

Herbert Lange

DOCTOR OF PHILOSOPHY · COMPUTER SCIENCE

Munich, Germany

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University Degrees



University of Gothenburg

Gothenburg, Sweden

PHD IN COMPUTER SCIENCE

March 2021

Thesis: “Learning Language (with) Grammars: From Teaching Latin to Learning Domain-Specific Grammars”



University of Gothenburg

Gothenburg, Sweden

LICENTIATE IN COMPUTER SCIENCE

November 2018

Thesis: “Computer-Assisted Language Learning with Grammars. A Case Study on Latin Learning”



Ludwig-Maximilians-University

Munich, Germany

MASTER'S IN COMPUTATIONAL LINGUISTICS

July 2014

Thesis: “Implementierung einer Lateingrammatik im Grammatical Framework”

University Education



University of Gothenburg

Gothenburg, Sweden

PHD STUDIES IN COMPUTER SCIENCE

August 2015 – September 2020

- Supervisor: Peter Ljunglöf
- Co-supervisor: Koen Claessen
- Internal examiner: Aarne Ranta



Trinity College Dublin

Dublin, Ireland

ERASMUS STAY

September 2010 – May 2011



Ludwig-Maximilians-University

Munich, Germany

MASTER'S IN COMPUTATIONAL LINGUISTICS

October 2008 – September 2014

- Supervisor: Hans Leiss

Job Experience



Leibniz-Institute for the German Language

Mannheim, Germany

RESEARCHER

March 2021 – now

Development of a long-term archiving system for linguistic research data



University of Hamburg

Hamburg, Germany

RESEARCHER

June 2021 – now

Development of quality assurance solutions for audio-visual corpora



RESEARCHER

August 2015 – September 2020

PhD studies in computer science with research focus on computational linguistics

self-employed

Munich, Germany

SOFTWARE DEVELOPER AND SYSTEM ADMINISTRATOR

April 2015 – May 2015

Development of a monitoring solution of a segment of the university network at Ludwig-Maximilians-University, Munich



Glanos GmbH

Munich, Germany

SOFTWARE ENGINEER

November 2014 – January 2015

Java backend development handling XML/JSON data and manual data annotation and analysis for Named Entity Recognition



Institute for German Philology, Ludwig-Maximilians-University

Munich, Germany

STUDENT ASSISTANT

November 2011 – December 2011

Data annotation for online publication of the "Deutschen Verfasserlexikons der Frühen Neuzeit"



IT-Zentrum der Sprach- und Literaturwissenschaften,

Munich, Germany

Ludwig-Maximilians-University

STUDENT ASSISTANT

February 2009 – October 2014

System administration for a segment of the university network consisting of Linux/Mac/Windows servers and Windows/Mac clients

Publications

Herbert Lange and Peter Ljunglöf (2021): "Learning Domain-Specific Grammars From a Small Number of Examples", *Natural Language Processing in Artificial Intelligence, Studies in Computational Intelligence (SCI)* (939), 105-138, Springer International Publishing, Cham, Switzerland, https://doi.org/10.1007/978-3-030-63787-3_4, Published.

Proceedings of the 9th Workshop on Natural Language Processing for Computer Assisted Language Learning (2020); David Alfter, Elena Volodina, Ildikó Pilán, Herbert Lange and Lars Borin (eds.), Linköping University Electronic Press, Linköping, Sweden, Linköping Electronic Conference Proceedings (175), 45 pages, <https://doi.org/10.3384/ecp20175>, Published. Herbert Lange (2020): "Learning Language (with) Grammars: From Teaching Latin to Learning Domain-Specific Grammars", PhD thesis, Department of Computer Science and Engineering, University of Gothenburg, Gothenburg, Sweden, <http://hdl.handle.net/2077/65453>, Published.

Herbert Lange and Peter Ljunglöf (2020): "Learning Domain-specific Grammars from a Small Number of Examples", *Proceedings of the 12th International Conference on Agents and Artificial Intelligence - Volume 1: NLPinAI*, Valetta, Malta, INSTICC. SciTePress, 422-430, <https://doi.org/10.5220/0009371304220430>, Published.

Proceedings of the 8th Workshop on Natural Language Processing for Computer Assisted Language Learning (2019); David Alfter, Elena Volodina, Lars Borin, Ildikó Pilán and Herbert Lange (eds.), Linköping University Electronic Press, Linköping, Sweden, NEALT Proceedings Series (39), 99 pages, Published. Herbert Lange (2021): "An Open-Source Computational Latin Grammar: Overview and Evaluation", *Proceedings of the 20th International Colloquium on Latin Linguistics (ICLL 2019)*, Madrid, Spain, Ediciones Clásicas, 559-578, Published.

