

Dr Jonathan Dunn (he/him)

University of Canterbury
Department of Linguistics
Christchurch, New Zealand

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Specialization

Computational Linguistics; Syntax & Semantics; Cognitive Linguistics

Overview

I am a computational linguist using data science to model both [the emergence of grammatical structure](#) and [variation in grammatical structure](#) using [large multi-lingual corpora](#). My recent work has also focused on the impact of [linguistic variation](#) on models in NLP and on [low-resource contexts](#). I have published [over 30 papers](#) and [my first book](#) was recently published by Cambridge University Press. My [interdisciplinary teaching experience](#) includes a [MOOC](#) which has now taught over 11,000 students about NLP.

Appointments held

2021-Present	Senior Lecturer in Linguistics @ University of Canterbury
2021-Present	Leader of Language Technology Theme @ New Zealand Institute for Language, Brain and Behaviour
2018-2020	Lecturer in Linguistics @ University of Canterbury
2015-2018	Research Assistant Professor of Computer Science @ Illinois Institute of Technology
2015-2018	Visiting Scientist @ National Geospatial-Intelligence Agency
2014-2015	Research Fellow in Computer Science @ Illinois Institute of Technology

Education

2013	PhD, Purdue University (Specialization: Computational Linguistics) Dissertation: <i>Automatic Identification of Metaphoric Utterances</i>
2010	MA, Purdue University (Specialization: Computational Linguistics) Thesis: <i>Towards a Computational Model of Metaphor</i>
2008	BA, Classics, Hillsdale College

Books

Dunn, J. (2022). *Natural Language Processing for Corpus Linguistics*. Elements in Corpus Linguistics. Cambridge University Press. [Interactive Labs](#)

Reviews: *In Natural Language Engineering*, *In Corpus Pragmatics*

Dunn, J. (Under Contract). *Working with Construction Grammars: A Computational Approach*. Elements in Cognitive Linguistics. Cambridge University Press. ([Overview](#)).

MOOCs on edX

Now over 11,000 students

Text Analytics 1: Introducing Natural Language Processing

Text Analytics 2: Visualizing Natural Language Processing

Visiting Positions

2022 Visiting Scholar, Center for Spatial Data Science @ University of Chicago
2015 Faculty, LSA Linguistic Institute @ University of Chicago

Grants, honours, awards

2021 Early Career Researcher Development Fund, University of Canterbury
Towards Equitable Language Models

2020 Science for Technological Innovation, National Science Challenges, MBIE
Domain Adaptation to Support Polynesian Language Technology

2020 Teaching Development Grant, University of Canterbury
Syntactic Annotations for Māori Corpora

2019 Support Grant, University of Canterbury
Automating Tourist Profiles By Integrating Spatial and Textual Artificial Intelligence

2015-2018 Visiting Scientist Research Fellowship, Oak Ridge Institute for Science and Education
Geolinguistics

2017 Certificate of Merit, Oak Ridge Institute for Science and Education

2014-2015 IC Postdoctoral Research Fellowship, Office of the Director of National Intelligence
Computational Cognitive Stylistics For Multi-Modal Identity Analytics

2013 Bilisland Dissertation Fellowship, Purdue University Graduate School
Automated Identification of Metaphoric Utterances

2011-2012 Bilisland Strategic Initiatives Grant, Purdue University Graduate School
Evaluating Cross-Listed Graduate Courses

Papers

My research is situated at intersection between natural language processing and the language sciences. Thus, I have published widely in both fields. Here I am distinguishing between [NLP proceedings](#) and [linguistics journals](#) for convenience. Both represent peer-reviewed publications.

- Forthcoming
1. **Dunn, J.** (In Press). "Exposure and Emergence in Usage-Based Grammar: Computational Experiments in 35 Languages." *Cognitive Linguistics*. ([Q1 Journal in Linguistics](#)). [Link](#).
 2. Li, H.; **Dunn, J.***; & Nini, A. (In Press). "Register Variation Remains Stable Across 60 Languages." *Corpus Linguistics and Linguistic Theory*. ([Q1 Journal in Linguistics](#)). [Link](#). *Corresponding author.

