

## Ryan Cotterell

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### CONTACT INFORMATION

Department of Computer Science  
Johns Hopkins University  
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### EDUCATION

**Johns Hopkins University** Spring 2019 (Expected)  
Ph.D. in Computer Science  
Advisors: Jason Eisner and David Yarowsky

**Ludwig-Maximilians-Universität München** 2014-2016  
Visiting Ph.D. Student  
Advisor: Hinrich Schütze

**Johns Hopkins University** Spring 2017  
M.S.E. in Computer Science  
Advisor: Chris Callison-Burch  
GPA: 4.0

**Johns Hopkins University** Spring 2013  
B.A. in Cognitive Science  
Minor: Linguistics  
Advisor: Colin Wilson  
GPA: 3.87 (*General Honors*)  
Major GPA: 4.0 (*Departmental Honors*)

**Faculty of Liberal Arts and Sciences of St. Petersburg State University** Fall 2009  
Study Abroad, St. Petersburg, Russia

### TEACHING

**Teaching Assistant**  
Johns Hopkins University Fall 2016  
Course: Machine Learning (600.475)  
Professor: Mark Dredze  
*I held discussion sessions with students to prepare them for homework problem sets.*

**Teaching Assistant**  
Johns Hopkins University Spring 2014  
Course: Automata and Computation Theory (600.271)  
Professor: Stephen Checkoway  
*I managed three course assistants and held weekly office hours.*

**Teaching Assistant**  
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

Runner-up for Best Paper at NAACL	2016
Runner-up for Best 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. 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://ryan cotterell.github.io/papers/kann+al.eacl17.pdf>.
4. 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>.
5. 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>.
6. 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>.
7. 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>.
8. 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>.
9. 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>.
10. John. Sylak-Glassman and Ryan Cotterell. 2015. [Contrastive morphological typology and logical hierarchies](#). In Jessica Kantarovich, 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>.
  11. 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>.
  12. 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. <http://aclweb.org/anthology/D15-1272>. **Runner-up for Best Paper.**
  13. 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>.
  14. 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>.
  15. 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>.
  16. 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>.
  17. 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

18. 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>.
19. 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 Lan-*

guage Translation (IWSLT). Association for Computational Linguistics, Lake Tahoe, USA. <https://ryancotterell.github.io/papers/kumar+al.iwslt14.pdf>.

20. 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

21. 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

22. 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 February, 2017  
Location: Universität Heidelberg  
Host: Stefan Riezler
2. Graphical Models over Strings October, 2016  
Location: University of Alberta  
Host: Greg Kondrak
3. Graphical Models over Strings September, 2016  
Location: Johns Hopkins University  
CLSP Seminar
4. Modeling Word Forms Using Latent Underlying Morphs and Phonology July, 2016  
Location: Universität Tübingen  
Host: Gerhard Jäger
5. Modeling Word Forms Using Latent Underlying Morphs and Phonology December, 2015  
Location: Xerox Research Centre Europe  
Host: Xavier Carreras
6. Modeling Word Forms Using Latent Underlying Morphs and Phonology September, 2015  
Location: Priberam Labs  
Host: André Martins
7. A Probabilistic Approach to Synchronic Phonology November, 2014.  
Institut für Phonetik und Sprachverarbeitung, LMU München  
Host: Jonathan Harrington

#### SHARED TASK ORGANIZER

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

#### SERVICE

Journal Reviewer: *Computational Linguistics* (2015)  
Conference Reviewer: ACL (2016, 2017), EMNLP (2016), NAACL (2016), EACL (2017), COLING (2016), AAI (2016 secondary)  
CLSP Happy Hour Coordinator

## REFERENCES

Jason Eisner ([jason@cs.jhu.edu](mailto:jason@cs.jhu.edu)), Johns Hopkins University  
David Yarowsky ([yarowsky@jhu.edu](mailto:yarowsky@jhu.edu)), Johns Hopkins University  
Colin Wilson ([wilson@cogsci.jhu.edu](mailto:wilson@cogsci.jhu.edu)), Johns Hopkins University

## SKILLS

**Programming Languages:** Python, Cython, Java, Perl, Ocaml, Lisp, C, C++, R, Scala, L<sup>A</sup>T<sub>E</sub>X

**Languages:** English, German, Spanish, Russian, Portuguese

**Graduate Coursework:** 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.