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Current position

Research scientist, Ubiquitous Knowledge Processing Lab, Technische Universität Darmstadt

Areas of specialization

Natural language processing: lexical semantics • text/argumentation mining • computational humour

Education

2016 Doktor-Ingenieur, Department of Computer Science, Technische Universität Darmstadt
2003 Master of Science, Department of Computer Science, University of Toronto
1999 Bachelor of Science Honours, Department of Computer Science, University of Regina

Appointments held

2017– *Associate faculty member*
Ontological Semantic Technology Laboratory, Texas A&M University-Commerce
2011– *Research scientist*
Ubiquitous Knowledge Processing Lab, Technische Universität Darmstadt
2008–2011 *Language engineer/business analyst*
InQuira Europe Ltd (later acquired by Oracle Corporation)
2003–2005 *Research scientist*
Knowledge Management Department, German Research Center for Artificial Intelligence (DFKI)
2000–2003 *Course instructor/teaching assistant*
Department of Computer Science, University of Toronto
2000 *Associate software engineer*
Ontrack Data International
1999–2000 *Research assistant*
School of Computing and Information Technology, Griffith University
1996–2000 *Owner/operator*
Sirius Website Design

1998 *Research assistant*
Department of Computer Science, University of Regina

Grants authored & awarded

- 2015–2019 *Information Consolidation: A New Paradigm in Knowledge Search*
Co-author. German Research Foundation (DFG DIP), €1.7M.
- 2006–2008 *Mymory: Situated Documents in Personal Information Spaces*
Co-author. German Federal Ministry of Education and Research (BMBF), €1.2M.
- 2004–2005 *eFISK: eine aufmerksamkeitsbasierte Schlüsselwort-Extraktions- und Information Retrieval-Maschine*
Co-author and co-principal investigator. Rhineland-Palatinate Foundation for Innovation, €230K.
- 2004–2005 *@VISOR: A Holistic Context- and Content-sensitive Approach for Information Visualization, Navigation and Retrieval in Manipulative Virtual Environments*
Co-author and named investigator. German Federal Ministry of Education and Research (BMBF), €1.2M.

Honours & awards

- 2015 ACL–IJCNLP Outstanding Reviewer
- 2014 International Society for Humor Studies Graduate Student Award
- 2013 Listed on the Firefox/Mozilla Monument, San Francisco
- 2006–2009 NSERC Postgraduate Scholarship (declined)
- 2001–2002 NSERC Postgraduate Scholarship
- 1999 University of Regina Prize in Science (awarded to the top graduating B.Sc.)
- 1999 Coca-Cola Student Award
- 1999, 1996 University of Regina General Proficiency Scholarship (awarded to the top 3% of students)
- 1998 E. Peter W. Nash Scholarship
- 1997 Jack Spencer Gordon Middleton Scholarship
- 1997–1998 University of Regina Academic Scholarship (awarded to the top 1% of students)
- 1996–1999 University of Regina Faculty of Science Dean’s Honours
- 1996 Canadian National Scholarship
- 1996 Saskatchewan General Proficiency Award

Publications

REFEREED ARTICLES IN SCIENTIFIC JOURNALS

- [1] T. Miller and M. Turković. *Towards the Automatic Detection and Identification of English Puns*. In: *European Journal of Humour Research* 4(1) (Jan. 2016), pp. 59–75. ISSN: 2307-700X.
- [2] T. Miller. *Essay Assessment with Latent Semantic Analysis*. In: *Journal of Educational Computing Research* 29(4) (Dec. 2003), pp. 495–512. ISSN: 0735-6331. DOI: [10.2190/W5AR-DYPW-40KX-FL99](https://doi.org/10.2190/W5AR-DYPW-40KX-FL99).

- [3] M.J. Maher, A. Rock, G. Antoniou, D. Billington, and T. Miller. **Efficient Defeasible Reasoning Systems**. In: *International Journal on Artificial Intelligence Tools* 10(4) (Dec. 2001), pp. 483–501. ISSN: 0218-2130. DOI: 10.1142/S0218213001000623.
- [4] Y. Xiang and T. Miller. **A Well-behaved Algorithm for Simulating Dependence Structures of Bayesian Networks**. In: *International Journal of Applied Mathematics* 1(8) (1999), pp. 923–932. ISSN: 1311-1728.