2022

3. **Dunn, J.** & Wong, S. (2022). Stability of Syntactic Dialect Classification Over Space and Time. In *Proceedings of the International Conference on Computational Linguistics*, COLING. 26-36.
([Top 10 Venue in NLP](#)). [Link](#).
4. **Dunn, J.**; Li, H.; & Sastre, D. (2022). "Predicting Embedding Reliability in Low-Resource Settings Using Corpus Similarity Measures." In *Proceedings of the International Conference on Language Resources and Evaluation*, LREC. European Language Resources Association. 6461-6470.
([Top 10 Venue in NLP](#)). [Link](#).
5. **Dunn, J.** & Nijhof, W. (2022). "Language Identification for Austronesian Languages." In *Proceedings of the International Conference on Language Resources and Evaluation*, LREC. European Language Resources Association. 6530-6539.
([Top 10 Venue in NLP](#)). [Link](#).
6. Li, H. & **Dunn, J.*** (2022). "Corpus Similarity Measures Remain Robust Across Diverse Languages." *Lingua*, 275: 103377.
([Q1 Journal in Linguistics](#)). [Link](#). * *Corresponding author*.
7. **Dunn, J.** (2022). "Cognitive Linguistics Meets Computational Linguistics: Construction Grammar, Dialectology, and Linguistic Diversity." In Tay, D. & Xie Pan, M. (eds.), *Data Analytics in Cognitive Linguistics: Methods and Insights*. 273-308. Berlin: De Gruyter.
[Link](#)

2021

8. **Dunn, J.** & Tayyar Madabushi, H. (2021). "Learned Construction Grammars Converge Across Registers Given Increased Exposure." In *Proceedings of the Conference on Computational Natural Language Learning*, CoNLL. Association for Computational Linguistics. 268-278.
([Top 10 Venue in NLP](#)). [Link](#).
9. **Dunn, J.** (2021). "Representations of Language Varieties Are Reliable Given Corpus Similarity Measures." In *Proceedings of the Workshop on NLP for Similar Languages, Varieties and Dialects @ EACL*. Association for Computational Linguistics. 28-38.
([Workshop @ Top 10 Venue in NLP](#)). [Link](#).
10. **Dunn, J.** & Nini, A. (2021). "Production vs Perception: The Role of Individuality in Usage-Based Grammar Induction." In *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics @ NAACL*. Association for Computational Linguistics. 149-159.
([Workshop @ Top 10 Venue in NLP](#)). [Link](#).

2020

11. **Dunn, J.** (2020). "Mapping Languages: The Corpus of Global Language Use." *Language Resources and Evaluation*, 54(4): 999-1,018.
([Q1 Journal in Linguistics](#)). [Link](#).
12. **Dunn, J.** & Adams, B. (2020). "Geographically-Balanced Gigaword Corpora for 50 Language Varieties." In *Proceedings of the Conference on Language Resources and Evaluation*, LREC. European Language Resources Association. 2,521-2,529.
([Top 10 Venue in NLP](#)). [Link](#).

13. **Dunn, J.**; Coupe, T.; & Adams, B. (2020). "Measuring Linguistic Diversity During COVID-19." In *Proceedings of the Workshop on Natural Language Processing and Computational Social Science @ EMNLP*. Association for Computational Linguistics. 1-10. (Workshop @ Top 10 Venue in NLP). [Link](#).
14. **Dunn, J.** (2020). "Ontological and Grammatical Constraints on Metaphor Productivity." In Attardo, S. (ed.), *Script-Based Semantics: Foundations and Applications. Essays in Honor of Victor Raskin*. Berlin: De Gruyter. 55-76. [Link](#)
15. Mohammadhassan N., Mitrovic A., Neshatian K. & **Dunn J.** (2020). "Automatic Quality Assessment of Comments in Active Video Watching Using Machine Learning Techniques." In So H-J; Rodrigo M; Mason J; Mitrovic A (Eds). *Proceedings of the 28th International Conference on Computers in Education*. I: 1-10. Taiwan: Asia-Pacific Society for Computers in Education. [Link](#)
16. Mohammadhassan N., Mitrovic A., Neshatian K. & **Dunn J.** (2020) "Developing Personalized Nudges to Improve Quality of Comments in Active Video Watching." In *Proceedings of 28th International Conference on Computers in Education 2*: 766-769. Taiwan: Asia-Pacific Society for Computers in Education. [Link](#)
- 2019 17. **Dunn, J.** (2019). "Global Syntactic Variation in Seven Languages: Towards a Computational Dialectology." *Frontiers in Artificial Intelligence: Language and Computation*. Section on Computational Sociolinguistics. [10.3389/frai.2019.00015](https://doi.org/10.3389/frai.2019.00015) (Altmetric: Top 10%). [Link](#).
18. **Dunn, J.** (2019). "Modeling Global Syntactic Variation in English Using Dialect Classification." In *Proceedings of the Workshop on NLP for Similar Languages, Varieties and Dialects @ NAACL*. Association for Computational Linguistics. 42-53. (Workshop @ Top 10 Venue in NLP). [Link](#).
19. **Dunn, J.** (2019). "Frequency vs. Association for Constraint Selection in Usage-Based Construction Grammar." In *Proceedings of the Workshop on Cognitive Modeling and Computational Linguistics @ NAACL*. Association for Computational Linguistics. 117-128. (Workshop @ Top 10 Venue in NLP). [Link](#).
20. **Dunn, J.** & Adams, B. (2019). "Mapping Languages and Demographics with Georeferenced Corpora." In *Proceedings of GeoComputation 19*. [Link](#)
- 2018 21. **Dunn, J.** (2018). "Multi-Unit Association Measures: Moving Beyond Pairs of Words." *International Journal of Corpus Linguistics*, 23(2): 183-215. (Q1 Journal in Linguistics). [Link](#)
22. **Dunn, J.** (2018). "Finding Variants for Construction-Based Dialectometry: A Corpus-Based Approach to Regional CxGs." *Cognitive Linguistics*, 29(2): 275-311. (Q1 Journal in Linguistics). [Link](#).
23. **Dunn, J.** (2018). "Modeling the Complexity and Descriptive Adequacy of Construction Grammars." In *Proceedings of the Society for Computation in Linguistics*. Association for Computational Linguistics. 81-90. [Link](#).

