

# Lea Frermann

Applied Scientist  
Amazon Core Machine Learning  
Berlin, Germany

Mobile +00-0000-00000000  
Email [uedi@frermann.de](mailto:uedi@frermann.de)  
Homepage [www.frermann.de](http://www.frermann.de)

## Research Interests

---

My research aims to advance our understanding of human-like learning and inference in the context of the complexity of the world, using naturally occurring data such as corpora of child-directed language or historical language, and multimodal data such as movies depicting complex sequences of events; and to advance the flexibility and generalizability of machine learning by incorporating fundamental properties of human learning such as common sense knowledge.

## Education

---

**Ph.D., University of Edinburgh, UK** *2013-2017*  
“Bayesian Models of Category Acquisition and Meaning Development”  
Supervisors: Prof. Mirella Lapata (primary) and Dr. Charles Sutton

**M.Sc. in Language Science and Technology, Saarland University, Germany (GPA 1.1 “with distinction”)** *2010–2013*  
“A Hierarchical Bayesian Model for Unsupervised Learning of Script Knowledge”  
Supervisors: Prof. Ivan Titov (primary) and Prof. Manfred Pinkal

**B.A. in Language Sciences and English-speaking Cultures, University of Bremen, Germany (GPA 1.4)** *2007-2010*  
“Dialogue Act Recognition using Information Extraction Approaches in the Spatial Domain”  
Supervisors: Dr. Heriberto Cuayáhuitl (primary) and Prof. John Bateman

## Work Experience

---

**Lecturer** *Jul, 2019–*  
Computer Science and Information Systems  
University of Melbourne

**Applied Scientist / Postdoctoral Researcher** *Jan, 2018–Jul, 2019*  
Amazon Core Machine Learning, Berlin, Germany

**Research Associate** *Dec, 2016–Jan, 2018*  
ILCC, University of Edinburgh, Edinburgh, UK  
Models of incremental inference in naturalistic multimodal, complex and dynamic environments approximated through movie plots.  
Host: Prof. Mirella Lapata

**Visiting Scholar** *Jul, 2017–Sep, 2017*

Language and Cognition Lab, Stanford University, Stanford USA

Large-scale computational models of the influence of prosody in child-directed speech on the age of acquisition of words.

Host: Prof. Michael Frank

**Applied Machine Learning Internship** *Aug, 2016–Nov, 2016*

Amazon Core Machine Learning, Berlin, Germany

Inducing structured multi-view representations of plots of fiction novels

**Visiting Research Student** *Aug, 2011–Feb, 2012*

Nanyang Technical University, Singapore

Cross-lingual parse disambiguation with minimal recursion semantics

Supervisor: Prof. Dr. Francis Bond

**Research Assistant** *2010–2011*

Department of Computational Linguistics, Saarbrücken, Germany

HPSG treebanking with the English Resource Grammar (ERG) of the Wallstreet Journal.

PIs: Dr. Valia Kordoni, Prof. Daniel Flickinger and Dr. Yi Zhang

**Research Assistant** *2008–2010*

SFB/TR8 Spatial Cognition, Bremen Germany

Development of a CCG (OpenCCG) grammar for parsing German spatial language

PI: Prof. John Bateman

**Research Internship** *2008*

SFB/TR8 Spatial Cognition, Bremen, Germany

Design, execution and evaluation of various linguistic experiments. Grammar engineering (using KPML and OpenCCG)

## Teaching

---

**Tutor “Informatics 1: Cognitive Science”** *2016, 2015*

1st year B.Sc. course, School of Informatics, University of Edinburgh

**Tutor and Teaching Assistant “Grammar Formalisms“** *2012, 2011*

3rd year B.Sc. course, Department of Computational Linguistics, Saarland University

**Tutor “Introduction to English Linguistics Part II: Empirical Methods”** *2009*

2nd year B.A. course, Department of Linguistics and Literature, University of Bremen

**Tutor “Introduction to General and Comparative Linguistics”** *2008*

1st year B.A. course, Department of Linguistics and Literature, University of Bremen

## Awards

---

Sicsa Postdoctoral and Early Career Researcher Exchange Grant	<i>2017</i>
Erasmus Mundus MULTI Mobility Grant	<i>2011</i>

## Invited Talks and Presentations

---

Computer Science and Information Systems, University of Melbourne, Australia	<i>Jul, 2018</i>
NLP seminar, University of Washington, Seattle, USA	<i>Apr, 2018</i>
Institute for Natural Language Processing, Stuttgart University, Germany	<i>Feb, 2018</i>
Invited FEAST talk, Computational Linguistics Group, Saarland University, Germany	<i>Oct, 2017</i>
Alan Turing Institute, London, UK	<i>Oct, 2017</i>
CoAStAL Copenhagen Natural Language Processing Group, Copenhagen University, Denmark	<i>Sep, 2017</i>
Natural Language Processing Seminar, Stanford University, USA	<i>Aug, 2017</i>
Keynote talk the Drift-a-LOD Workshop (EKAW 2016), Bologna, Italy	<i>Dec, 2016</i>
Machine Learning Seminar, Heriot-Watt University, Edinburgh, UK	<i>Dec, 2015</i>
Google NLP PhD Summit, Zurich, Switzerland	<i>Sep, 2015</i>
Invited Paper presentation at the First Workshop on Multilingual Modeling, Jeju Island, Republic of Korea	<i>Jul, 2012</i>

