# Curriculum Vitae

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## Education

*7/87-6/96* **Abitur**, Albert Schweitzer Gymnasium, Hamburg, Grade 1.7.

*9/97-8/03* **Dipl. Ing. Computer Science and Engineering**, Technical University of Hamburg-Harburg, Hamburg, Grade 1.5 ("sehr gut", equivalent to first class honors).

*9/03-8/04* **M.Sc. Informatics**, The University of Edinburgh, Edinburgh, specialism: Learning From Data, Distinction.

*9/06-12/06* **Visiting Scholar**, Stanford University.

*9/04-10-08* **Ph.D. Informatics**, Institute for Communicating and Collaborative Systems (ICCS), The University of Edinburgh, Edinburgh.

## Working Experience

*3/98-12/98* **Research Assistant**, STS / Technical University Hamburg-Harburg: Developed the graphical user interface of a multimedia information system (based on Java) for Political Iconography in an interdisciplinary project with the Art History department.

*2/99-4/99* **Research Intern**, Germanischer Lloyd, Hamburg: Developed an object-oriented "pipes and filter" framework and basic components for processing GPS data using Java.

*4/99-8/00* **Project Leader**, Technical University Hamburg-Harburg: Organisation, design and implementation of the university's online lecture evaluation system.

*9/00-4/01* **Software Engineer**, infoAsset AG, Hamburg: Design and implementation of a Java web-based assessment software providing support for online design and evaluation of recruitment tests.

*11/01-4/02* **Research Intern**, Siemens Corporate Research, Princeton: "Towards marker-less tracking" - dealt with camera pose estimation in an Augmented Reality scenario.

*11/08-4/09* **Researcher**, University of Tokyo / DBCLS: Event Extraction from biomedical literature; lead a team to create an event extraction system based on Markov Logic. This system achieved the best results in the BioNLP Shared Task 2009 (Track 2).

*5/09-now* **Postdoctoral Research Associate**, Computer Science Department, University of Massachusetts: Work on weakly-supervised information extraction and efficient inference (with Professor David Smith and Professor Andrew McCallum).

## Teaching Experience

*4/99-4/00* **Teaching Assistant**, Technical University Hamburg-Harburg: Taught students basic concepts of computer science in "Computer Science for Engineers"; voted best TA in the department.

*9/02-3/03* **Teaching Assistant**, Technical University Hamburg-Harburg: Taught students foundations and technologies of ECommerce.

*9/05-12/05* **Teaching Assistant**, University of Edinburgh, Introduction to Computational Linguistics.

*1/06-3/06* **Teaching Assistant**, University of Edinburgh, Data Intensive Linguistics.

*3/2011* **Guest Lecturer**, University of Massachusetts Amherst, Graphical Models.

## Dissertations

*2/03-8/03* **Diplomarbeit**:[1] Record Linkage in Semantic Networks; incorporating rule-based, statistical, ontology-matching and database-oriented metholo-

[1] Title of degree dissertation in Germany.

gies into a Java-based framework; used in an academical/commercial knowledge management platform.

*4/04-8/04* **Master Thesis**: Towards Structural Evolution of Classifiers; designed a grammar-based Genetic Algorithm that could search for combinations ensemble-based, stacked, co-trained, bagged and boosted classifiers.

*9/04-10/08* **PhD Thesis**: Efficient Prediction of Relational Structure in Natural Language Processing; improved memory and CPU efficiency of MAP Inference for Markov Logic by several orders of magnitude.

## Service

*2006* Program committee member for HLT-NAACL.

*2006* Student Representative in the Computing Committee of the School of Informatics.

*2006-2008* Organizer for Machine Learning reading group at ICCS, University of Edinburgh.

*2007* Program committee member for EMNLP.

*2007* Co-organizer of the CoNLL Shared Task 2007.

*2008* Program committee member for EACL.

*2008* Google Summer of Code mentor for the Natural Language Toolkit (NLTK) project.

*2009* Co-Organizer of the NAACL/HLT 2009 ILP for NLP Workshop.

*2009* Program committee member for EACL, ICML, EMNLP, CoNLL.

*2010* Program committee member for ICML, ACL, CoNLL, Coling, AAAI, EMNLP.

*2011* Senior program committee member for IJCAI, AAAI.

*2011* Program committee member for ACL, CoNLL, ICML, EMNLP, RELMS, NIPS.

*2011* Editor for the ACM Transactions on Speech and Language Processing.

*2011* Guest Editor of the Special Issue on Statistical Learning of Natural Language Structured Input and Output at Natural Language Engineering journal (2010-2011)

*2011* Panelist for the Relational Models of Semantics Workshop 2011 at ACL.

*2011* Co-organizer of the Shonan Computational Thinking workshop.