Herbert Lange and Peter Ljunglöf (2020): "Demonstrating the MUSTE Language Learning Environment", *Proceedings of the 7th Workshop on NLP for Computer Assisted Language Learning (NLP4CALL 2018)* at SLTC, 7th November 2018, Stockholm, Sweden, Linköping University Electronic Press, 41-46, <https://www.aclweb.org/anthology/W18-7105>, Published.

Herbert Lange (2018): "Computer-Assisted Language Learning with Grammars. A Case Study on Latin Learning", *Licentiate thesis*, Department of Computer Science and Engineering, University of Gothenburg, Gothenburg, Sweden, <https://gup.ub.gu.se/file/207536>, Published.

Herbert Lange and Peter Ljunglöf (2018): "Putting Control into Language Learning", *Proceedings of the Sixth International Workshop on Controlled Natural Languages*, Maynooth, Ireland, IOS Press, *Frontiers in Artificial Intelligence and Applications* (304), 61-70, <https://doi.org/10.3233/978-1-61499-904-1-61>, Published.

- Herbert Lange and Peter Ljunglöf (2018): “MULLE: A Grammar-based Latin Language Learning Tool to Supplement the Classroom Setting”, Proceedings of the 5th Workshop on Natural Language Processing Techniques for Educational Applications (NLPTEA '18) at ACL, Melbourne, Australia, Association for Computational Linguistics, 108-112, <https://doi.org/10.18653/v1/W18-3715>, <http://aclweb.org/anthology/W18-3715>, Published.
- Herbert Lange (2017): “Implementation of a Latin Grammar in Grammatical Framework”, Proceedings of the 2nd International Conference on Digital Access to Textual Cultural Heritage (DATECH2017), Göttingen, Germany, Association for Computing Machinery, 97-102, <https://doi.org/10.1145/3078081.3078108>, Published.
- Herbert Lange (2013): “Erstellen einer Grammatik für das Lateinische im ”Grammatical Framework””, Master’s thesis, Centrum für Informations- und Sprachverarbeitung, Ludwig-Maximilians-University, Munich, Germany, Published.

Presentations

- Herbert Lange (2022): “MULLE: A grammar-based language learning tool”, Seminar on Language Technology for Education in the South African languages, Online, Seminar Talk
- Herbert Lange (2020): “Type theory and meaning in linguistics”, rC3 - remote Chaos Experience, Online, Talk: https://media.ccc.de/v/rc3-232856-type_theory_and_meaning_in_linguistics
- Herbert Lange (2020): “A Type-Theoretic Approach to Generating Pictures and Descriptions”, 8th Swedish Language Technology Conference, Gothenburg, Sweden, Conference talk
- Herbert Lange (2020): “Learning Domain-specific Grammars from Examples”, CLASP Seminar, University of Gothenburg, Gothenburg, Sweden, Seminar Talk
- Herbert Lange (2020): “Learning Domain-specific Grammars from a Small Number of Examples”, Special Session NLPinAI, 12th International Conference on Agents and Artificial Intelligence, Valetta, Malta, Conference talk
- Herbert Lange (2020): “Using Dependent Types in GF”, Functional Programming Winter Meeting, Chalmers University of Technology, Gothenburg, Sweden, Seminar Talk
- Herbert Lange (2019): “Empirical Evaluation of a Computational Latin Grammar”, 20th International Colloquium on Latin Linguistics, Las Palmas de Gran Canaria, Canary Islands, Conference talk
- Herbert Lange (2019): “A short history of end-user programming”, Update mini conference, Uppsala, Sweden, Talk
- Herbert Lange (2019): “Computer-Assisted Language Learning for Latin”, Latin Seminar, Uppsala University, Uppsala, Sweden, Seminar Talk
- Herbert Lange (2019): “Restricting Grammars to Reduce Ambiguity”, Functional Programming Seminar, Chalmers University of Technology, Gothenburg, Sweden, Seminar Talk
- Herbert Lange (2019): “MULLE for Latin: Computer-Generated Translation Exercises for Latin”, Workshop on Digital Approaches to Teaching Historical Languages, Berlin, Germany, Conference talk: <https://www.projekte.hu-berlin.de/en/callidus-en/DATeL-workshop/digital-approaches-to-teaching-historical-languages-dattel>
- Herbert Lange and Peter Ljunglöf (2018): “Demonstrating the MUSTE Language Learning Environment”, 7th Workshop on Natural Language Processing for Computer-Assisted Language Learning at the Swedish Language Technology Conference (SLTC), Stockholm, Sweden, Poster
- Herbert Lange (2018): “MULLE: A grammar-based Latin language learning tool to supplement the classroom setting”, 5th Workshop on Natural Language Processing Techniques for Educational Applications, Melbourne, Australia, Poster
- Herbert Lange (2018): “Computational Linguistics vs. Natural Language Processing - A bit of a rant”, Free Society Conference and Nordic Summit (FSCONS), Oslo, Norway, Lightning Talk: <https://youtu.be/Xrb3ULik1vc?t=3127>
- Herbert Lange (2018): “Let’s talk about Old Computer; Or: Why old computers are cool, why we should care, and stuff I discovered”, Free Society Conference and Nordic Summit (FSCONS), Oslo, Norway, Lightning Talk: https://youtu.be/_C5QUuU2vic?t=1386
- Herbert Lange (2017): “Implementation of a Latin Grammar in Grammatical Framework”, 2nd International Conference on Digital Access to Textual Cultural Heritage, Göttingen, Germany, Conference talk
- Herbert Lange (2017): “A Latin Language Learning Application”, Latin Seminar, University of Gothenburg, Gothenburg, Sweden, Seminar Talk
- Herbert Lange (2017): “From Word-based text editing to language learning”, Dublin Computational Linguistics Research Seminar, Trinity College Dublin, Dublin, Ireland, Seminar Talk