## Outreach and Media

---

### My research was featured in international media, including

BBC Radio Scotland (UK) [\[Link\]](#)    BBC News Online (UK) [\[Link\]](#)  
The New Scientist (USA) [\[Link\]](#)    Digital Trends (USA) [\[Link\]](#)  
Version2 (Denmark) [\[Link\]](#)    Frankfurter Allgemeine Zeitung (Germany) [\[Link\]](#)

## Professional Service

---

### Chairing

\*SEM 2019 area chair (Discourse, Dialogue and Generation), SemEval-2017 Steering Committee

### Journal Reviewing

Memory and Cognition (2016, 2017), Computational Linguistics (2019)

## Conference Reviewing

ACL (2017, 2018, 2019), NAACL (2016, 2018, 2019), IJCAI (2019), NAACL-SRW (2016), Coling (2016), WiML(2016), EMNLP (2015, 2017), ACL-SRW (2017), ESSLI (2015), Workshop on Vector Space Modeling for NLP (2015), CoNLL (2017)

Organizer of the reading group “Machine Learning for Natural Language Processing”, University of Edinburgh *2014–2015*

Member of Degree Programme Organization Committee (Studienkommission), University of Bremen *2008–2009*

Member of Student Council (Studentenvertretung), University of Bremen *2008–2009*

## Publications

---

### Thesis

- [1] Lea Frermann. “Bayesian Models of Category Acquisition and Meaning Development”. PhD thesis. School of Informatics, University of Edinburgh, 2017.

### Journal Articles

- [2] Lea Frermann and Mirella Lapata. “Categorization in the Wild: Verifying Cognitive Principles at Scale and across Languages”. In: *Cognition* (in preparation).
- [3] Lea Frermann, Shay Cohen, and Mirella Lapata. “Whodunnit? Crime Drama as a Case for Natural Language Understanding”. In: *Transactions of the Association for Computational Linguistics* 6 (2018), pp. 1–15.
- [4] Lea Frermann and Mirella Lapata. “A Bayesian Model of Diachronic Meaning Change”. In: *Transactions of the Association for Computational Linguistics* 4 (2016), pp. 31–45.
- [5] Lea Frermann and Mirella Lapata. “Incremental Bayesian Category Learning From Natural Language”. In: *Cognitive Science* 40.6 (2016), pp. 1333–1381.

### Peer Reviewed Conference Papers and Contributions

- [6] Maria Barrett, Lea Frermann, Ana Valeria Gonzalez-Garduño, and Anders Søgaard. “Unsupervised Induction of Linguistic Categories with Records of Reading, Speaking, and Writing”. In: *Proceedings of the Conference of the North-American Chapter of the Association for Computational Linguistics*. New Orleans, USA, 2018.
- [7] Lea Frermann. “Bayesian Models of Category Acquisition and Meaning Development (Selected Ph.D Thesis Abstracts)”. In: *The IEEE Intelligent Informatics Bulletin*. Vol. 18. 1. 2017, p. 23.

- [8] Lea Frermann and György Szarvas. “Inducing Semantic Micro-Clusters from Deep Multi-View Representations of Novels”. In: *Proceedings of the 2017 Conference on Empirical Methods in Natural Language Processing*. Copenhagen, Denmark: Association for Computational Linguistics, 2017.
- [9] Lea Frermann and Mirella Lapata. “A Bayesian Model for Joint Learning of Categories and their Features”. In: *Proceedings of the Conference of the North-American Chapter of the Association for Computational Linguistics*. Denver, USA, 2015.
- [10] Lea Frermann, Ivan Titov, and Manfred Pinkal. “A Hierarchical Bayesian Model for Unsupervised Induction of Script Knowledge”. In: *Proceedings of the Conference of the European Chapter of the Association for Computational Linguistics*. Gotheborg, Sweden, 2014.
- [11] Lea Frermann and Mirella Lapata. “Incremental Bayesian Learning of Semantic Categories”. In: *Proceedings of the Conference of the European Chapter of the Association for Computational Linguistics*. Gotheborg, Sweden, 2014.
- [12] Lea Frermann and Francis Bond. “Cross-lingual Parse Disambiguation based on Semantic Correspondence”. In: *Proceedings of the 50th Annual Meeting of the Association for Computational Linguistics*. Jeju Island, South Korea, 2012.

### **Tech Reports and Workshop Contributions (not peer reviewed)**

- [13] Lea Frermann and Michael C. Frank. *Prosodic Features from Large Corpora of Child-Directed Speech as Predictors of the Age of Acquisition of Words*. ArXiv:1709.09443. 2017.
- [14] Lea Frermann. *A Bayesian Model of Joint Category and Feature Learning*. 11th Workshop for Women in Machine Learning (WiML) – in conjunction with NIPS. Barcelona, Spain, 2016.
- [15] Lea Frermann. *A Bayesian Model of the Temporal Dynamics of Word Meaning*. 10th Workshop for Women in Machine Learning (WiML) – in conjunction with NIPS. Montreal, Canada, 2015.