

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

- 2020 **Visiting Researcher, Language and Intelligence Group, MIT**
- 2019–2020 **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
- 2016 **Research Assistant, Computation and Cognition Lab, Stanford University**
– Bayesian probabilistic programming frameworks for optimal experimental design
- 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
- 2015 **Research Assistant, Computational Cognitive Science Group, MIT**
– Bayesian nonparametric modeling of verb syntax
– Parallelized algorithms for BayesDB, an open-source machine learning package
- 2014 **Software Engineering Intern, Quantopian**

Publications

- 2021 **Emergent Communication of Generalizations**
Jesse Mu and Noah Goodman. In *NAACL 2021 Workshop on Visually Grounded Interaction and Language* [spotlight]
- 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
- 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: NAACL 2021, ACL 2021

- 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