Eva Portelance

eva.portelance@mila.quebec
pronouns: she/they - elle

ACADEMIC BACKGROUND	*Ph.D. in Computational Linguistics* Stanford University, Stanford, California	2017-2023

- Ph.D. research on neural network approaches to natural language processing and cognitive science. Co-advised by professor Dan Jurafsky and professor Michael C. Frank.
  Dissertation title: Neural Network Approaches to the Study of Word Learning.

B.A. (Hons.) in Linguistics, Computer Science (minor) — 2014 - 2017
McGill University, Montreal, Quebec

D.E.C. in Textile Design — 2010 - 2013
CÉGEP du Vieux Montréal, Montreal, Quebec

Workshops and summer schools

- Workshop on Computational Grammar Induction, McGill University — 2019
- Diverse Intelligences Summer Institute, St. Andrews University — 2018

RESEARCH RELATED EMPLOYMENT

Postdoctoral Fellow — 2023 - present
Linguistics, McGill University / Mila - Québec Artificial Intelligence Institute

- Postdoctoral researcher under the supervision of Professors Timothy J. O'Donnell and Siva Reddy. Member of the Montréal Computational and Quantitative Linguistics Laboratory (MCQLL) and the McGill NLP group.
- Researching and helping supervise students studying how to develop natural language understanding in neural networks.

Scientist-in-Residence — 2023
NextAI

- Research consultant for nine AI-based startups across Canada.
- Helped design and integrate product solutions using large language models, semantic search, diffusion models, and efficient model fine-tuning.

Research Assistant — 2019 - 2022
The Stanford Natural Language Processing Group

- Research group headed by Professors Chris Manning, Dan Jurafsky, Percy Liang, Chris Potts, Tatsunori Hashimoto, and Monica S. Lam. Part of the Stanford AI Lab.
- Researched algorithms that allow computers to process, generate, and understand human languages.

Research Assistant — 2018 - 2022
Stanford Language and Cognition Lab

- Research Lab run by Professor Michael C. Frank.
- Used computational and experimental methods to study language acquisition and early cognitive development.

Research Intern	2020

Reinforcement Learning Team, Microsoft Research Montreal

- Mentored by Dr. Romain Laroche.

- Studied language emergence in neural multi-agent communication.

HONORS AND AWARDS

Post-graduate
- Microsoft Research Fellowship   2023-2024

Graduate
- SSHRC Doctoral Fellowship   2018 - 2022
- Stanford Alumni Community Impact Award   2021
- Diverse Intelligences Summer Institute Fellowship   2018
- Joseph-Armand Bombardier Canada Graduate Scholarship (declined)   2017
- Rhodes Scholarship Finalist   2017

Undergraduate
- Dean's Honour List, McGill University   2015, 2016, 2017
- U2 Academic Achievement Award, McGill Linguistics Department   2016
- Arts Research Internship Award, McGill University   2016
- Internship Award *txtLab@McGill*   2015, 2016
- Regroupement des fondations collégiales de Montréal Scholarship   2013
- Highest Academic Achievement Award, CÉGEP du Vieux Montréal 2012, 2013

PUBLICATIONS

Manuscripts under review

Portelance, E., M. Jasbi. (2023). The roles of neural networks in language acquisition. (Manuscript under review)

Portelance, E., M. C. Frank, D. Jurafsky. (2023). Learning the meanings of function words from grounded language using a Visual Question Answering model. (Manuscript under review)

Refereed journal papers

Portelance, E., Y. Duan, M. C. Frank, G. Lupyan. (2023). Predicting age of acquisition for children's early vocabulary in five languages using language model surprisal. *Cognitive Science*.

Portelance, E. and A. Piper. (2016). How Cultural Capital Works: Prizewinners, Bestsellers, and the Time of Reading. *Post-45*.

Refereed conference proceedings

Portelance, E., M. C. Frank, D. Jurafsky, A. Sordoni, R. Laroche. (2021). The Emergence of the Shape Bias Results from Communicative Efficiency. *Proceedings of the 25th Conference on Computational Natural Language Learning (CoNLL)*.

Portelance, E., J. Degen, M. C. Frank. (2020). Predicting Age of Acquisition in Early Word Learning Using Recurrent Neural Networks. *Proceedings of CogSci 2020*.

Portelance, E. (2020). Genuine Verb stranding VP-ellipsis in Lithuanian. *Proceedings of the 50th Annual Meeting of the North East Linguistic Society (NELS 50)*.

Book chapters

Potts, C., T. Icard, **E. Portelance**, D. Card, K. Zhou, J. Etchemendy. (2021). Philosophy of Understanding. In *On the Opportunities and Risks of Foundation Models.*, Ed. by the Center for Research on Foundation Models (CRFM) at Stanford University. arXiv:2108.07258.

