Giovanni Cassani
Curriculum Vitæ

Tilburg University, CSAI
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GiovanniCassani

The road to wisdom? — Well, it's plain and simple to express: Err, and err, and err again; but less, and less, and less. - Piet Hein

Professional Experience

2019

Assistant Professor, *CSAI Department, Tilburg University*, Tilburg, The Netherlands.
Assistant Professor in the Department of Cognitive Science and Artificial Intelligence at Tilburg University.

2019
2019

Data Science Consultant, *Tooso AI*, San Francisco, California.
I have been working remotely with software engineers, data scientists, and business experts on intent prediction for online consumers of multi-billion retailers. The project allowed me to contribute end-to-end to a real AI use case – working with real data loads on cloud infrastructure and complying with industry best practices.

Education

2014
2019

PhD in Computational Psycholinguistics, *Research Center for Computational Linguistics and Psycholinguistics (CLiPS) - University of Antwerp*, Antwerp, Belgium.
SUPERVISORS: Prof. dr. Steven Gillis and Prof. dr. Walter Daelemans
THESIS: The bootstrapping toolbox: which cues are more useful to learn lexical categories and why
FUNDING: Research Council of the University of Antwerp, BOF/TOP grant (ID 29072)
RESEARCH VISIT: Seminar für Spraachwissenschaft - Eberhard Karls Universität Tübingen (Germany) under the supervision of Prof. dr. R. Harald Baayen.

2012
2014

MSc Cognitive Science, *Center for Mind/Brain Sciences (CIMeC) - University of Trento*, Trento, Italy.
Major in Language & Multimodal interactions
THESIS: Distributional semantics for child directed speech: A multimodal approach
ADVISORS: Prof. dr. Marco Baroni and dr. Elia Bruni
ERASMUS PROGRAM: Faculty of Arts, Department of Linguistics, Rijksuniversiteit Groningen (The Netherlands). Focus on computational semantics and computer-mediated communication.
INTERNSHIP: Press Office, University of Trento (5 months). Focus on science communication in an institutional context.

2009
2012 **BA Historical, Philological, and Literary Studies**, *Faculty of Arts, University of Trento*, Trento, Italy.
Major in Modern Literary Studies
THESIS: Effects of congenital blindness on the semantics of verbs and nouns
ADVISORS: Prof. dr. Marco Baroni and Prof. dr. Alessandro Lenci

Research Interests

Language Psycholinguistics, Language acquisition, Semantics, Neurolinguistics, Morphology, Arbitrariness of the linguistic sign, Multimodality, Concept learning, Cross-situational learning

Methodology Computational modeling, Machine learning, Statistics, Behavioral experiments, Brain imaging

Others Categorization, Embodied Cognition, Cognitive Psychology, Cognitive Neuroscience, Neural decoding, Dissemination

Teaching Experience

Supervision

2020 **BSc in Cognitive Science and Artificial Intelligence**, *Tilburg University*, Tilburg, The Netherlands.
So far, supervision of two bachelor theses on the relation between form and meaning in language acquisition.

2019 **MA in Data Science and Society**, *Tilburg University*, Tilburg, The Netherlands.
Supervision of approx. 15 master theses per year on a variety of tasks in sequence modeling (clickstream data, EEG data, language).

Teaching

2020 **Computational Linguistics**, *Tilburg University*, Tilburg, The Netherlands.
3rd year bachelor course on computational linguistics aimed at cognitive science and artificial intelligence students.

2019 **Natural Language Processing**, *Tilburg University*, Tilburg, The Netherlands.
Master course on NLP aimed at data scientists and social scientists.

2019 **Statistics for Cognitive Science and Artificial Intelligence II**, *Tilburg University*, Tilburg, The Netherlands.
2nd year bachelor course on mixed effect models aimed at cognitive science and AI students. Course taught with dr. Travis Wiltshire.

2015
2016 **Computational Psycholinguistics**, *University of Antwerp*, Antwerp, Belgium.
Teaching assistant to Prof. dr. Walter Daelemans and Prof. dr. Dominiek Sandra for the master course on Computational Psycholinguistics, aimed to Computational Linguistics students.

Articles

[CBM21] **Cassani, Giovanni***, Federico Bianchi*, and Marco Marelli. "Words with Consistent Diachronic Usage Patterns are Learned Earlier: A Computational Analysis Using Temporally Aligned Word Embeddings". In: *Cognitive Science* 45.4 (2021). ISSN: 0364-0213 1551-6709. DOI: 10.1111/cogs.12963.

[CL21] **Cassani, Giovanni** and Niklas Limacher. "Not just form, not just meaning: Words with consistent form-meaning mappings are learned earlier". In: *Quarterly Journal of Experimental Psychology* (2021). DOI: 10.1177/17470218211053472.

[Tag+21] Jacopo Tagliabue, Ciro Greco, Jean-Francis Roy, Bingqing Yu, Patrick John Chia, Federico Bianchi, and **Giovanni Cassani**. "SIGIR 2021 E-Commerce Workshop Data Challenge". In: *CoRR* abs/2104.09423 (2021). arXiv: 2104.09423. URL: https://arxiv.org/abs/2104.09423.

