

# Jesse Mu

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## Education

- 2018– **Ph.D. in Computer Science, Stanford University**  
– Advisor: Noah Goodman
- 2017–2018 **MPhil in Advanced Computer Science, *with distinction*, University of Cambridge**  
– Advisors: Ekaterina Shutova, Helen Yannakoudakis  
– Overall mark 1034/1200, ranked 2/55
- 2013–2017 **B.A. in Computer Science, *summa cum laude*, Boston College**  
– Advisors: Joshua K. Hartshorne, Timothy J. O’Donnell

## Experience

- Fall 2021 **Research Intern, Facebook AI Research (FAIR) London**  
– Reinforcement Learning team, advised by Ed Grefenstette and Tim Rocktäschel
- 2020 **Visiting Researcher, Language and Intelligence Group (LINGO), MIT**  
– Advised by Jacob Andreas
- 2019–2020 **Course Consultant, Codecademy**  
– Course advisor/designer for Deep Learning and Text Generation course
- 2017 **Applied Scientist Intern, Alexa AI, Amazon**  
– Semi-supervised language modeling for Alexa skills automatic speech recognition (ASR)  
– Reduced overall ASR word error rates by 2%, with improvements across 50% of skills
- 2015 **Research Assistant, Computational Intelligence Group, Technical University of Madrid**  
– Identifying Parkinson’s disease subtypes from large international datasets  
– Collaboration with King’s College London and Carlos III Institute of Health

## Preprints

- 2021 **Multi-party Referential Communication in Complex Strategic Games**  
Jessica Mankewitz, Veronica Boyce, Brandon Waldon, Georgia Loukatou, Dhara Yu, **Jesse Mu**, Noah Goodman, and Michael Frank

## Publications

- 2021 **Emergent Communication of Generalizations**  
**Jesse Mu** and Noah Goodman. In *Advances in Neural Information Processing Systems (NeurIPS)* (previously *NAACL 2021 Workshop on Visually Grounded Interaction and Language*)
- 2021 **Calibrate Your Listeners! Robust Communication-based Training for Pragmatic Speakers**  
Rose E. Wang, Julia White, **Jesse Mu**, and Noah Goodman. In *Findings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP)*

- 2020 **Compositional Explanations of Neurons**  
Jesse Mu and Jacob Andreas. In *Advances in Neural Information Processing Systems (NeurIPS)*  
[oral (top 1.1%)]
- 2020 **Learning to Refer Informatively by Amortizing Pragmatic Reasoning**  
Julia White, Jesse Mu, and Noah Goodman. In *Proceedings of the 42nd Annual Meeting of the Cognitive Science Society (CogSci)*
- 2020 **Shaping Visual Representations with Language for Few-shot Classification**  
Jesse Mu, Percy Liang, and Noah Goodman. In *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics (ACL) (previously NeurIPS 2019 Workshop on Visually Grounded Interaction and Language)*
- 2019 **Learning Outside the Box: Discourse-level Features Improve Metaphor Identification**  
Jesse Mu, Helen Yannakoudakis, and Ekaterina Shutova. In *Proceedings of the 2019 North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*
- 2019 **Do we need natural language? Exploring “restricted” language interfaces for complex domains**  
Jesse Mu and Advait Sarkar. In *CHI '19 Extended Abstracts on Human Factors in Computing Systems*
- 2019 **The meta-science of adult statistical word segmentation: Part I**  
Joshua K. Hartshorne, Lauren Skorb, Sven L. Dietz, Caitlin R. Garcia, Gina L. Iozzo, Katie E. Lamirato, James R. Ledoux, Jesse Mu, Kara N. Murdock, Jon Ravid, Alyssa A. Savery, James E. Spizzirro, Kelsey A. Trimm, Kendall D. van Horne, and Juliani Vidal. *Collabra* 5(1):1
- 2017 **Evaluating hierarchies of verb argument structure with hierarchical clustering**  
Jesse Mu, Joshua K. Hartshorne, and Timothy J. O’Donnell. In *Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing (EMNLP)*
- 2017 **Parkinson’s disease subtypes identified from cluster analysis of motor and non-motor symptoms**  
Jesse Mu, Kallol Ray Chaudhuri, Concha Bielza, Jesús de Pedro Cuesta, Pedro Larrañaga, and Pablo Martinez-Martin. *Frontiers in Aging Neuroscience* 9:301

## Abstracts and posters

- 2018 **Learning and evaluating hierarchies of verb argument structure**  
Jesse Mu, Joshua K. Hartshorne, and Timothy J. O’Donnell. In *Learning Language in Humans and in Machines 2018 Conference* [poster highlights]
- 2016 **The relationship between semantics and verb argument structure is highly regular: a large-scale, crowd-sourced investigation**  
Joshua K. Hartshorne, Jesse Mu, Timothy J. O’Donnell, and Martha Palmer. In *Architectures and Mechanisms for Language Processing (AMLaP)*
- 2016 **Unsupervised learning of VerbNet argument structure**  
Jesse Mu, Timothy J. O’Donnell, and Joshua K. Hartshorne. In *Proceedings of the 38th Annual Conference of the Cognitive Science Society (CogSci)*

## Talks

- 2020 “Compositional explanations of neurons”  
Deep Learning: Classics and Trends, Weights and Biases Deep Learning Salon
- 2020 “Generalization through language use: case studies in vision and pragmatics”  
MIT Computational Psycholinguistics Lab
- 2018 “Learning and evaluating hierarchies of verb argument structure”  
Stanford Computation and Cognition Lab
- 2017 “Evaluating hierarchies of verb argument structure with hierarchical clustering”  
Harvard Language and Cognition Seminar

## Honors and awards

- 2021 Open Philanthropy AI Fellowship (5/397 applicants)
- 2018 Finch Family Fellowship, Stanford School of Engineering
- 2018 NSF Graduate Research Fellowship
- 2017 EMNLP 2017 Student Scholarship
- 2017 John J. Neuhauser Award in Computer Science, Boston College
- 2017 Thomas I. Gasson, S.J. Award, Boston College
- 2017 Phi Beta Kappa
- 2017 Vanier Canada Graduate Scholarship (declined)
- 2017 Churchill Scholarship
- 2016 Barry M. Goldwater Scholarship
- 2013 Gabelli Presidential Scholarship, Boston College

## Teaching

- 2020 Guest Lecturer, Structure and Interpretation of Deep Networks, MIT IAP
- 2014–2016 Teaching Assistant, Computer Science I, Boston College

## Leadership and service

### Reviewing

- 2021 NAACL, ACL, EMNLP, NeurIPS, NeurIPS Meaning in Context Workshop
- 2022 ICLR
- 2020–2021 Organizer, Stanford NLP Seminar (open to the public)
- 2014–2017 Co-president, Boston College Computer Science Society
- 2014–2015 Director, *A Boston State of Mind*
- 2014–2015 Web Developer, Haley House
- 2014 English Teaching Assistant, Educational Development Group