. Association for Computational Linguistics, San Diego, California, pages 664–669. **Runner-up for Best Paper**. <http://www.aclweb.org/anthology/N16-1080>.
  14. Pushpendre Rastogi, Ryan Cotterell, and Jason Eisner. 2016. [Weighting finite-state transductions with neural context](#). In *Proceedings of the 2016 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*. Association for Computational Linguistics, San Diego, California, pages 623–633. <http://www.aclweb.org/anthology/N16-1076>.
  15. John Sylak-Glassman and Ryan Cotterell. 2015. [Contrastive morphological typology and logical hierarchies](#). In Jessica Kantarovitch, Tran Truong, and Orest Xherija, editors, *Proceedings of the 52nd Meeting of the Chicago Linguistic Society (CLS52)*, Chicago Linguistic Society. <https://ryancotterell.github.io/papers/sylak-glassman+cotterell.cls16.pdf>.
  16. Nanyun Peng, Ryan Cotterell, and Jason Eisner. 2015. [Dual decomposition inference for graphical models over strings](#). In *Proceedings of the 2015 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Association for Computational Linguistics, Lisbon, Portugal, pages 917–927. <http://aclweb.org/anthology/D15-1108>.
  17. Thomas Müller, Ryan Cotterell, Alexander Fraser, and Hinrich Schütze. 2015. [Joint lemmatization and morphological tagging with Lemming](#). In *Proceedings of the 2015 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Association for Computational Linguistics, Lisbon, Portugal, pages 2268–2274. **Honorable Mention for Best Paper**. <http://aclweb.org/anthology/D15-1272>.

18. Ryan Cotterell, Thomas Müller, Alexander Fraser, and Hinrich Schütze. 2015. [Labeled morphological segmentation with semi-markov models](#). In *Proceedings of the Nineteenth Conference on Computational Natural Language Learning (CoNLL)*. Association for Computational Linguistics, Beijing, China, pages 164–174. <http://www.aclweb.org/anthology/K15-1017>.
19. Ryan Cotterell and Jason Eisner. 2015. [Penalized expectation propagation for graphical models over strings](#). In *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*. Association for Computational Linguistics, Denver, Colorado, pages 932–942. <http://www.aclweb.org/anthology/N15-1094>.
20. Ryan Cotterell and Hinrich Schütze. 2015. [Morphological word embeddings](#). In *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*. Association for Computational Linguistics, Denver, Colorado, pages 1287–1292. <http://www.aclweb.org/anthology/N15-1140>.
21. Ryan Cotterell, Nanyun Peng, and Jason Eisner. 2014. [Stochastic contextual edit distance and probabilistic FSTs](#). In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (ACL)*. Association for Computational Linguistics, Baltimore, Maryland, pages 625–630. <http://www.aclweb.org/anthology/P14-2102>.
22. Ryan Cotterell and Chris Callison-Burch. 2014. [A multi-dialect, multi-genre corpus of informal written arabic](#). In Nicoletta Calzolari (Conference Chair), Khalid Choukri, Thierry Declerck, Hrafn Loftsson, Bente Maegaard, Joseph Mariani, Asuncion Moreno, Jan Odijk, and Stelios Piperidis, editors, *Proceedings of the Ninth International Conference on Language Resources and Evaluation (LREC)*. European Language Resources Association (ELRA), Reykjavik, Iceland. <https://ryancotterell.github.io/papers/cotterell+callison-burch.lrec14.pdf>.

#### Refereed Workshop Papers

23. Ryan Cotterell, Christo Kirov, John Sylak-Glassman, David Yarowsky, Jason Eisner, and Mans Hulden. 2016. [The SIGMORPHON 2016 shared task morphological reinflection](#). In *Proceedings of the 14th SIGMORPHON Workshop on Computational Research in Phonetics, Phonology, and Morphology*. Association for Computational Linguistics, Berlin, Germany, pages 10–22. <http://anthology.aclweb.org/W16-2002>.
24. Gaurav Kumar, Yuan Cao, Ryan Cotterell, Chris Callison-Burch, Daniel Povey, and Sanjeev Khudanpur. 2014. [Translations of the CALLHOME Egyptian Arabic corpus for conversational speech translation](#). In *Proceedings of the International Workshop on Spoken Language Translation (IWSLT)*. Association for Computational Linguistics, Lake Tahoe, USA. <https://ryancotterell.github.io/papers/kumar+al.iwslt14.pdf>.
25. Ryan Cotterell, Adithya Renduchintala, Naomi Saphra, and Chris Callison-Burch. 2014. [An Algerian Arabic-French code-switched corpus](#). In *Workshop on Free/Open-Source Arabic Corpora and Corpora Processing Tools (OSACT)*. European Language Resources Association, Reykjavik, Iceland. <https://ryancotterell.github.io/papers/cotterell+al.osact14.pdf>.