BOOK CHAPTERS & ARTICLES IN EDITED VOLUMES

- [1] C. F. Hempelmann and T. Miller. Puns: Taxonomy and Phonology. In: *The Routledge Handbook of Language and Humor*. Ed. by S. Attardo. Routledge Handbooks in Linguistics. New York, NY: Routledge, Feb. 2017, pp. 95–108. ISBN: 978-1-138-84306-6.
- [2] T. Miller. **Latent Semantic Analysis and the Construction of Coherent Extracts**. In: *Recent Advances in Natural Language Processing III*. Ed. by N. Nicolov, K. Botcheva, G. Angelova, and R. Mitkov. Vol. 260. Current Issues in Linguistic Theory (CILT). Amsterdam/Philadelphia: John Benjamins, 2004, pp. 277–286. ISSN: 0304-0763. ISBN: 1-58811-618-2. DOI: 10.1075/cilt.260.31mil.

ARTICLES IN REFEREED CONFERENCE & WORKSHOP PROCEEDINGS

- [1] T. Miller, C. F. Hempelmann, and I. Gurevych. **SemEval-2017 Task 7: Detection and Interpretation of English Puns**. In: *Proceedings of the 11th International Workshop on Semantic Evaluation (SemEval-2017)*. Aug. 2017, pp. 59–69. ISBN: 978-1-945626-00-5.
- [2] S. Abualhaija, T. Miller, J. Eckle-Kohler, I. Gurevych, and K.-H. Zimmermann. **Meta-heuristic Approaches to Lexical Substitution and Simplification**. In: *Proceedings of the 15th Conference of the European Chapter of the Association for Computational Linguistics (EACL 2017)*. Vol. 1. Apr. 2017, pp. 870–879. ISBN: 978-1-945626-34-0.
- [3] C. Guggilla, T. Miller, and I. Gurevych. **CNN- and LSTM-based Claim Classification in Online User Comments**. In: *Proceedings of the 26th International Conference on Computational Linguistics: Technical Papers (COLING 2016)*. Dec. 2016, pp. 2740–2751. ISBN: 978-4-87974-702-0.
- [4] T. Miller, M. Khemakhem, R. Eckart de Castilho, and I. Gurevych. **Sense-annotating a Lexical Substitution Data Set with Ubyline**. In: *Proceedings of the 10th International Conference on Language Resources and Evaluation (LREC 2016)*. Ed. by N. Calzolari *et al.* European Language Resources Association, May 2016, pp. 828–835. ISBN: 978-2-9517408-9-1.
- [5] T. Miller, D. Benikova, and S. Abualhaija. **GermEval 2015: LexSub – A Shared Task for German-language Lexical Substitution**. In: *Proceedings of GermEval 2015: LexSub*. Sept. 2015, pp. 1–9.
- [6] T. Miller and I. Gurevych. **Automatic Disambiguation of English Puns**. In: *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing (ACL-IJCNLP 2015)*. Vol. 1. July 2015, pp. 719–729. ISBN: 978-1-941643-72-3.

