

Employment and research status

- 2017–. *Maître de conférences* (assistant professor),
UFR Linguistique, Université Paris Diderot (Paris 7).
Member, Laboratoire de Linguistique Formelle (LLF: Paris 7/CNRS UMR 7110).
Affiliated member, Cognitive Machine Learning
(CoML: ENS-PSL/EHESS/CNRS/Inria; part of LSCP: ENS/EHESS/CNRS
UMR 8554).
- 2013–2017. Postdoctoral researcher, Ecole des Hautes Etudes en Sciences Sociales (EHESS)
Laboratoire de Sciences Cognitives et Psycholinguistique (ENS, EHESS, CNRS)
Département des Etudes Cognitives / Institut d'Etude de la Cognition
Ecole Normale Supérieure / PSL Research University (Paris)

Education

- 2008–2013. Ph.D. Linguistics, University of Maryland, College Park.
Dissertation: *Statistical Knowledge and Learning in Phonology*
Principal advisor, William Idsardi; co-advisor, Naomi Feldman.
University of Maryland Flagship Fellow.
Participant, University of Maryland IGERT: Biological and Computational
Foundations of Language Diversity (NSF IGERT DGE-0801465).
- 2007–2008. M.A. Linguistics, University of Toronto.
Thesis: *The Acquisition of Morphophonology Under a Derivational Theory: A Basic
Framework and Simulation Results*
- 2003–2007. Hon. B.Sc. with high distinction, Linguistics and Computing, New College,
University of Toronto.

Grants

- 2018-2021. GEOMPHON: Speech perception and learning in the geometric typology of
phonological inventories. 298,900€. PI. ANR (French *Agence nationale de la
recherche*).
- 2017-2018. Acoustic and semantic analysis of animal vocalization across ages. Secondary PI with
Emmanuel Chemla, Robin Ryder, and Philippe Schlenker. IRIS-PSL industrial chair.

Honours and awards

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

Peer-reviewed journal papers

- Dunbar, E.** 2019. Generative grammar, neural networks, and the implementational mapping problem.
In press in *Language*.
- Maldonado, M., **Dunbar, E.**, and Chemla, E. 2019. Mouse tracking as a window into decision
making. *Behavior Research Methods*. DOI: 10.3758/s13428-018-01194-x

- Dunbar, E.**, and Dupoux, E. 2016. Geometric constraints on human speech sound inventories. *Frontiers in Psychology: Language Sciences* 7, article 1061. DOI: 10.3389/fpsyg.2016.01061
- Dunbar, E.**, and Wellwood, A. 2016. Addressing the 'two interface' problem: Comparatives and superlatives. *Glossa* 1(1), article 5. DOI: 10.5334/gjgl.9
- Bjorkman, B., and **Dunbar, E.** 2016. Finite-state phonology predicts a typological gap in cyclic stress assignment. *Linguistic Inquiry* 47(2) 353-363. DOI: 10.1162/ling_a_00214
- Versteegh, M., Kuhn, J., Synnaeve, G., Ravaux, L., Chemla, E., Cäsar, C., Fuller, J., Murphy, D., Schel, A., and **Dunbar, E.** 2016. Classification and automatic transcription of primate calls. In *Journal of the Acoustical Society of America: Express Letters*. DOI: 10.1121/1.4954887
- Dillon, B.,* Dunbar, E.,*** and Idsardi, W. 2013. A single-stage approach to learning phonological categories. *Cognitive Science* 37(2):344–377. DOI: 10.1111/cogs.12008 ***Joint first authors.**
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Peer-reviewed conference papers

