



# Ekaterina (Katya) Ovchinnikova

## Curriculum Vitae

### Research interests

- computational natural language understanding
- human and automated reasoning
- knowledge representation and extraction
- scene recognition
- ontologies

### Education

- 2007–2011 **PhD**, *Institute of Cognitive Science, University of Osnabrück, Germany*, summa cum laude honor, OLB first prize.
- 2001–2002 **Exchange student**, *Department of Computational Linguistics, University of Tübingen, Germany*.
- 1998–2003 **M.Sc.**, *Department of Mathematical, Applied and Computational Linguistic, Saint Petersburg State University, Russia*, diploma with distinction.

### Professional positions

- 2012–Present **Computer scientist (faculty)**, *Information Sciences Institute, USC, Los Angeles, USA*.
- 2010–2011 **Visiting student researcher**, *Information Sciences Institute, USC, Los Angeles, USA*.
- 2001–2006 **Half-time researcher/researcher (HiWi/WiMi)**, *University of Tübingen, Germany*.

### Projects

#### current

- 2012–Present **Metaphor Interpretation for Cultural Schemas**, *USC/ISI, USA*, <https://github.com/eovchinn/Metaphor-ADP>.

- 2013–Present **Heider-Simmel Interactive Theater**, USC/ISI, USA, <http://narrative.ict.usc.edu/heider-simmel-interactive-theater.html>.
- 2013–Present **Photo Identification of Whale Images**, [https://github.com/eovchinn/WhalePhotoID\\_MATLAB](https://github.com/eovchinn/WhalePhotoID_MATLAB).  
past
- 2010–2011 **Machine Reading**, USC/ISI, USA.
- 2005–2006 **Adaptive Ontologies on extreme Markup Structures**, University of Tübingen, Germany, <http://coli.lili.uni-bielefeld.de/Texttechnologie/Forscherguppe/Ontologies/index.html>.
- 2002–2004 **Distributional Idiosyncrasies**, SFB 441 at the University of Tübingen, Germany, <http://www.sfb441.uni-tuebingen.de/a5/>.
- 2001–2002 **Grammar Formalisms and Parsing**, Department of Linguistics, University of Tübingen, Germany, <http://www.sfs.uni-tuebingen.de/~fr/current/textbook.html>.

## Publications

- Books Ovchinnikova, E. (2012) *Integration of World Knowledge for Natural Language Understanding*, Atlantis Press, Springer.
- Journal Articles Zock, M., Wandmacher, T. and Ovchinnikova, E. (2010) Are vector-based approaches a feasible solution to the "tip-of-the-tongue" problem? In *eLexicography in the 21st century: New challenges, new applications*, vol. 7, pp. 355-365.
- Ovchinnikova, E. and Kühnberger, K.-U. (2007). Automatic Ontology Extension: Resolving Inconsistencies. In *GLDV-Journal for Computational Linguistics and Language Technology* 22(2):19-33.
- Ovchinnikova, E., Wandmacher, T. and Kühnberger, K.-U. (2007): Solving Terminological Inconsistency Problems in Ontology Design. In *the 4th issue of the International Journal of Interoperability in Business Information Systems (IBIS) on Information Modeling and Ontologies* 2(1):65-80.
- Ovchinnikova, E. and Richter, F. (2007): Morph Moulder: Graphical Software for Teaching and Visualizing Logic for HPSG and Description Logics. In *Logic Journal of IGPL* 15(4):333-345.
- Book Chapters Inoue, N., E. Ovchinnikova, K. Inui and J. R. Hobbs (2014). Weighted Abduction for Discourse Processing Based on Integer Linear Programming. In *Plan, Activity, and Intent Recognition*, to appear.
- Ovchinnikova, E., N. Montazeri, T. Alexandrov, J. R. Hobbs, M. C. McCord and R. Mulkar-Mehta (2013). Abductive Reasoning with a Large Knowledge Base for Discourse Processing. In Hunt, H., Bos, J. and Pulman, S. (eds.) : *Computing Meaning*, vol. 4, pp. 104-124.