- 2017 24. **Dunn, J.** (2017). “Computational Learning of Construction Grammars.” *Language and Cognition*, 9(2): 254-292.
(Q1 Journal in Linguistics). [Link](#).
- 2016 25. **Dunn, J.**; Argamon, S.; Rasooli, A.; & Kumar, G. (2016) “Profile-Based Authorship Analysis.” *Digital Scholarship in the Humanities*, 31(4): 689-710.
(Q1 Journal in Linguistics). [Link](#).
- 2015 26. **Dunn, J.** (2015) “Modeling Abstractness and Metaphoricity.” *Metaphor & Symbol*, 30(4): 259-289.
(Q1 Journal in Linguistics). [Link](#).
27. **Dunn, J.** (2015). “Three Types of Metaphoric Utterances That Can Synthesize Theories of Metaphor.” *Metaphor & Symbol*, 30(1): 1-23.
(Q1 Journal in Linguistics). [Link](#).
- 2014 28. **Dunn, J.** (2014). “Measuring Metaphoricity.” In *Proceedings of the Annual Meeting of the Association for Computational Linguistics*, ACL. Association for Computational Linguistics. 745-751.
(Top 10 Venue in NLP). [Link](#).
29. **Dunn, J.** (2014). “Multi-Dimensional Abstractness in Cross-Domain Mappings.” In *Proceedings of the Workshop on Metaphor in NLP @ ACL*. Association for Computational Linguistics. 27-32.
(Workshop @ Top 10 Venue in NLP). [Link](#).
30. **Dunn, J.**; Beltran de Heredia, J.; Burke, M.; Gandy, L.; Kanareykin, S.; Kapah, O.; Taylor, M.; Hines, D.; Frieder, O.; Grossman, D.; Howard, N.; Koppel, M.; Morris, S.; Ortony, A.; & Argamon, S. (2014). “Language-Independent Ensemble Approaches to Metaphor Identification.” In *Proceedings of the 28th Conference on Artificial Intelligence: Workshop on Cognitive Computing for Augmented Human Intelligence*. 6-12.
(Workshop @ Top 10 Venue in AI). [Link](#).
- 2013 31. **Dunn, J.** (2013). “How Linguistic Structure Influences and Helps To Predict Metaphoric Meaning.” *Cognitive Linguistics*, 24(1): 33-66.
(Q1 Journal in Linguistics). [Link](#).
32. **Dunn, J.** (2013). “Evaluating the Premises and Results of Four Metaphor Identification Systems.” In *Proceedings of the Conference on Intelligent Text Processing and Computational Linguistics, Vol. 1*. Heidelberg: Springer. 471-486. [Link](#)
33. **Dunn, J.** (2013). “What Metaphor Identification Systems Can Tell Us About Metaphor-in-Language.” In *Proceedings of the Workshop on Metaphor in NLP @ NAACL*. Association for Computational Linguistics. 1-10.
(Workshop @ Top 10 Venue in NLP). [Link](#).
- 2011 34. **Dunn, J.** (2011). “Gradient Semantic Intuitions of Metaphoric Expressions.” *Metaphor & Symbol*, 26(1): 53-67.
(Q1 Journal in Linguistics). [Link](#).