- McCoy, R. T., Linzen, T., **Dunbar, E.**, and Smolensky, P. 2019. RNNs implicitly represent tensor product representations. *ICLR (International Conference on Learning Representations) 2019*. Preprint available at <https://arxiv.org/abs/1812.08718>
- Dunbar, E.**, Cao, X-N., Benjumea, J., Karadayi, J., Bernard, M., Besacier, L., Anguera, X., and Dupoux, E. 2017. The Zero-Resource Speech Challenge 2017. In *2017 IEEE Automatic Speech Recognition and Understanding Workshop (ASRU)*. DOI: 10.1109/ASRU.2017.8268953 . Preprint available at <https://arxiv.org/abs/1712.04313>
- Chaabouni, R., **Dunbar, E.**, Zeghidour, N., and Dupoux, E. 2017. Learning weakly supervised multimodal phoneme embeddings. In *INTERSPEECH 2017: 18th Annual Conference of the International Speech Communication Association*. Preprint available at <https://arxiv.org/abs/1704.06913>
- Dunbar, E.**, Synnaeve, G., and Dupoux, E. 2015. Quantitative methods for comparing featural representations. In The Scottish Consortium for ICPHS 2015 (Ed.), *Proceedings of the 18th International Congress of Phonetic Sciences*. Glasgow, UK: The University of Glasgow. Paper number 1024 retrieved from <http://www.internationalphoneticassociation.org/icphs-proceedings/ICPhS2015/Papers/ICPHS1024.pdf>
- Thiollière, R.,* Dunbar, E.,* Synnaeve, G.,*** Versteegh, M., and Dupoux, E. 2015. A hybrid dynamic time warping-deep neural network architecture for unsupervised acoustic modeling. In *INTERSPEECH 2015: 16th Annual Conference of the International Speech Communication Association*, September 6-10, Dresden. ***Joint first authors.**
- Fourtassi, A., **Dunbar, E.**, and Dupoux, E. 2014. Self consistency as an inductive bias in early language acquisition. In *Proceedings of the 36th Annual Conference of the Cognitive Science Society (Cog Sci 2014)*, July 23-26, Québec City. Paper 90 retrieved from <https://mindmodeling.org/cogsci2014/papers/090/paper090.pdf>
- Jansen, A., Dupoux, E., Goldwater, S., Johnson, M., Khudanpur, S., Church, K., Feldman, N., Hermansky, H., Metze, F., Rose, R., Seltzer, M., Clark, P., McGraw, I., Varadarajan, B., Bennett, E., Börschinger, B., Chiu, J., **Dunbar, E.**, Fourtassi, A., Harwath, D., Lee, C.-Y., Levin, K., Norouzi, A., Peddinti, V., Richardson, R., Schatz, T., Thomas, S. 2013. A summary of the 2012 JHU workshop on zero resource speech technologies and models of early language acquisition. In *ICASSP 2013: 2013 IEEE International Conference on Acoustics, Speech and Signal Processing*, May 26-31, Vancouver. DOI: 10.1109/ICASSP.2013.6639245

Dicker, J., **Dunbar, E.**, & Johns, A. 2009. Developing intermediate language learning materials: A Labrador Inuttitut story database. In J. Reyhner & L. Lockard (Eds.), *Indigenous Language Revitalization: Encouragement, Guidance & Lessons Learned* (pp. 155–166). Flagstaff: Northern Arizona University.

Book chapters

Dunbar, E., and Idsardi, W. To appear. The acquisition of phonological inventories. In Lidz, J., W. Snyder & J. Pater (eds). *Oxford Handbook of Developmental Linguistics*. Oxford: Oxford University Press.

Dunbar, E., Dillon, B., and Idsardi, W. 2013. A Bayesian evaluation of the cost of abstractness. In Sanz, M., I. Laka & M. Tanenhaus (eds). *Language Down the Garden Path: The Cognitive and Biological basis for Linguistic Structure*, 360-383. Oxford: Oxford University Press.

Reviews

Dunbar, E., and Idsardi, W. 2010. Review of Daniel Silverman, “A Critical Introduction to Phonology”. *Phonology* 27(2):325–331. DOI: 10.1017/S095267571000014X

Edited volumes

Bailyn, J., **Dunbar, E.**, LaTerza, C., and Kronrod, Y. (eds). 2012. *Proceedings of FASL 19: The Maryland meeting*. Ann Arbor, MI: Michigan Slavic Publications.

Invited talks

The first year of life and the first years of unsupervised speech recognition: How we are using big corpora to understand infant language development. University of Antwerp, Computational Linguistics and Psycholinguistics Research Centre (CLiPS), February 24, 2016.

Quantitative investigations of speech sounds and sound systems. University of California Irvine, Department of Linguistics, February 17, 2016.

Phonology and its neighbours: Using computation to tell us about architecture. Leipzig University, January 22, 2016.

Phonetic grammar and phonological development. Newcastle University, June 17, 2014.

Context in phonological development: Computational approaches. University of California Irvine, Department of Cognitive Sciences, February 24, 2014.