[CCB20] **Cassani, Giovanni**, Yu-Ying Chuang, and R. Harald Baayen. "On the semantics of nonwords and their lexical category". In: *Journal of Experimental Psychology: Learning, Memory, and Cognition* 46.4 (2020), pp. 621–637. DOI: 10.1037/xlm0000747.

[Req+20] Borja Requena, **Cassani, Giovanni**, Jacopo Tagliabue, Ciro Greco, and Lucas Lacasa. "Shopper intent prediction from clickstream e-commerce data with minimal browsing information". In: *Scientific Reports* 10.1 (2020), pp. 1–23.

[Gri+19] Robert Grimm, **Cassani, Giovanni**, Steven Gillis, and Walter Daelemans. "Children Probably Store Short Rather Than Frequent or Predictable Chunks: Quantitative Evidence From a Corpus Study". In: *Frontiers in Psychology* 10 (2019). DOI: doi.org/10.3389/fpsyg.2019.00080.

[Cas+18] **Cassani, Giovanni**, Robert Grimm, Walter Daelemans, and Steven Gillis. "Lexical category acquisition is facilitated by uncertainty in distributional co-occurrences". In: *PLoS One* 13.12 (2018), e0209449. DOI: 10.1371/journal.pone.0209449.

[Gri+17b] Robert Grimm, **Cassani, Giovanni**, Steven Gillis, and Walter Daelemans. "Facilitatory Effects of Multi-Word Units in Lexical Processing and Word Learning: A Computational Investigation". In: *Frontiers in Psychology* 8 (2017), p. 555. DOI: 10.3389/fpsyg.2017.00555.

Conference Proceedings

[Big+19] Luca Bigon, **Cassani, Giovanni**, Ciro Greco, Lucas Lacasa, Mattia Pavoni, Andrea Polonioli, and Jacopo Tagliabue. "Prediction is very hard, especially about conversion. Predicting user purchases from clickstream data in fashion e-commerce". In: *The Fourth International workshop on fashion and KDD*. 2019.

[Cas+17] **Cassani, Giovanni**, Robert Grimm, Steven Gillis, and Walter Daelemans. "Distributional learning and lexical category acquisition: What makes words easy to categorize?" In: *Proceedings of the 39th annual meeting of the Cognitive Science Society*. Ed. by G. Gunzelmann, A. Howes, T. Tenbrink, and E. Davelaar. Austin, TX: Cognitive Science Society, 2017, pp. 216–221.

[Gri+17a] Robert Grimm, **Cassani, Giovanni**, Walter Daelemans, and Steven Gillis. "Evidence for a facilitatory effect of multi-word units on child word learning". In: *Proceedings of the 39th annual meeting of the Cognitive Science Society*. Ed. by G. Gunzelmann, A. Howes, T. Tenbrink, and E. Davelaar. Austin, TX: Cognitive Science Society, 2017, pp. 433–438.

[Cas+16] **Cassani, Giovanni**, Robert Grimm, Steven Gillis, and Walter Daelemans. "Constraining the search space in cross-situational word learning: Different models make different predictions". In: *Proceedings of the 38th annual meeting of the Cognitive Science Society*. Ed. by A. Papafragou, D. Grodner, D. Mirman, and J. C. Trueswell. Austin, TX: Cognitive Science Society, 2016, p. 1152.

[Cas+15] **Cassani, Giovanni**, Robert Grimm, Walter Daelemans, and Steven Gillis. "Which distributional cues help the most? Unsupervised contexts selection for lexical category acquisition". In: *Proceedings of the 6th workshop on cognitive aspects of computational language learning*. Ed. by R. Berwick, A. Korhonen, A. Lenci, T. Poibeau, and A. Villavicencio. Lisbon, Portugal: Association for Computational Linguistics, 2015, pp. 33–39.

[Gri+15] Robert Grimm, **Cassani, Giovanni**, Walter Daelemans, and Steven Gillis. "Towards a model of prediction-based syntactic category acquisition: First steps with word embeddings". In: *Proceedings of the 6th workshop on cognitive aspects of computational language learning*. Ed. by R. Berwick, A. Korhonen, A. Lenci, T. Poibeau, and A. Villavicencio. Lisbon, Portugal: Association for Computational Linguistics, 2015, pp. 28–32.

Archival papers

[Cas+19] **Cassani, Giovanni**, Robert Grimm, Steven Gillis, and Walter Daelemans. "What makes a distributional context useful? Lexical diversity is more important than frequency". 2019.

[CL16] **Cassani, Giovanni** and Alessandro Lopopolo. "Multimodal Distributional Semantics Models and conceptual representations in sensory deprived subjects". 2016.

Theses

[Cas19] **Cassani, Giovanni**. "The bootstrapping toolbox: Which cues are more useful to learn lexical categories and why". PhD thesis. University of Antwerp, 2019.

