

Tilburg University, CSAI

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GiovanniCassani

# Giovanni Cassani

## Curriculum Vitæ

*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

**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.

2018

**Researcher**, University of Antwerp, Antwerp, Belgium.

After the PhD contract expired, I was hired for four months as a researcher to keep conducting my research program.

2014

**Press Office Intern (5 months)**, University of Trento, Trento, Italy.

Drafting of press releases about scientific projects at the University of Trento, in fields including physics, psychology, sociology, information technology, engineering, geography, linguistics, and life sciences. Social Media coverage of the Festival of Economics. Publication of dissemination articles in the University magazine.

## 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)

2018

**Research stay (2 months)**, Seminar für Sprachwissenschaft - Eberhard Karls Universität Tübingen, Tübingen, Germany.

SUPERVISOR: 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

2013  
2014

**Erasmus program (6 months)**, *Faculty of Arts, Department of Linguistics, Rijksuniversiteit Groningen*, Groningen, The Netherlands.

Creation of a Question-Answering system and evaluation of wikification algorithms.

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

### Teaching

2019

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

2019

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

### Co-teaching

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.

### Teaching Assistant

2015  
2016

**Computational Psycholinguistics**, *University of Antwerp*, Antwerp, Belgium.  
SUPERVISORS: Prof. dr. Walter Daelemans, Prof. dr. Dominiek Sandra

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## Articles

- [CCBef] **Cassani, Giovanni**, Yu-Ying Chuang, and R. Harald Baayen. "On the semantics of non-words and their lexical categories". In: *Journal of Experimental Psychology: Learning, Memory, and Cognition* (in press, pre-print available at psyArXiv, DOI: 10.31234/osf.io/qgsef).
- [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.

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## Conference Proceedings

- [Big+ng] 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*. Forthcoming.
- [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.

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## 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.

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## 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.

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## Talks and posters

2018

**11th International Conference on the Mental Lexicon**, Edmonton, Alberta, Canada.

**POSTER TITLE** On the semantics of non-words and their lexical categories

2018

**Psycholinguistics in Flanders (PiF) 2018**, Gent, Belgium.

**POSTER TITLE** Distributional nuggets for lexical categories: Finding the useful information in co-occurrence patterns

**POSTER TITLE** From lexical categories to acceptable lexical choices: A discriminative learning approach

2017

**39th annual meeting of the Cognitive Science Society**, London, United Kingdom.

**TALK TITLE** Distributional learning and lexical category acquisition: What makes words easy to categorize?

2017

**Psycholinguistics in Flanders (PiF) 2017**, Leuven, Belgium.

**POSTER TITLE** Phonological bootstrapping with Naïve Discriminative Learning

2017

**27th Conference of Computational Linguistics in the Netherlands (CLIN27)**, Leuven, Belgium.

**TALK TITLE** Useful contexts and easy words: Effects of distributional factors on lexical category acquisition

2016

**38th annual meeting of the Cognitive Science Society**, Philadelphia, PA, United States of America.

**POSTER TITLE** Constraining the search space in cross-situational learning: Different models make different predictions

2016

**Psycholinguistics in Flanders (PiF) 2016**, Antwerp, Belgium.

**TALK TITLE** Constraining the search space in cross-situational learning: Different models make different predictions

2015

**26th Conference of Computational Linguistics in the Netherlands (CLIN26)**, Amsterdam, The Netherlands.

**TALK TITLE** Distributional bootstrapping: A Memory-based Learning approach

**POSTER TITLE** Multimodal distributional semantics models and conceptual representations in sensory deprived subjects (together with Alessandro Lopopolo)

2015

**6th workshop on Cognitive Aspects of Computational language Learning (CogACLL)**, Lisbon, Portugal.

**POSTER TITLE** Which distributional cues help the most? Unsupervised context selection for lexical category acquisition

2015

**25th Conference of Computational Linguistics in the Netherlands (CLIN25)**, Antwerp, Belgium.

**TALK TITLE** Distributional semantics for child-directed speech: A multimodal approach

## Skills

- Research** Cognitive science, Computational Linguistics, Artificial Intelligence, Statistics & research design, Machine learning, Data analysis
- Programming** Python, R, Matlab, Unix
- Tools** RStudio, PyCharm, L<sup>A</sup>T<sub>E</sub>X, Git
- Others** Scientific communication, Public speaking, Event organization, Improv theatre

## Languages

- Italian** Native
- English** Fluent
- French** Intermediate *Good understanding, Good speaking, Good writing.*
- Dutch** Basic Fluency *Good Understanding, Decent Speaking, Decent Writing*
- German** Basic Fluency *Basic Understanding, Basic Speaking, Basic Writing*

## 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

2018

### **Reviewer.**

I've reviewed for *Linguistics*, the *Journal of Natural language Engineering*, the 11th International Conference on the Mental Lexicon, and the Journal of Experimental Psychology: Learning, Memory, and Cognition.

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.

## 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** *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)*  
 ETS. Bologna, Italy. 2014.
- French** *Diplôme d'Études de Langue Françaises (B2)*  
 Alliances Française, Bologna, Italy. 2009.
- Dutch** *Nederlands niveaus 1 – 4*  
 Linguapolis, University of Antwerp, Antwerp, Belgium. 2015 – 2017.

## References

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- Prof. Steven Gillis** University of Antwerp, CLiPS  
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- Prof. R. Harald Baayen** Eberhard Karls Universität Tübingen  
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