

# Ewan Dunbar

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## Academic Positions

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<b>Assistant Professor</b>	2020 – Present
Department of French, University of Toronto   Toronto, Ontario, Canada	
<b>Affiliated Researcher</b>	2019 – Present
Cognitive Machine Learning, Inria – École Normale Supérieure   Paris, France	
<b>Maître de conférences (assistant professor)</b>	2017 – 2020
UFR Linguistique, Université de Paris – Paris Diderot (Paris 7)   Paris, France	
<b>Postdoctoral Researcher</b>	2013 – 2017
Laboratoire de Sciences Cognitives et Psycholinguistique, École Normale Supérieure – PSL* Research University – École des Hautes Études en Sciences Sociales – CNRS   Paris, France	

## Education

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<b>Ph.D. in Linguistics</b>	2008 – 2013
University of Maryland, College Park   College Park, MD, USA	
Thesis: <i>Statistical Knowledge and Learning in Phonology</i>	
Advisors: William Idsardi, Naomi Feldman	
<b>M.A. in Linguistics</b>	2007 – 2008
University of Toronto   Toronto, Ontario, Canada	
Thesis: <i>The Acquisition of Morphophonology: A Derivational Framework and Simulation Results</i>	
Advisors: Elan Dresher	
<b>Hon. B.Sc. in Linguistics and Computing</b>	2003 – 2007
New College, University of Toronto   Toronto, Ontario, Canada	

## Funded Grants

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GEOMPHON—Speech Perception and Learning in the Geometric Typology of Phonological Inventories   Agence Nationale de la Recherche, Jeune Chercheur - Jeune Chercheuse   Principal Investigator   EUR 298,900	2018 – 2022
Flexi-glot Speech Synthesis for Low-resource and No-resource Settings   Google Faculty Research Award   Co-Principal Investigator (with Emmanuel Dupoux)   USD 41,000	2019 – 2020
Acoustic and Semantic Analysis of Animal Vocalization Across Ages   IRIS-PSL Industrial Chair   Co-Principal Investigator (with Emmanuel Chemla, Robin Ryder and Philippe Schlenker)   EUR 100,000	2017 – 2019

## Awards

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Doctoral Award, Social Sciences and Humanities Research Council of Canada.	2011 – 2012
Joseph-Armand Bombardier CGS Master's Scholarship, Social Sciences and Humanities Research Council of Canada.	2007 – 2008
University of Toronto Excellence Award for Undergraduate Research in Social Sciences and Humanities.	2007

## Publications

Google Scholar ID: [yz1tOxgAAAAJ](https://scholar.google.com/citations?user=yz1tOxgAAAAJ)

### 2021

1. *Paraphrases do not explain word analogies.*  
2021. Louis Fournier and **Ewan Dunbar**.  
*Proceedings of the 16th Conference of the European Chapter of the Association for Computational Linguistics.*

### 2020

2. *The Perceptimatic English benchmark for speech perception models.* [code]  
2020. Juliette Millet and **Ewan Dunbar**.  
*Proceedings for the 42nd Annual Meeting of the Cognitive Science Society*, 592–597.
3. *Analogies minus analogy test: measuring regularities in word embeddings.* [code]  
2020. Louis Fournier, Emmanuel Dupoux, and **Ewan Dunbar**.  
*Proceedings of the 24th Conference on Computational Natural Language Learning (CoNLL)*, 365–375.
4. *The Zero Resource Speech Challenge 2020: Discovering discrete subword and word units.*  
2020. **Ewan Dunbar**, Julien Karadayi, Mathieu Bernard, Xuan-Nga Cao, Robin Algayres, Lucas Ondel, Laurent Besacier, Sakriani Sakti, and Emmanuel Dupoux.  
*INTERSPEECH 2020: Twenty-First Annual Conference of the International Speech Communication Association*, 4831–4835.
5. *Independent and Automatic Evaluation of Speaker-Independent Acoustic-to-Articulatory Reconstruction.*  
2020. Maud Parrot, Juliette Millet, and **Ewan Dunbar**.  
*INTERSPEECH 2020: Twenty-First Annual Conference of the International Speech Communication Association*, 3740–3744.
6. *The Zero Resource Speech Benchmark 2021: Metrics and baselines for unsupervised spoken language modeling.*  
2020. Tu Anh Nguyen, Maureen de Seyssel, Patricia Rozé, Morgane Rivière, Evgeny Kharitonov, Alexei Baevski, **Ewan Dunbar**, and Emmanuel Dupoux.  
*NeurIPS Workshop on Self-Supervised Learning for Speech and Audio Processing.*
7. *Modelling perceptual effects of phonology with ASR systems.*  
2020. Bing Er Jiang, **Ewan Dunbar**, Morgan Sonderegger, Meghan Clayards, and Emmanuel Dupoux.  
*Proceedings for the 42nd Annual Meeting of the Cognitive Science Society*, 2735–2741.
8. *Perceptimatic: A human speech perception benchmark for unsupervised subword modelling.* [code]  
2020. Juliette Millet and **Ewan Dunbar**.  
*INTERSPEECH 2020: Twenty-First Annual Conference of the International Speech Communication Association*, 4881–4885.