- Wandmacher, T., Ovchinnikova, E., Mönnich, U., Michaelis, J. and Kühnberger, K.-U. (2011). Adaptation of Ontological Knowledge from Structured Textual Data. In Mehler, A., Kühnberger, K.-U., Lobin, H., Lungen, H., Storrer, A. and Witt, A. (eds.): *Modeling, Learning, and Processing of Text Technological Data Structures*, pp. 129-153, Springer.
- Refereed Proceedings Ovchinnikova, E., A. Gordon, J. R. Hobbs (2013). Abduction for Discourse Interpretation: A Probabilistic Framework. In *Proceedings of the Joint Symposium on Semantic Processing*, 42–50.
- Inoue, N., E. Ovchinnikova, K. Inui and J. R. Hobbs (2012). Coreference Resolution with ILP-based Weighted Abduction. In *Proceedings of COLING 2013*, pp.1291-1308.
- Peñas, A. and Ovchinnikova, E. (2012) Unsupervised Acquisition of Axioms to Paraphrase Noun Compounds and Genitives. In *Proceedings of CICLing 2012*, Part I, LNCS 7181, pp. 388-401, Springer.
- Ovchinnikova, E., Montazeri, N., Alexandrov, T., Hobbs, J., McCord, M. C. and Mulkar-Mehta, R. (2011). Abductive Reasoning with a Large Knowledge Base for Discourse Processing. In *Proceedings of IWCS 2011*, pp. 225-234.
- Ovchinnikova, E., Borgo, S., Oltramari, A., Vieu, L. and Alexandrov, A. (2010). Data-Driven and Ontological Analysis of FrameNet for Natural Language Reasoning. In *Proceedings of LREC 2010*.
- Ovchinnikova, E., Alexandrov, T. and Wandmacher, T. (2009). Automatic acquisition of the argument-predicate relations from a frame-annotated corpus. In *Proceedings of EMNLP 2009*, pp. 1388-1397.
- Wandmacher, T., Ovchinnikova, E. and Alexandrov, T. (2008). Does Latent Semantic Analysis reflect Human Associations? In *Proceedings of the Lexical Semantics workshop at ESSLLI 2008*.
- Wandmacher, T., Ovchinnikova, E., Krumnack, U. and Dittmann, H. (2007). Extraction, evaluation and integration of lexical-semantic relations for the automated construction of a lexical ontology. In T. Meyer and A.C. Nayak (eds.): *Proceedings of the Australasian Ontology Workshop (AOW)*, pp. 61-69.
- Krumnack, U., Ovchinnikova, E. and Wandmacher, T. (2007). LexO: Constructing a lexical ontology from heterogenous resources. In *Proceedings of the Lexicon/Ontology Interface Workshop (OntoLex)*.
- Kühnberger, K.-U., Wandmacher T., Schwering, A., Ovchinnikova, E., Krumnack, U., Gust, H. and Geibel, P. (2007): I-Cog: A Computational Framework for Integrated Cognition of Higher Cognitive Abilities. In *Proceedings of 6th Mexican International Conference on Artificial Intelligence (MICAI)*, LNAI 4827, pp. 203-214, Springer.
- Kühnberger, K.-U., Wandmacher, T., Ovchinnikova, E., Krumnack, U., Gust, H. and Geibel, P. (2007): Modeling Human-Level Intelligence by Integrated Cognition in a Hybrid Architecture. In P. Hitzler, T. Roth-Berghofer, S. Rudolph (eds.): *Foundations of Artificial Intelligence (FAInt), Workshop at KI 2007, CEUR-WS*, vol. 277, pp. 1-15.

- Mönnich, U., Michaelis, J., Ovchinnikova, E., Wandmacher, T. and Kühnberger, K.-U. (2007). Information Extraction from Annotation Graphs Serving for the Adaptation of Ontologies - Position Paper. In *Proceedings of the Workshop "Learning from Non-Vectorial Data" (LNVD) held in conjunction with KI 2007*, Osnabrück.
- Ovchinnikova, E. and Kühnberger, K.-U. (2007). Automatic Ontology Extension: Resolving Inconsistencies - Extended Abstract . In *Proceedings "Ontologies and Text Technology: Approaches to Extract Semantic Knowledge from Syntactic Information"*, PICS, vol. 2007-1, pp. 93-98.
- Azarova, I., Ivanov, V., Ovchinnikova, E. and Sinopalnikova, A. (2006): RussNet as a Semantic Component of the Text Analyser for Russian. In *Proceedings of the Third International WordNet Conference (GWC)*, pp. 19-27.
- Azarova, I., Ivanov V. and Ovchinnikova, E. (2006): Inheritance of the Valency Frames in RussNet Thesaurus for the Automatic Text Analysis. In *Computer linguistics and intellectual technologies, Proceedings of the international conference "Dialog"*, pp. 18-25.
- Ovchinnikova, E. and Richter, F. (2006): Morph Moulder: Graphical Software for Teaching and Visualizing RSRL and Description Logics. In *Proceeding of the Second International Congress on Tools for Teaching Logic (SICTTL)*, pp. 143-147.
- Azarova, I. and Ovchinnikova, E. (2006): Semantic Interpretation of the Noun Phrases in Russian Corpora. In *Proceedings of the International Conference on Corpus Linguistics*.
- Ovchinnikova, E. and Kühnberger, K.-U. (2006). Adaptive ALE-TBox for Extending Terminological Knowledge. In A. Sattar and B. H. Kang (eds.): *Proceedings of the 19th ACS Australian Joint Conference on Artificial Intelligence*, LNAI 4304, Springer, pp. 1111-1115.
- Ovchinnikova, E. and Kühnberger, K.-U. (2006). Aspects of Automatic Ontology Extension: Adapting and Regeneralizing Dynamic Updates. In M. Orgun (Hrsg.): *Advances in Ontologies, Proceedings of the Australasian Ontology Workshop (AOW), Conferences in Research and Practice in Information Technology*, vol. 72, pp. 52-60.
- Azarova, I., Ivanov, V. and Ovchinnikova, E. (2005): Semantic Structure of the Proposition in the Procedure Extracting Facts from Russian Texts. In Koboseva, Nariniani, Selegea (eds.): *Computer linguistics and intellectual technologies, Proceedings of the international conference "Dialog"*, pp. 6-11.
- Richter, F., Ovchinnikova, E., Trawinski, B. and Meurers, D. (2002): Interactive Graphical Software for Teaching the Formal Foundations of Head-Driven Phrase Structure Grammar. In Gerhard Jäger, Paola Monachesi, Gerald Penn, and Shuly Wintner (eds.): *Proceedings of Formal Grammar 2002*, pp. 137-148.
- Abstracts Gordon, A., Hobbs, J., Ovchinnikova, K., Roemmele, M., and Morency, L. (2013) Abduction of mental states with a formal theory of commonsense psychology. Abstract. *Workshop on Mental model ascription by language-enabled intelligent agents*, July 31, 2013, Berlin, Germany.