Herbert Lange (2017): “From Word-based text editing to language learning”, Postgraduate Seminar in Computer Science, National University of Ireland, Maynooth, Ireland, Seminar Talk

Herbert Lange (2017): “MUSTE - Behind the scenes”, REMU Research Seminar, University of Gothenburg, Gothenburg, Sweden, Seminar Talk

Herbert Lange (2016): “Implementation of a Latin Grammar in Grammatical Framework”, 6th Swedish Language Technology Conference (SLTC), Umeå, Sweden, Poster

Herbert Lange (2016): “SHRDLU - Ein Programm das natürliche Sprache versteht”, Vintage Computing Festival Berlin (VCFB), Berlin, Germany, Talk: https://media.ccc.de/v/vcfb2016_-_52_-_en_-_medientheater_-_201610031530_-_shrdlu_-_herbert_lange

Herbert Lange (2015): “Vintage Computing”, Free Society Conference and Nordic Summit (FSCONS), Gothenburg, Sweden, Lightning Talk: <https://youtu.be/8mSVMY74s0Y?t=660>

Herbert Lange (2013): “Grammatical Framework”, Mehrvortragswagen, muCCC Munich Hackerspace, Munich, Germany, Talk

Teaching Experience

Introduction to concurrent programming

Teaching Assistant

CHALMERS UNIVERSITY OF TECHNOLOGY AND UNIVERSITY OF GOTHENBURG
Spring 2019

Artificial Intelligence

Teaching Assistant

CHALMERS UNIVERSITY OF TECHNOLOGY AND UNIVERSITY OF GOTHENBURG
Spring 2018, Spring 2019

Computational Syntax

Teaching Assistant

UNIVERSITY OF GOTHENBURG
Spring 2017, Spring 2018, Spring 2019, Spring 2020

Tutorial: GF for Python programmers

Tutor

GRAMMATICAL FRAMEWORK SUMMER SCHOOL, RĪGA, LATVIA
August 2017

Functional Programming

Teaching Assistant

CHALMERS UNIVERSITY OF TECHNOLOGY AND UNIVERSITY OF GOTHENBURG
Autumn 2016, Autumn 2017, Autumn 2018, Autumn 2019

Databases

Teaching Assistant

CHALMERS UNIVERSITY OF TECHNOLOGY AND UNIVERSITY OF GOTHENBURG
Autumn 2015, Spring 2016, Autumn 2016, Spring 2017, Autumn 2017, Autumn 2018