Teaching

COMPUTATIONAL LINGUISTICS

Natural Language Processing (COSC 471: Graduate-level)

University of Canterbury

Teaching Evaluations: 5.00 (out of 5)

Text Analytics (LING 223: Undergraduate-level)

University of Canterbury

Teaching Evaluations: 4.86 (out of 5)

LINGUISTICS

Topics in Syntactic Theory (LING 306: Graduate-level)

University of Canterbury

Teaching Evaluations: 4.50 (out of 5)

Grammatical Structure (LING 217: Undergraduate-level)

University of Canterbury

Teaching Evaluations: 4.45 (out of 5)

Forensic Linguistics (LING 225: Undergraduate-level)

University of Canterbury

Teaching Evaluations: 4.70 (out of 5)

GENERAL LINGUISTICS

English Structures (LING 400: Graduate-level Intro)

University of Canterbury

Teaching Evaluations: 4.24 (out of 5) (avg)

The English Language (LING 101: Undergraduate-level Intro)

University of Canterbury

Teaching Evaluations: 4.20 (out of 5) (avg)

PREVIOUS TEACHING

Data-Driven Computational Pragmatics: LSA Linguistic Institute @ University of Chicago

Introduction to Linguistics (LING 227) @ Purdue University

Classroom Communication for International Graduate Students @ Purdue University

First Year Composition for International Students (ENGL 101I) @ Purdue University

First-Year Composition (ENGL 101) @ Purdue University

Residential Learning Community (ENGL 101) @ Purdue University

TEACHING AWARDS AND RECOGNITION

2012

Quintilian Award (Top 10% of Instructor Evaluations), Purdue University, Department of English

2012

Graduate Teacher Certificate, Center for Instructional Excellence, Purdue University

Supervisions

- 2021-Present Sidney Wong (Ph.D. Student, Linguistics)
2021-Present Matthew Durward (Ph.D. Student, Linguistics)
2020-2022 Negar Mohammadhassan (Ph.D. Student, Computer Science; Primary supervisor: Tanja Mitrovic)
2021-2022 Haipeng Li (Post-doc, New Zealand Institute for Language Brain and Behaviour)

Software and Data

earthLings: Computational Linguistic Atlas

A 440 billion word geo-referenced corpus from the web and social media

<https://www.earthLings.io>

<https://www.github.com/jonathandunn/earthLings>

C2xG: Computational Construction Grammar

Python package for learning, evaluating, and annotating CxGs

<https://www.github.com/jonathandunn/c2xg>

idNet: Identifying minority languages and regional varieties of majority languages

Python package for state-of-the-art LID and DID

<https://www.github.com/jonathandunn/idNet>

pacificLID: Identifying languages and code-switching with a focus on Austronesian languages

Python Version: https://github.com/jonathandunn/pacific_CodeSwitch

fastText Version: <https://jdunn.name/corpora/>

text_analytics: Package for teaching computational linguistics in Python

https://www.github.com/jonathandunn/text_analytics

corpus_similarity: Package for measuring corpus similarity and homogeneity

https://www.github.com/jonathandunn/corpus_similarity

Common Crawl Corpus: Corpus building from the common crawl data

https://www.github.com/jonathandunn/common_crawl_corpus

Service to the Discipline

EDITORIAL WORK

- 2018-Present Associate Editor, *Frontiers in Artificial Intelligence* (Language and Computation)

AD HOC REVIEWING

- 2023 European Association for Computational Linguistics, Ethical and Sustainable NLP Track and Computational Social Science Track (EACL)
2022 Conference on Computational Natural Language Learning (CoNLL)

Workshop on Natural Language Processing and Computational Social Science (NLP+CSS)
 Asia-Pacific Association for Computational Linguistics (AAACL)
 Workshop on Figurative Language Processing
 Fund for Scientific Research (F.R.S.-FNRS), Belgium

2021 North American Association for Computational Linguistics (NAACL)
 Joint Conference of the Annual Meeting of the Association for Computational Linguistics and
 the International Joint Conference on Natural Language Processing (ACL-IJCNLP)
 Empirical Methods in Natural Language Processing (EMNLP)
 Conference on Computational Natural Language Learning (CoNLL)