[Cas14] **Cassani, Giovanni**. "Distributional semantics for child-directed speech: A multimodal approach". MA thesis. Trento, Italy: University of Trento, 2014.

Invited talks

2020 **CIMeC, University of Trento**, Rovereto, Italy.
Rethinking the arbitrariness of the sign.

2019 **Jheronimus Academy of Data Science**, 's Hertogenbosch, The Netherlands.
Prediction is very hard, especially about conversion. Predicting user purchases from clickstream data in fashion e-commerce.

Selected conference presentations

2021 **Architectures and Mechanisms for Language Processing (AMLaP 2021)**, Paris, France.
SHORT TALK Nomen est omen: Fictional characters' names encode polarity, gender, and age (joint work with Fabiënne Reedijk, Stefano Scola, Niccolò H. Minetti, and Niveditha Subramaniam)

2021 **Architectures and Mechanisms for Language Processing (AMLaP 2021)**, Paris, France.
LONG TALK Not just form, not just meaning: Consistency in form-meaning mappings predicts age of acquisition beyond semantic and form neighborhood density (joint work with Niklas Limacher)

2020 **Architectures and Mechanisms for Language Processing (AMLaP 2020)**, Potsdam, Germany.
POSTER Words that shift are learned later: A study on the relation between diachronic semantic change and age of acquisition (joint work with Federico Bianchi and Marco Marelli)

2018 **11th International Conference on the Mental Lexicon**, Edmonton, Alberta, Canada.
POSTER On the semantics of non-words and their lexical categories

2017 **39th annual meeting of the Cognitive Science Society**, London, United Kingdom.
TALK Distributional learning and lexical category acquisition: What makes words easy to categorize?

2016 **38th annual meeting of the Cognitive Science Society**, Philadelphia, PA, United States of America.
POSTER Costraining the search space in cross-situational learning: Different models make different predictions

2015 **6th workshop on Cognitive Aspects of Computational language Learning (CogACLL)**, Lisbon, Portugal.
POSTER Which distributional cues help the most? Unsupervised context selection for lexical category acquisition

Skills

Research Cognitive science, Computational Linguistics, Artificial Intelligence, Statistics & research design, Machine learning, Deep learning, Data analysis

Programming Python, R, Matlab, Unix

Tools RStudio, PyCharm, LaTeX, Git, Canvas

Others Scientific communication, Public speaking, Event organization, Improv theatre

Honors

Best Student Presentation Award
11th International Conference on the Mental Lexicon. Edmonton, Alberta. 2018. POSTER TITLE: *On the semantics of non-words and their lexical categories.*

Collegio di merito Bernardo Clesio
Honor program of the University of Trento.

Service

2020 **Science popularisation**.

Member and content coordinator of the Italian popular science YouTube channel on AI COMINTART (`https://www.youtube.com/channel/UCMgjppN-5w5OAt67o2jzK7w`).

2018 **Reviewer**.

I've reviewed for EACL, CoNLL, *Language, Cognition and Neuroscience*, EMNLP, AMLaP, the *Journal of Child Language*, *Cognitive Science*, *Behavior Research Methods*, ACL, the *Journal of Experimental Psychology: Learning, Memory, and Cognition*, the *Israeli Science Foundation*, *Linguistics*, the *Journal of Natural language Engineering*.

2015
2018 **Organization of the CLiPS research colloquia series**, *University of Antwerp*, Antwerp, Belgium.

I organized several research colloquia and seminars at CLiPS, involving professors and experts from other universities and companies.

2015 **Organization of the 2015 ATilA workshop**, Antwerp, Belgium.

I was in charge of the submissions and the program within the organization of the ATilA workshop, which involves the computational linguistics groups from the universities of Antwerp, Tilburg, Gent, and Nijmegen.

Other Certificates

Science Communication
Scientific Storytelling
Writing well about science for popular audiences
How to create awesome scientific presentations and posters
Let's Talk Science! Summer School, Gent, Belgium. 2016 – 2017.

Methodology
Introduction to Bayesian regression modeling with brms
Fourth Summer School on Statistical Methods for Linguistics and Psychology, Postdam, Germany. 2020 (*online*).

Multilevel modeling
Generalized Linear Models and model building
FLAMES Summer School, Hasselt, Belgium. 2016.

R workshop
Analysis of grouped and longitudinal data using Linear Mixed Models
StatUA courses, University of Antwerp, Antwerp, Belgium. 2015 – 2016.

English
Test of English as a Foreign Language (TOEFL) - 112/120 (C2)
ETS. Bologna, Italy. 2014.

French
Diplôme d'Études de Langue Françaises (B2) - 80%
Alliances Française, Bologna, Italy. 2009.

Dutch
Nederlands niveaus 1 – 4
Linguapolis, University of Antwerp, Antwerp, Belgium. 2015 – 2017.

References

Prof. dr. R. Harald Baayen
Eberhard Karls Universität Tübingen
Tübingen, Germany

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