Technical reports

Portelance, E., A. Bruno, L. Bergen, T. J. O'Donnell. (2019). Grammar Induction for Minimalist Grammars using Variational Bayesian Inference. *arXiv*:1710.11350

Harasim, D., A. Bruno, **E. Portelance**, T. J. O'Donnell. (2018). A generalised parsing framework for Abstract Grammars. *arXiv*:1710.11301

TALKS

Invited talks

- **Portelance, E.** (2021). *Learning Strategies for the Emergence of Language in Iterated Learning.* Presentation at the Montreal Computational & Quantitative Linguistics Lab (MCQLL), McGill University.

- **Portelance, E.** (2020). *Emergent communication in multi-agent neural networks.* Presentation at the Reinforcement Learning Group, Microsoft Research (Redmond, Cambridge, New York, Montreal), Virtual.

- **Portelance, E.** (2019). *Verb stranding ellipsis in Lithuanian: verbal identity and head movement.* Presentation at the Syntax & Semantics circle, University of California, Berkeley.

Conference presentations

- **Portelance, E.**, M. C. Frank, D. Jurafsky, A. Sordoni, R. Laroche. (2021). *The Emergence of the Shape Bias Results from Communicative Efficiency.* Presentation at the Conference on Empirical Methods in Natural Language Processing (EMNLP)/ Conference on Natural Language Learning (CoNLL), Punta Cana, DR.

- **Portelance, E.**, J. Degen, M. C. Frank. (2020). *Predicting Age of Acquisition in Early Word Learning Using Recurrent Neural Networks.* Presentation at CogSci, Virtual.

- **Portelance, E.**, J. Degen, M. C. Frank. (2020). *Using neural network language models to predict age of acquisition for early vocabulary.* Presentation at the International Conference for Infant Studies, Virtual.

- **Portelance, E.**, G. Kachergis, M.C. Frank. (2019). *Comparing memory-based and neural network models of early syntactic development.* Poster presentation at the Boston University Conference on Language Development, Boston, MA.

- **Portelance, E.** (2019). *Genuine Verb stranding VP-ellipsis in Lithuanian.* Presentation at the 50th Annual Meeting of the North East Linguistic Society, Cambridge, MA.

- **Portelance, E.**, A. Bruno, D. Harasim, L. Bergen, T. J. O'Donnell. (2018). *A Framework for Lexicalized Grammar Induction Using Variational Bayesian Inference.* Poster presentation at the Learning Language in Humans and Machines conference, Paris.

- **Portelance, E.** (2018). *On the move: Free word order in Lithuanian.* Presentation at the Association for the Advancement of Baltic Studies Conference. Stanford.

- **Portelance, E.**, A. Bruno, and T. J. O'Donnell. (2017). *Unsupervised induction of natural language dependency structures.* Poster presentation at the Montreal AI Symposium, Montreal.

- **Portelance, E.** and A. Piper. (2017). *Understanding Narrative: Computational approaches to detecting narrative frames.* Poster presentation at the Digital Humanities Conference. Montreal.

TEACHING MENTORING

McGill University

Instructor for *Computational Linguistics*   Fall 2023

  – Cross-coded graduate and undergraduate course in Linguistics and Computer Science

  – Covers language models, neural network approaches to linguistic studies, probabilistic inference, formal language theory, and applied approaches to grammar induction.

Stanford University

Consultant for *Software and Services for Data Science (SSDS)*   2019 - 2022

  – Held weekly walk-in hours for programming and statistics consultations for all members of the Stanford community.

  – Prepared and taught workshops on code reproduciblility, code reusability, and an introduction to functional programming.

Mentor for the Symbolic Systems undergraduate RA Program   2021

  – Advised RAs and taught them about the research process from start to finish.

Mentor for CS Undergraduate Mentoring Program   AY 2020-2021

  – Mentored female students in Computer Science considering graduate school and careers in research and development.

TA for *Introduction to Linguistics* with Katherine Hilton   Fall 2020

  – Prepared and taught weekly labs with hands-on exercises and group activities for two class subgroups.

TA for *Introduction to Psycholinguistics* with Judith Degen   Fall 2019

  – Prepared and taught guest lectures on language acquisition and research methodologies: corpus, experimental, and computational model studies.

Corpus TA   AY 2018 - 2019

  – Managed all NLP corpora available at Stanford and consulted with students and researchers about their access, best usage cases, and licensing.

McGill University (undergraduate)

TA for *Syntax 1* with Junko Shimoyama   Winter 2016

ACADEMIC SERVICE

- Reviewer for *Cognitive Science, CogSci, CoNLL, ACL*
- Cognitive Science Seminar Administrator 2019 - 2022
- Graduate Student Representative AY 2019 - 2020
- Colloquium committee AY 2018 - 2019
- Editor on *Formal Approaches to Slavic Linguistics 27* proceedings 2018 - 2019
- Graduate Studies Committee 2018
- Friday Social Committee AY 2017 - 2018

LANGUAGES   English (native), French (native), Lithuanian (intermediate), Spanish (intermediate), Russian (beginner/for research)