## 2019.....

9. *Mouse tracking as a window into decision making.*  
2019. Mora Maldonado, **Ewan Dunbar**, and Emmanuel Chemla.  
*Behavior Research Methods* 51(3), 1085–1101.
10. *RNNs implicitly implement tensor product representations.*  
2019. R Thomas McCoy, Tal Linzen, **Ewan Dunbar**, and Paul Smolensky.  
*International Conference on Learning Representations (ICLR)*.
11. *Generative grammar, neural networks, and the implementational mapping problem: Response to Pater.*  
2019. **Ewan Dunbar**.  
*Language* 95(1), e87–e98.
12. *The Zero Resource Speech Challenge 2019: TTS without T.*  
2019. **Ewan Dunbar**, Robin Algayres, Julien Karadayi, Mathieu Bernard, Juan Benjumea, Xuan-Nga Cao, Lucie Miskic, Charlotte Dugrain, Lucas Ondel, Alan W Black, Laurent Besacier, Sakriani Sakti, and Emmanuel Dupoux.  
*INTERSPEECH 2019: Twentieth Annual Conference of the International Speech Communication Association*, 1088–1092.
13. *Comparing unsupervised speech learning directly to human performance in speech perception.*  
[code]  
2019. Juliette Millet, Nika Jurov, and **Ewan Dunbar**.  
*Proceedings for the 41st Annual Meeting of the Cognitive Science Society*.

## 2017.....

14. *Learning weakly supervised multimodal phoneme embeddings.*  
2017. Rahma Chaabouni, **Ewan Dunbar**, Neil Zeghidour, and Emmanuel Dupoux.  
*INTERSPEECH 2017: Eighteenth Annual Conference of the International Speech Communication Association*, 2218–2222.
15. *The Zero Resource Speech Challenge 2017.*  
2017. **Ewan Dunbar**, Xuan Nga Cao, Juan Benjumea, Julien Karadayi, Mathieu Bernard, Laurent Besacier, Xavier Anguera, and Emmanuel Dupoux.  
*2017 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*, 323–330.

## 2016.....

16. *Addressing the “two interface” problem: Comparatives and superlatives.*  
2016. **Ewan Dunbar** and Alexis Wellwood.  
*Glossa: a journal of general linguistics*.
17. *Finite-state phonology predicts a typological gap in cyclic stress assignment.*  
2016. Bronwyn Bjorkman and **Ewan Dunbar**.  
*Linguistic Inquiry* 47(2), 351–363.
18. *Classification and automatic transcription of primate calls.*  
2016. Maarten Versteegh, Jeremy Kuhn, Gabriel Synnaeve, Lucie Ravaux, Emmanuel Chemla, Cristiane Cäsar, James Fuller, Derek Murphy, Anne Schel, and **Ewan Dunbar**.  
*The Journal of the Acoustical Society of America* 140(1), EL26–EL30.

19. *Geometric constraints on human speech sound inventories*.  
2016. **Ewan Dunbar** and Emmanuel Dupoux.  
*Frontiers in Psychology: Language Sciences*.

## 2015.....

20. *Quantitative methods for comparing featural representations*.  
2015. **Ewan Dunbar**, Gabriel Synnaeve, and Emmanuel Dupoux.  
*ICPhS 2015: 18th Annual Congress of Phonetic Sciences*. The Scottish Consortium for ICPhS 2015, ed., International Phonetic Association: London
21. *A hybrid dynamic time warping-deep neural network architecture for unsupervised acoustic modeling*.  
2015. Roland Thiolliere, **Ewan Dunbar**, Gabriel Synnaeve, Maarten Versteegh, and Emmanuel Dupoux.  
*INTERSPEECH 2015: Sixteenth Annual Conference of the International Speech Communication Association*, 3179–3183.

## 2014.....

22. *Self-consistency as an inductive bias in early language acquisition*.  
2014. Abdellah Fourtassi, **Ewan Dunbar**, and Emmanuel Dupoux.  
*Proceedings for the 36th Annual Meeting of the Cognitive Science Society*, 469–474.