## Achievements

*2004* IGK Summer School Best Student Project.

*2005* 1st place in the Learning Language in Logic Competition at ICML 2005, Relation Extraction.

*2006* 4th place in CoNLL Multilingual Parsing shared task 2006.

*2008* 2nd place in CoNLL Semantic Role Labeling and Dependency Parsing task 2008, Open Track (Selected for Oral Presentation).

*2009* 1st place in the BioNLP shared task 2009 (Track 2), and 4th place (Track 1).

*2010* EMNLP 2010 Best Reviewer Award.

*2011* 1st place in three BioNLP 2011 shared tasks: "Genia Event Extraction Task 1", "Genia Event Extraction Task 2" and "Infectious Diseases Task".

## Invited Talks

*2006* *Scaling Up Inference in NLP: just relax*, given at the NLPLunch at Stanford University.

*2007* *The Cutting Plane Method for Inference in NLP*, given at the Edinburgh Research Group for Optimization (ERGO) at School of Mathematics, Edinburgh University.

*2009* *Markov Logic for Natural Language Processing*, Invited Talk given at the Machine Learning & Natural Language Processing workshop of the SIG Fundamental Problems in AI, Tokyo.

*2009* *Cutting Plane Inference* and *Factorie* Invited Talks given at the Machine Learning group at the University of Wisconsin, Madison.

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| *2010* | *Factorie* Invited Talks given at an ISAT workshop. |
| *2010* | *Ignorant Inference* Invited Talk at the Machine Learning Lunch of the University of Washington. |
| *2011* | *Fast and Robust Biomedical Event Extraction* Invited Talk at Wake Forrest University |

## Studentships

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| *2003-2004* | EPSRC MSc. Studentship. |
| *2004-2007* | ESRC PhD. +3 Competition Studentship. |
| *2004-2007* | Edinburgh-Stanford-Link Studentship. |
| *2008* | Conference on Uncertainty in Artificial Intelligence 2008 Student Grant. |

## Open Source Software

- **markov thebeast**: a Markov Logic interpreter tailored to NLP applications. The software has over 1000 downloads on googlecode, and several exciting research projects rely on it (such as work on temporal reasoning at the University of Rochester, or work on ontology alignment at the University of Mannheim).
- **What's Wrong With My NLP?**: an extensive visualizer for various NLP problems. Used in several university courses on NLP (such as "Current Approaches to Dependency Parsing" at the University of Tuebingen, and "Language Technology" at Lund University).

## Personal

- Birthdate: June 25, 1976
- Nationality: German
- Languages:
  - German (mother tongue)
  - English (fluent)
  - Japanese (intermediate)

## References

**Andrew McCallum**
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**Ewan Klein**
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**Mirella Lapata**
ICCS, School of Informatics
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## Publications


*[1]* Y. Genc, S. Riedel, F. Souvannavong, C. Akinlar, and N. Navab. Marker-less tracking for ar: A learning-based approach. In *ISMAR '02: Proceedings of the International Symposium on Mixed and Augmented Reality (ISMAR'02)*, pages 295–304, Washington, DC, USA, 2002. IEEE Computer Society.

*[2]* Claire Grover, Harry Halpin, Ewan Klein, Jochen L. Leidner, Stephen Potter, Sebastian Riedel, Sally Scrutchin, and Richard Tobin. A framework for text mining services. In Simon J. Cox, editor, *Proceedings of the UK e-Science Programme All Hands Meeting 2004 (AHM 2004)*, pages 878–885, Nottingham, UK, 2004.

*[3]* Vanda Lehel, Florian Matthes, and Sebastian Riedel. Linkage flooding: Ein algorithmus zur dateninhaltsorientierten fusion in vernetzten informationsbeständen. In *GI Jahrestagung (1)*, pages 346–350, 2004.

*[4]* Ivan Meza-Ruiz and Sebastian Riedel. Jointly identifying predicates, arguments and senses using markov logic. In *Joint Human Language Technology Conference/Annual Meeting of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL '09)*, 2009.

*[5]* Ivan Meza-Ruiz, Sebastian Riedel, and Oliver Lemon. Spoken language understanding in dialogue systems, using a 2-layer markov logic network: improving semantic accuracy. Late Breaking Abstracts of Londial '08: Workshop on the semantics and pragmatics of dialogue, 2008.

*[6]* Ivan Vladimir Meza-Ruiz, Sebastian Riedel, and Oliver Lemon. Accurate statistical spoken language understanding from limited development resources. In *Proceedings of 2008 IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP '08)*, pages 5021–5024, 2008.

*[7]* J. Nivre, J. Hall, S. Kubler, R. McDonald, J. Nilsson, S. Riedel, and D. Yuret. The conll 2007 shared task on dependency parsing. In *Conference on Empirical Methods in Natural Language Processing and Natural Language Learning*, pages 915—932, 2007.