Computational Approaches to Theoretical Problems in Phonology. University of Colorado Boulder, Department of Linguistics, February 3, 2014.

Phonological categories and phonetic grammar: from statistics to knowledge. University of Ottawa, Department of Linguistics, February 8, 2013.

International conferences with peer review

Dunbar, E., and Dupoux, E. (2016). Evidence for two kinds of geometric effects on natural inventories. Talk at **OCP 13** (Old World Conference in Phonology), Budapest.

Dunbar, E., and Dupoux, E. (2015). The typology of inventories: Non-trivial patterns versus non-trivial bias. Talk at **DGfS** (Deutsche Gesellschaft für Sprachwissenschaft), Leipzig.

Dunbar, E. (2014). Cyclic opacity facilitates phonological interpretation. Main colloquium talk at **GLOW 37** (Generative Linguistics in the Old World), Brussels.

Dunbar, E., Dillon, B., and Idsardi, W. (2012). Learning inventories by learning allophony and vice versa. Presented at **GLOW 35** (Generative Linguistics in the Old World), Potsdam, 2012.

Dillon, B., Dunbar, E., and Idsardi, W. (2009). Seeing through the surface: A model for direct acquisition of phoneme categories. Presented at **Boston University Conference on Language Development, 2009**.

Conferences with peer review

Bjorkman, B., and Dunbar, E. (2015). Eliminating cyclicity: A reanalysis of Chamorro stress. Poster at **LSA (Linguistic Society of America)**, Portland.

Dunbar, E., Dillon, B., and Idsardi, W. (2011). Unsupervised phoneme discovery in Turkish: Very large is not enough. Presented at **New Tools and Methods for Very-Large-Scale Phonetics Research**, University of Pennsylvania, 2011.

Workshops

Dunbar, E., and Linzen, T. (2016). Three important properties of Bayesian inference. Talk at **MFMM Fringe Workshop on Computational Phonology**, Manchester.

Dunbar, E. (2012). Simplicity in grammar and the Bayesian evaluation measure. Presented at **NECPhon 6 (Northeast Computational Phonology)**, University of Maryland, 2012.

Dunbar, E., Dillon, B., and Idsardi, W. (2010). Bayesian learning of allophones. Presented at **Northeast Computational Phonology (NECPhon) 4**, U. of Massachusetts, Amherst, 2010.

Dillon, B., Dunbar, E., and Idsardi, W. (2010). A single-stage computational model of phoneme category acquisition. Presented at **Computational Modeling of Sound Pattern Acquisition Workshop**, University of Alberta, 2010.

Dunbar, E. (2009). Pitfalls of distributional allophone learning. Presented at the **Montreal-Ottawa Toronto Workshop in Phonology (MOT)**, Toronto, Ontario, Canada.

Committee membership and hosting of research activities

2011–2012. Organizing committee, Mayfest 2012 Workshop, *The role of computational models in linguistic theory* (two-day workshop). Department of Linguistics, University of Maryland.

2011. Organizing committee, Mid-Atlantic Student Colloquium on Speech, Language and Learning (one-day conference). Johns Hopkins University, September 23, 2011.

2010–2011. Organizer, IGERT lunch talk series (weekly seminar series). University of Maryland.

2010. Organizing committee, FASL 19: Formal Approaches to Slavic Linguistics (three-day international conference). University of Maryland, April 23–25, 2011.

2009–2011. Organizer, colloquium series. Department of Linguistics, University of Maryland.

2010–2011. Selection committee member, Graduate Mentor of the Year Award (special award given by the university to thesis supervisors, nominated by students). University of Maryland.

Peer review

Book proposal reviewer, *Oxford University Press*.

Journal reviewer, *Frontiers in Psychology: Language Sciences, Language Acquisition, Cognitive Science, Canadian Journal of Linguistics, PLoS One, Behavior Research Methods, Transactions of the Association for Computational Linguistics, Phonology, Glossa, Linguistic Typology*.

Conference reviewer, *European Association for Computational Linguistics, Association for Computational Linguistics International Joint Conference on NLP, North American Association for Computational Linguistics Conference, Boston University Conference on Language Development, International Congress of Phonetic Sciences*.

Program Committee, *Cognitive Science 2014 Conference*.