## 2013.....

23. *A single-stage approach to learning phonological categories: Insights from Inuktitut*.  
2013. Brian Dillon, **Ewan Dunbar**, and William Idsardi.  
*Cognitive Science* 37(2), 344–377.
24. *A summary of the 2012 JHU CLSP workshop on zero resource speech technologies and models of early language acquisition*.  
2013. Aren Jansen, Emmanuel Dupoux, Sharon Goldwater, Mark Johnson, Sanjeev Khudanpur, Kenneth Church, Naomi Feldman, Hynek Hermansky, Florian Metze, Richard Rose, Mike Seltzer, Pascal Clark, Ian McGraw, Balakrishnan Varadarajan, Erin Bennett, Benjamin Börschinger, Justin Chiu, **Ewan Dunbar**, Abdellah Fourtassi, David Harwath, Chia-ying Lee, Keith Levin, Atta Norouzi, Vijayaditya Peddinti, Rachael Richardson, Thomas Schatz, and Samuel Thomas.  
*2013 IEEE International Conference on Acoustics, Speech and Signal Processing*, 8111–8115.
25. *A Bayesian evaluation of the cost of abstractness*.  
2013. **Ewan Dunbar**, Brian Dillon, and William J Idsardi.  
*Language Down the Garden Path: The Cognitive and Biological Basis for Linguistic Structures*, 360–384. Montserrat Sanz, Itziar Laka, and Michael K Tanenhaus, eds

## 2012.....

26. *The acquisition of phonological inventories*.  
2012. **Ewan Dunbar** and William Idsardi.  
*The Oxford Handbook of Developmental Linguistics*, 7–26. Jeffrey L Lidz, William Snyder, and Joe Pater, eds, Oxford University Press: Oxford, UK

**2010**.....  
 27. *Review of "A critical introduction to phonology: of sound, mind, and body"*.  
 2010. **Ewan Dunbar** and William J Idsardi.  
*Phonology* 27, 325–331.

**2009**.....  
 28. *Developing intermediate language learning materials: A Labrador Inuttitut story database*.  
 2009. Joan Dicker, **Ewan Dunbar**, and Alana Johns.  
*Indigenous Language Revitalization: Encouragement, Guidance & Lessons Learned*, 155–166. Jon  
 Reyhner and Louise Lockard, eds, Northern Arizona University: Flagstaff, AZ

## Advising

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Aixiu An (Postdoctoral researcher)	2020
Université de Paris, "Abstract effects of inventory geometries"	
Amelia Kimball (Postdoctoral researcher)	2018–2019
Université Paris Diderot, "Perceptual effects of inventory geometries"	
Juliette Millet (PhD, co-supervised with Ioana Chitoran)	2018–2022
Université de Paris, "Speech models for foreign speech perception"	
Clément Nguyen (Master's)	2021
École Normale Supérieure, "Universal speech synthesis"	
Victoria Brami (Master's, co-supervised with Juliette Millet)	2021
École Normale Supérieure, "Comparing speech models to human perception"	
Louis Bard (Master's, co-supervised with Juliette Millet)	2021
École Normale Supérieure, "Using human speech perception constraints to improve speech recognition models"	
Louis Fournier (Master's)	2020
École Normale Supérieure, "Explaining analogy tests"	
Maud Parrot (Master's)	2019
École Normale Supérieure, "Reconstitution articulatoire pour modéliser la perception auditive"	
Paul Andrey (Master's)	2018
École Normale Supérieure, "Neural acoustic-articulatory inversion"	
Nika Jurov (Master's)	2017–2019
Université Paris Diderot, "Phonetics or phonology? Modelling non-native perception"	
Clara Delacourt (Master's)	2017–2018
Université Paris Diderot, "Audio-visual perception of speech"	
Chloé Gfeller (Master's, co-supervised with Ioana Chitoran)	2017–2018
Université Paris Diderot, "Audio-visual perception of speech"	
Rahma Chaabouni (Master's, co-supervised with Neil Zeghidour)	2016–2017
École Normale Supérieure, "Learning weakly supervised multimodal phoneme embeddings"	
Ambroise Petit-Hoang (Master's)	2016
École Normale Supérieure, "Modelling of Phonotactics with Neural Networks"	

## Teaching

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Computational tools for linguists (graduate) (FRE1149), Instructor, University of Toronto	Spring 2021
Quantitative methods for the study of French (undergrad) (FRE383), Instructor, University of Toronto	Fall 2020

Phonetics and phonology of French (undergrad) (FRE376), Instructor, University of Toronto Fall 2020

Phonetics and phonology of French (undergrad) (FRE376), Instructor, University of Toronto Spring 2020

Phonologie (undergrad) (None), Instructor, University of Toronto Fall 2019

Phonetics and phonology of French (undergrad) (FRE376), Instructor, University of Toronto Fall 2019

Phonetics and phonology of French (undergrad) (FRE376), Instructor, University of Toronto Fall 2019