2020 Joint 15th Linguistic Annotation Workshop and 3rd Designing Meaning Representations
 Association for Computational Linguistics (ACL)
 Conference of the European Chapter of the Association for Computational Linguistics (EACL)
 Conference on Empirical Methods in Natural Language Processing (EMNLP)
 Conference on Computational Natural Language Learning (CoNLL)
 Asia-Pacific Association for Computational Linguistics (AAACL)
 Linguistic Annotation Workshop (LAW XIV)
 Workshop on Figurative Language Processing
 Workshop on NLP and Computational Social Science
Transactions on Audio, Speech and Language Processing

2019 *Journal of Cognitive Science*
IEEE Transactions on Audio, Speech and Language Processing
 Conference on Computational Natural Language Learning (CoNLL)
 Association for Computational Linguistics (ACL)
 Linguistic Annotation Workshop (LAW XIII)
 North American Association for Computational Linguistics (NAACL)

2018 Linguistic Society of America, 2019 Annual Meeting
 Joint LAW-MWE-CxG Workshop (@ COLING)
IEEE Transactions on Audio, Speech and Language Processing (2x)

2017 Social Sciences and Humanities Research Council of Canada
Cognitive Linguistics
Language & Cognition
 Linguistic Society of America, 2018 Annual Meeting
Corpus Linguistics and Linguistic Theory
The Computer Journal

2016 Linguistic Society of America, 2017 Annual Meeting
 Fourth Workshop on Metaphor in NLP (@ NAACL)

2015 Linguistic Society of America, 2016 Annual Meeting
 Synthesis Lectures in Human Language Technologies, Book Series (Morgan Claypool)
Journal of Artificial Intelligence Research
Language Resources and Evaluation
 Third Workshop on Metaphor in NLP (@ NAACL)

2014 *IEEE Transactions on Audio, Speech and Language Processing*
 Croatian Science Foundation
 Second Workshop on Metaphor in NLP (@ ACL)

2012 International Conference on Computational Linguistics (COLING)
 Purdue Linguistics Association Annual Symposium

University Service

COMMITTEES

2020-2021	Board of Studies, College of Arts, University of Canterbury
2019-2020	Research Committee, School of Language, Social & Political Sciences, University of Canterbury
2018-Present	Board of Studies, College of Science, University of Canterbury
2020-Present	Steering Group for Bachelors of Data Science Degree, University of Canterbury

ADMINISTRATIVE ACHIEVEMENTS

2020	Developed and delivered one of the flagship MOOCs for the University of Canterbury
2020	Developed the <i>Computational Linguistics</i> undergraduate major
2020	Helped develop the undergraduate degree, <i>Bachelors of Data Science</i>

Partially Peer-Reviewed Publications

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| 2018 | 1. Dunn, J. (2018). "Recursively Emerging Structure: A Discovery-Device CxG." In <i>Proceedings of the Chicago Linguistics Society</i> , 53: 71-86. |
| 2017 | 2. Dunn, J. (2017). "Learnability and Falsifiability of Construction Grammars: A Learning-Based Approach." In <i>Proceedings of the Linguistic Society of America Annual Meeting</i> , 2(1): 1-15. |
| | 3. Dunn, J. (2017). <i>Automating Human Geography With Dialectology</i> . Technical Report for National Geospatial-Intelligence Agency. Washington, D.C. |
| 2015 | 4. Dunn, J. (2015). "Review of Frames and Constructions in Metaphoric Language (Constructional Approaches to Language, 14)." <i>Cognitive Linguistics</i> , 26(2): 371-375. |
| | 5. Dunn, J. (2015). "Review of The Semantic Representation of Natural Language." <i>Studies in Language</i> , 39(2): 492-500. |
| 2013 | 6. Dunn, J. (2013). "Review of Converging Evidence: Methodological and Theoretical Issues for Linguistic Research. (Human Cognitive Processing, 33)." <i>Cognitive Linguistics</i> , 24(4): 711-717. |

Invited Talks (Since 2022)

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| 2023 | 1. "Learnability and Variability in Construction Grammars" @ the Construction Grammars and NLP Workshop, Georgetown University (CxGs+NLP) |
| 2022 | 2. "Improving Corpus Resources for Low-Resource Languages" @ University of Galway |
| | 3. "Linguistic Variation in NLP" @ Pacific Northwest National Lab |

Last updated: November 8, 2022