Tutorial: Introduction to Grammatical Framework

Tutor

TACoS, GERMAN STUDENT CONFERENCE FOR COMPUTATIONAL LINGUISTICS), MUNICH, GERMANY
May 2015

Seminar: Scientific writing in LaTeX

Tutor

IT-ZENTRUM DER SPRACH- UND LITERATURWISSENSCHAFTEN, LUDWIG-MAXIMILIANS-UNIVERSITY
February 2014

Logic and model-theoretic Semantics

Teaching Assistant

CENTRE FOR INFORMATION AND LANGUAGE PROCESSING, LUDWIG-MAXIMILIANS-UNIVERSITY
MUNICH
Summer 2012

Corpus and Unix tools

Teaching Assistant

CENTRE FOR INFORMATION AND LANGUAGE PROCESSING, LUDWIG-MAXIMILIANS-UNIVERSITY
MUNICH
Summer 2011

Grants

- 2015 **Grammatical Framework Summer School, Gozo, Malta,**
Travel grant, Centre for Language Technology, University of Gothenburg
- 2013 **Grammatical Framework Summer School, Frauenchiemsee, Germany,**
Travel grant, Volkswagenstiftung
- 2010 **Trinity College, Dublin, Ireland,**
Erasmus grant, European Union

Peer Review

- 2021 **7th International Workshop on Controlled Natural Languages,**
- 2021 **10th Workshop on Natural Language Processing for Computer-Assisted Language Learning,**
- 2021 **8th Swedish Language Technology Conference post-proceedings,**
- 2020 **10th Workshop on Natural Language Processing for Computer-Assisted Language Learning,**
- 2019 **8th Workshop on Natural Language Processing for Computer-Assisted Language Learning,**
- 2018 **5th Workshop on Natural Language Processing Techniques for Educational Applications,**

Conference Involvement

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| 2020 | 9th Workshop on Natural Language Processing for Computer-Assisted Language Learning, Co-Organizer | <i>Gothenburg, Sweden</i> |
| 2019 | 8th Workshop on Natural Language Processing for Computer-Assisted Language Learning, Co-Organizer | <i>Turku, Finland</i> |
| 2017 | European Summerschool in Logic, Language and Information Student Session, Co-Chair Logic and Computation | <i>Toulouse, France</i> |

Other Involvement

- 2018 – 2020 **Graduate Students' Council, University of Gothenburg,**
- 2016 – 2020 **PhD Council, Department for Computer Science and Engineering, Chalmers University of Technology and University of Gothenburg,**
- 2012 – 2013 **Student Council, Centre for Information and Language Processing, Ludwig-Maximilians-University Munich,**

Skills

Five levels: Basic knowledge (1), Basic experience (2), Professional experience (3), Expert (4), Guru (5)

PROGRAMMING LANGUAGE

Agda, Basic knowledge
Basic, Basic experience
C/C++, Basic experience
Coq, Basic knowledge
Erlang, Basic knowledge
Grammatical Framework, Expert
Haskell, Expert
HTML/CSS, Professional Experience
Java, Professional Experience
JavaScript, Professional Experience
LISP, Basic experience
Pascal, Basic experience
Perl, Basic experience
Prolog, Basic experience
Python, Professional Experience
Ruby, Basic knowledge
SML, Basic experience

OPERATING SYSTEMS

Atari TOS, Basic knowledge
Gentoo Linux, Expert
BeOS/Haiku, Basic knowledge
FreeBSD/NetBSD, Basic experience
IRIX, Basic experience
MacOS Classic, Basic experience
MacOS X, Basic experience
MS-DOS, Basic experience
OpenVMS, Basic knowledge
OS/2, Basic knowledge
RISC OS, Basic knowledge
Windows, Professional Experience

OTHER IT SKILLS

Constraint Programming, Basic experience
Formal languages, Professional Experience
GNU make, Basic experience
Icinga/Nagios, Basic experience
LaTeX, Professional Experience
Machine Learning, Basic knowledge
MS Office, Professional Experience
Parser combinators, Professional Experience
Property-based Testing, Professional Experience
Software-defined Radio, Basic experience
Databases, Professional Experience
Version control systems, Professional Experience

LANGUAGE

English, Expert
Esperanto, Basic experience
French, Basic knowledge
German, Expert
Irish, Basic knowledge
Italian, Basic knowledge
Latin, Basic experience
Medieval German, Basic knowledge
Spanish, Basic knowledge
Swedisch, Professional Experience

COMPUTATIONAL LINGUISTICS

Controlled Natural Languages, Expert
Discourse Representation Theory, Basic experience
Formal syntax, Expert
Lexikal semantics, Basic experience
Montague grammars, Professional Experience
Resource grammar development, Guru
Universal Dependencies, Basic experience
Typ-theoretic semantics, Basic experience

RESEARCH AND GENERIC SKILLS

Data analysis, Professional Experience
Experimental design in social sciences, Basic experience
Independent work, Expert
Problem solving, Expert
Project management, Professional Experience
Public presentation, Professional Experience
Research, Expert
Research ethics, Professional Experience
Scientific writing, Expert
Teaching, Professional Experience
Team work, Professional Experience