Daniel Bauer, Ph.D.

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RESEARCH INTERESTS

In the area of Natural Language Processing, my work touches on syntactic and semantic parsing, grammar formalisms, lexical and computational semantics, knowledge representation, and machine learning. My current research interests in computer science education include integrating functional programming into the CS curriculum, understanding how pre-college computing experience shapes performance and attitudes in introductory CS courses, and techniques for improving student engagement.

EDUCATION

2017 Ph.D. Computer Science, Columbia University

2009 M.Sc. Language Science and Technology, Saarland University, Germany

2007 B.Sc. Cognitive Science (with distinction), University of Osnabrück, Germany

TEACHING EXPERIENCE

2017 - current Lecturer in Discipline (Natural Language Processing)
Columbia University
Taught a variety of courses on the undergraduate and graduate level, icluding introductory CS, AI, and Natural Language Processing

2014-2016 Preceptor, Columbia University.

RESEARCH EXPERIENCE

2010-2016 Graduate Research Assistant, **Center for Computational Learning Systems and Spoken Language Processing Group, Columbia University**
Projects: NSF funded project *From Text to Pictures.*
Detecting Relations and Anomalies in Text and Speech under the DARPA *DEFT* program.

Summer 2013
Summer 2012 Visiting Research Assistant, **Information Sciences Institute, University of Southern California, Marina del Rey**

2008-2009 Research Assistant, **Cluster of Excellence on Multimodal Computing and Interaction, Saarland University.**

OTHER PROFESSIONAL EXPERIENCE

2013-2014 Co-Founder / VP Research and Engineering, WordsEye Inc., New York

INVITED TALKS

Summer 2019	European Summer School for Language, Logic, and Information Unviersity of Latvia, Riga One-week course on *Graph Grammars for Natural Language Processing*
2016	International Workshop on Tree Adjoining Grammars and Related Formalisms, Düsseldorf, Germany Tutorial on graph grammars.
2014	Samsung Research America, Palo Alto *Toward Context Aware Language Processing Systems.*
2012	CUNY Graduate Center, New York *Semantics-Based Machine Translation with Hyperedge Replacement Grammars.*

PROFESSIONAL SERVICE

Peer reviewer for EMNLP, ACL, NAACL, LREC, COLING, SIGCSE

Guest Editor for *XRDS: The ACM Magazine for Students*, Fall 2014 issue on *Natural Language* Vol. 21 (1)

SELECTED PUBLICATIONS

Bauer, D. and Rambow, O. (2016). Hyperedge replacement and nonprojective dependency structures. In *International Workshop on Tree Adjoining Grammars and Related Formalisms (TAG+12)*

Oepen, S., Steedman, M., Drewes, F., Kallmeyer, L., and **Bauer, D.** (2015). Typical or desirable features of graphs in NLP. *Formal Models of Graph Transformation in Natural Language Processing (Dagstuhl Seminar 15122)*, Dagstuhl Reports 5(3)

Braune, F., **Bauer, D.**, and Knight, K. (2014). Mapping between english strings and reentrant semantic graphs. In *Language Resources and Evaluation Conference (LREC)*

Chiang, D., Andreas, J., **Bauer, D.**, Hermann, K.-M., Jones, B., and Knight, K. (2013). Parsing graphs with Hyperedge Replacement Grammars. In *Annual meeting of the Association for Computational Linguistics (ACL)*

Jones, B.*, Andreas, J.*, **Bauer, D.***, Hermann, K.-M.*, and Knight, K. (2012). Semantics-based machine translation with Hyperedge Replacement Grammars. In *International Conference on Computational Linguistics*. *First authorship shared

Bauer, D., Fürstenau, H., and Rambow, O. (2012b). The dependency-parsed FrameNet corpus. In *Language Resources and Evaluation Conference (LREC)*

Bauer, D. and Rambow, O. (2011). Increasing coverage of syntactic subcategorization patterns in FrameNet using Verbnet. In *IEEE International Conference on Semantic Computing (ICSC), short papers.*

Coyne, B., **Bauer, D.**, and Rambow, O. (2011). VigNet: grounding language in graphics using frame semantics. In *ACL Workshop on Relational Models of Semantics (RELMS 2011)*

Bauer, D. and A.Koller (2010). Sentence generation as planning with probabilistic LTAG. In *International Conference on Tree Adjoining Grammars and Related Formalisms (TAG+10)*