Teaching

- 2018 and 2019, 24h.** *Méthodes expérimentales en linguistique*. Licence 3 (bachelors) in Language Sciences, Université Paris Diderot.
- 2018 and 2019, 24h.** *Phonologie 2*. Licence 3 (bachelors) in Language Sciences, Université Paris Diderot.
- 2017 and 2018, 24h.** *Statistique*. Master 2 in Language Sciences, Université Paris Diderot.
- 2017, 24h.** *Phonologie 1*. Licence 3 (bachelors) in Language Sciences, Université Paris Diderot.
- 2017 and 2018, 30h.** *Phonologie*. Master 1 in Language Sciences, Université Paris Diderot.
- 2016, 17.5h.** *Atelier d'initiation à la programmation niv. 2*. Cogmaster, Ecole Normale Supérieure. Teaching assistant, guest lecturer (one lecture, 2.5h).
- 2016, 2.5h.** *Topics in phonology*. LingMaster, Ecole Normale Supérieure. Guest lecture on theoretical computational phonology.
- 2015, 12.5h.** *Computational phonology*. European Generative Grammar, Brno. Two-week summer school course on theoretical computational phonology for linguistics students (from undergraduate to PhD) with no previous experience.
- 2012, 36h.** *Discrete mathematical models of grammatical structure*. Department of Linguistics, Univ. of Maryland. Undergraduate course on theoretical computational phonology.
- 2011, 36h.** *Phonology I*. Department of Linguistics, Univ. of Maryland. Teaching assistant (including weekly tutorial sessions), guest lecturer (two lectures, total 2.5h).
- 2010, 36h.** *Phonology I*. Department of Linguistics, Univ. of Maryland. Teaching assistant (including weekly tutorial sessions), guest lecturer (one lecture, total 1.25h).
- 2009, 36h.** *Introduction to language*. Department of Linguistics, Univ. of Maryland. Teaching assistant (including weekly tutorial sessions).
- 2007, 36h.** *Field methods*. Department of Linguistics, Univ. of Toronto. Teaching assistant, guest lecturer (one lectures, total 2h).
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Supervision

- 2018–2021. Juliette Millet.** PhD student (Université Paris Diderot / Frontières du Vivant). *Large scale unsupervised speech models of foreign-language speech perception*.
- 2018-2019. Nika Jurov.** Supervision of second-year Masters final project. (Université Paris Diderot). *Phonetics or phonology? Modelling non-native perception*.
- 2018. Paul Andrey.** Co-supervision of Masters research internship, w. A. Guevara-Rukoz. (LSCP, 6 months). *Neural acoustic-articulatory inversion*.
- 2018. Sébastien Gadioux.** Supervision of undergraduate research internship. (Université Paris Diderot). *Quantifying dispersion in natural language sound inventories*.
- 2017-2018. Clara Delacourt.** Supervision of first-year Masters final project. (Université Paris Diderot). *Audio-visual perception of emotional speech*.
- 2017-2018. Nika Jurov.** Supervision of first-year Masters final project. (Université Paris Diderot). *Second-language speech perception modelling*.
- 2016-2017. Rahma Chaabouni.** Co-supervision of internship project, w. E. Dupoux and N. Zeghidour. (LSCP, 6 months). *Learning weakly supervised multimodal phoneme embeddings*.
- 2016. Ambroise Petit-Hoang.** Supervision of internship project (LSCP, 6 months). *Modelling of Phonotactics with Neural Networks*.

2015, 2016. Supervision of mini-projects. Ecole Normale Supérieure, 1 week.

2016 : **Samuel Delbecq, Tomas Rigaux, and Haowen Zhang.**

2015 : **Antonin Affholder et Noémi Fong.**

Google peut-il réussir un test QI ?

2011. Jesse Shawl. Honors thesis. Department of Linguistics, Univ. of Maryland. 14 weeks.

Statistical Learning of Spanish Vowel Categories.

Workshops

2016, 10h. *Introduction to statistics with SPSS.* Invited workshop, University of Kent.

2012, 6h. *Introduction to statistics with R.* Workshop, University of Maryland.

2011, 10h. *Introduction to statistics with R.* Workshop, University of Maryland.

2010, 2h. *Introduction to R.* Workshop, Second Language Research Forum (conference).
University of Maryland.

2010, 10h. *Introduction to statistics with R.* Invited workshop, Stony Brook University.