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## Theses

### PhD thesis.

Title *Integration of Word Knowledge for Natural Language Understanding*  
Year 2011  
Advisor Prof. Dr. Kai-Uwe Kühnberger  
Institution Institute of Cognitive Science, University of Osnabrück

### Diploma thesis.

Title *Interactive graphical visualization of the mathematical foundations of the formal grammars*  
Year 2003  
Advisor Dr. Irina V. Azarova  
Institution Department of Mathematical, Applied and Computational Linguistics, St.Petersburg State University

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## Teaching

- 2009 Concepts and Words: Theoretical and Empirical Perspectives Interdisciplinary seminar, University of Osnabrück, Teacher
- 2008 Lexicons and Ontologies Independent Study Course, University of Osnabrück, Teacher
- 2001 Grammar Formalisms and Parsing Lectures and Seminar, University of Tübingen, Teaching Assistant

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## Invited Talks

- Jan. 2014 Inference-Based Natural Language Understanding, Allen Institute for AI, Seattle, USA
- Nov. 2013 Heider-Simmel Interactive Theater, Laboratory for Applied Ontology, Trento, Italy
- Feb. 2012 ILP-based Weighted Abduction for Natural Language Understanding, Universidad Nacional de Educacion a Distancia, Madrid, Spain
- May 2011 World Knowledge for Natural Language Understanding using Abductive Reasoning, Seminar für Sprachwissenschaft, Tübingen, Germany
- Mar. 2011 World Knowledge for Natural Language Understanding using Abductive Reasoning, Informatiekunde Rijksuniversiteit Groningen, Groningen, Netherlands

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## Reviewer

AGI'13, CICLing'12'13'14, COLING'12, Co-SLI-3, IWCS'13, LREC'10'11'12'13'14, STARTSEM'13, OTT'06, Concept Types and Frames (book chapter), NSF grant proposal

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## Awards

- 2012 The PhD project won the OLB first prize (<https://www.olb.de/dieolb/16532.php>) (5.000 Euro award)

2007 The PhD project was supported by a 3-year scholarship from the German Academic Exchange Service (DAAD)

## Programming and web-oriented skills

Java, Python, Perl, Prolog, OWL and other Semantic-Web-related standards, XML, HTML, JavaScript

## Languages

Russian (Mothertongue)

English (Fluent)

German (Fluent)

Italian (Conversational)

Spanish (Basic)

## References

**Jerry Hobbs**, *ISI, University of Southern California*, 4676 Admiralty Way, Marina del Rey, CA 90292, USA, Telefon: 1-310-448-9140, Fax: 1-310-811-0751, Email: hobbs@isi.edu.

**Andrew Gordon**, *ICT, University of Southern California*, 12015 Waterfront Drive, Los Angeles, CA 90094-2536, USA, Telefon: 1-310-574-5700, Fax: 1-310-574-5725, Email: gordon@ict.usc.edu.

**Kai-Uwe Kühnberger**, *Institute of Cognitive Science, University of Osnabrück*, Albrechtstrasse 28, 49076 Osnabrück, Germany, Telefon: +49-541 969.3384, Fax: +49-541 969.3381, Email: kkuehnbe@uos.de.

**Frank Richter**, *Heinrich-Heine-Universität Düsseldorf Institut für Sprache und Information Abteilung Computerlinguistik*, Universitätsstr. 1, 40225 Düsseldorf, Germany, Telefon: +49 211 81-11939, Fax: +49 211 81-11325, Email: fr@sfs.uni-tuebingen.de.