*[8]* Sebastian Riedel. Entwicklung eines modells, verfahrens und softwaretechnischen rahmenwerks für record linkage in semantischen netzen. Master's thesis, Technische Universitaet Hamburg-Harburg, 2003.

*[9]* Sebastian Riedel. Towards structural evolution of classification workflows. Master's thesis, University of Edinburgh, 2004.

*[10]* Sebastian Riedel. Improving the accuracy and efficiency of MAP inference for markov logic. In *Proceedings of the 24th Annual Conference on Uncertainty in AI (UAI '08)*, pages 468–475, 2008.

*[11]* Sebastian Riedel. Cutting plane map inference for markov logic. In *SRL 2009*, 2009.

*[12]* Sebastian Riedel. *Efficient Prediction of Relational Structure and its Application to Natural Language Processing*. PhD thesis, University of Edinburgh, 2009.

*[13]* Sebastian Riedel. Declarative probabilistic programming for undirected models: Open up to scale up. In *Statistical Relational AI workshop at AAAI '10 (starAI '10)*, 2010.

*[14]* Sebastian Riedel, Ruken Cakeci, and Ivan Meza-Ruiz. Multi-lingual dependency parsing with incremental integer linear programming. In *Proceedings of CoNLL-2006*, pages 226–230, 2006.

*[15]* Sebastian Riedel, Hong-Woo Chun, Toshihisa Takagi, and Jun'ichi Tsujii. A markov logic approach to bio-molecular event extraction. In *Proceedings of the Natural Language Processing in Biomedicine NAACL 2009 Workshop (BioNLP '09)*, pages 41–49, 2009.

*[16]* Sebastian Riedel and James Clarke. Incremental integer linear programming for non-projective dependency parsing. In *Proceedings of the Conference on Empirical methods in natural language processing (EMNLP '06)*, pages 129–137, 2006.

*[17]* Sebastian Riedel and James Clarke. Revisiting optimal decoding for machine translation ibm model 4. In *Joint Human Language Technology Conference/Annual Meeting of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL '09)*, pages 5–8, Morristown, NJ, USA, 2009. Association for Computational Linguistics.

*[18]* Sebastian Riedel and Ewan Klein. Genic interaction extraction with semantic and syntactic chains. In *Learning Language in Logic Workshop, ICML 2005*, pages 69–74, 2005.

*[19]* Sebastian Riedel and Ivan Meza-Ruiz. Collective semantic role labelling with markov logic. In *Proceedings of the 12th Conference on Computational Natural Language Learning (CoNLL' 08)*, pages 193–197, 2008.

*[20]* Sebastian Riedel, Rune Saetre, Hong-Woo Chun, Toshihisa Takagi, and Jun'ichi Tsujii. Bio-molecular event extraction with markov logic. *Computational Intelligence*, 2010.

*[21]* Sebastian Riedel, David Smith, and Andrew McCallum. Inference by minimizing size, divergence, or their sum. In *Proceedings of the 25th Annual Conference on Uncertainty in AI (UAI '09)*, 2010.

*[22]* Sebastian Riedel and David A. Smith. Relaxed marginal inference and its application to dependency parsing. In *Joint Human Language Technology Conference/Annual Meeting of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL '10)*, pages 760–768, Los Angeles, California, June 2010. Association for Computational Linguistics.

*[23]* Sebastian Riedel, Limin Yao, and Andrew McCallum. Modeling relations and their mentions without labeled text. In *Proceedings of the European Conference on Machine Learning and Knowledge Discovery in Databases (ECML PKDD '10)*, 2010.

*[24]* Sameer Singh, Limin Yao, Sebastian Riedel, and Andrew McCallum. Constraint-driven rank-based learning for information extraction. In *Joint Human Language Technology Conference/Annual Meeting of the North American Chapter of the Association for Computational Linguistics (HLT-NAACL '10)*, pages 729–732, Los Angeles, California, June 2010. Association for Computational Linguistics.

*[25]* Limin Yao, Sebastian Riedel, and Andrew McCallum. Collective cross-document relation extraction without labelled data. In *Proceedings of the Conference on Empirical methods in natural language processing (EMNLP '09)*, 2010.

*[26]* Katsumasa Yoshikawa, Sebastian Riedel, Masayuki Asahara, and Yuji Matsumoto. Jointly identifying temporal relations with markov logic. In *Proceedings of the Joint Conference of the 47th Annual Meeting of the ACL and the 4th International Joint Conference on Natural Language Processing of the AFNLP (ACL '09)*, pages 405–413, Suntec, Singapore, August 2009. Association for Computational Linguistics.