#### Unrefereed Publications

26. Chandler May, Ryan Cotterell, and Benjamin Van Durme. 2016. [Analysis of morphology in topic modeling](#). *CoRR* abs/1608.03995. <http://arxiv.org/abs/1608.03995>

#### Technical Reports

27. David Etter, Francis Ferraro, Ryan Cotterell, Olivia Buzek, and Benjamin Van Durme. 2013. [Nerit: Named entity recognition for informal text](#). Technical Report 11, Human Language Technology Center of Excellence, Johns Hopkins University. <https://ryancotterell.github.io/papers/etter+al.tr13.pdf>.

INVITED TALKS	1. Graphical Models over Strings Location: Universität Heidelberg Host: Stefan Riezler	February, 2017
	2. Neural String-Valued Graphical Models Location: Schloss Dagstuhl From Characters to Understanding Natural Language (Dagstuhl Seminar 17042)	January, 2017
	3. Graphical Models over Strings Location: University of Alberta Host: Greg Kondrak	October, 2016
	4. Graphical Models over Strings Location: Johns Hopkins University CLSP Seminar	September, 2016
	5. Modeling Word Forms Using Latent Underlying Morphs and Phonology Location: Universität Tübingen Host: Gerhard Jäger	July, 2016
	6. Modeling Word Forms Using Latent Underlying Morphs and Phonology Location: Xerox Research Centre Europe Host: Xavier Carreras	December, 2015
	7. Modeling Word Forms Using Latent Underlying Morphs and Phonology Location: Priberam Labs Host: André Martins	September, 2015
	8. A Probabilistic Approach to Synchronic Phonology Institut für Phonetik und Sprachverarbeitung, LMU München Host: Jonathan Harrington	November, 2014.

SHARED TASK ORGANIZER	1. CoNLL-SIGMORPHON-2017 Shared Task: Universal Morphological Reinflection
	2. SIGMORPHON 2016 Shared Task: Morphological Reinflection

SERVICE	<b>Journal Reviewer:</b> <i>Computational Linguistics</i> (2017, 2015) <b>Conference Reviewer:</b> ACL (2017, 2016), EMNLP (2016), NAACL (2016), EACL (2017), COLING (2016), AAAI (2016 secondary) <b>Workshop Reviewer:</b> Subword and character level models in NLP (2017), Ethics in NLP (2017), SIGMORPHON (2016), Multilingual and Cross-lingual Methods in NLP (2016) <b>Other:</b> SIGMORPHON Officer At-Large, CLSP Happy Hour Coordinator
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REFERENCES	Jason Eisner ( <a href="mailto:jason@cs.jhu.edu">jason@cs.jhu.edu</a> ), Johns Hopkins University David Yarowsky ( <a href="mailto:yarowsky@jhu.edu">yarowsky@jhu.edu</a> ), Johns Hopkins University Colin Wilson ( <a href="mailto:wilson@cogsci.jhu.edu">wilson@cogsci.jhu.edu</a> ), Johns Hopkins University
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SKILLS	<b>Programming Languages:</b> Python, Cython, Java, Perl, Ocaml, Lisp, C, C++, R, Scala, $\text{\LaTeX}$
	<b>Languages:</b> English, German, Spanish, Russian, Portuguese
	<b>Graduate Coursework:</b> Natural Language Processing, Speech Processing, Machine Learning, Artificial Intelligence, Programming Language Theory, Nonlinear Optimization, Stochastic Optimization, Neural Networks, Real Analysis, Software Engineering, Representation Learning, Big Data, Bayesian Statistics