- [7] M. Matuschek, T. Miller, and I. Gurevych. **A Language-independent Sense Clustering Approach for Enhanced WSD**. In: *Proceedings of the 12th Konferenz zur Verarbeitung natürlicher Sprache (KONVENS 2014)*. Ed. by J. Ruppenhofer and G. Faaß. Universitätsverlag Hildesheim, Oct. 2014, pp. 11–21. ISBN: 978-3-934105-46-1.
- [8] T. Miller and I. Gurevych. **WordNet–Wikipedia–Wiktionary: Construction of a Three-way Alignment**. In: *Proceedings of the 9th International Conference on Language Resources and Evaluation (LREC 2014)*. Ed. by N. Calzolari *et al.* European Language Resources Association, May 2014, pp. 2094–2100. ISBN: 978-2-9517408-8-4.
- [9] T. Miller, N. Erbs, H.-P. Zorn, T. Zesch, and I. Gurevych. **DKPro WSD: A Generalized UIMA-based Framework for Word Sense Disambiguation**. In: *Proceedings of the 51st Annual Meeting of the Association for Computational Linguistics (System Demonstrations) (ACL 2013)*. Aug. 2013, pp. 37–42.
- [10] T. Miller, C. Biemann, T. Zesch, and I. Gurevych. **Using Distributional Similarity for Lexical Expansion in Knowledge-based Word Sense Disambiguation**. In: *Proceedings of the 24th International Conference on Computational Linguistics (COLING 2012)*. Ed. by M. Kay and C. Boitet. Dec. 2012, pp. 1781–1796.
- [11] T. Miller, B. Klein, and E. Wolf. **Exploiting Latent Semantic Relations in Highly Linked Hypertext for Information Retrieval in Wikis**. In: *Proceedings of the 7th International Conference on Recent Advances in Natural Language Processing (RANLP 2009)*. Ed. by G. Angelova, K. Bontcheva, R. Mitkov, N. Nicolov, and N. Nikolov. ACM Press, Sept. 2009, pp. 241–245.
- [12] T. Miller and E. Wolf. **Word Completion with Latent Semantic Analysis**. In: *Proceedings of the 18th International Conference on Pattern Recognition (ICPR 2006)*. Ed. by Y. Y. Tang, S. P. Wang, G. Lorette, D. S. Yeung, and H. Yan. Vol. 1. IEEE Press, Aug. 2006, pp. 1252–1255. ISSN: 1051-4651. ISBN: 978-0-7695-2521-1. DOI: [10.1109/ICPR.2006.1191](https://doi.org/10.1109/ICPR.2006.1191).
- [13] E. Wolf, S. Vembu, and T. Miller. **On the Use of Topic Models for Word Completion**. In: *Proceedings of the 5th International Conference on Natural Language Processing (FinTAL 2006)*. Ed. by T. Salakoski, F. Ginter, S. Pyysalo, and T. Pahikkala. Vol. 4139. Lecture Notes in Computer Science. Springer, Aug. 2006, pp. 500–511. ISSN: 0302-9743. ISBN: 978-3-540-37334-6. DOI: [10.1007/11816508_50](https://doi.org/10.1007/11816508_50).
- [14] T. Miller and S. Agne. **Attention-based Information Retrieval Using Eye Tracker Data**. In: *Proceedings of the 3rd International Conference on Knowledge Capture (K-CAP 2005)*. Ed. by P. Clark and G. Schreiber. New York, NY: ACM, Sept. 2005, pp. 209–210. ISBN: 978-1-59593-163-4. DOI: [10.1145/1088622.1088672](https://doi.org/10.1145/1088622.1088672).
- [15] B. Klein, T. Miller, and S. Zilles. **Security Issues for Pervasive Personalized Communication Systems**. In: *Security in Pervasive Computing: Proceedings of the 2nd International Conference on Security in Pervasive Computing (SPC 2005)*. Ed. by D. Hutter and M. Ullmann. Vol. 3450. Lecture Notes in Computer Science. Boppard, Germany: Springer, Apr. 2005, pp. 56–62. ISSN: 0302-9743. ISBN: 3-540-25521-4.
- [16] T. Miller. **Latent Semantic Analysis and the Construction of Coherent Extracts**. In: *Proceedings of the 4th International Conference on Recent Advances in Natural Language*

Processing (RANLP 2003). Ed. by G. Angelova, K. Bontcheva, R. Mitkov, N. Nicolov, and N. Nikolov. Sept. 2003, pp. 270–277. ISBN: 954-90906-6-3.

- [17] M. J. Maher, A. Rock, G. Antoniou, D. Billington, and T. Miller. **Efficient Defeasible Reasoning Systems**. In: *Proceedings of the 12th IEEE International Conference on Tools with Artificial Intelligence (ICTAI 2000)*. IEEE Press, Nov. 2000, pp. 384–392. ISSN: 1082-3409. ISBN: 0-7695-0909-6. DOI: [10.1109/TAI.2000.889898](https://doi.org/10.1109/TAI.2000.889898).

REFEREED ARTICLES IN TECHNICAL JOURNALS

- [1] T. Miller. **Producing Beautiful Slides with \LaTeX : An Introduction to the HA-prosper Package**. In: *The Prac \TeX Journal* 2(1) (Apr. 2005). ISSN: 1556-6994.
- [2] T. Miller. **Biblet: A Portable Bib \TeX Bibliography Style for Generating Highly Customizable XHTML**. In: *TUGboat* 26(1) (2005), pp. 85–96. ISSN: 0896-3207.
- [3] T. Miller. **Using the RPM Package Manager for \LaTeX Packages**. In: *TUGboat* 26(1) (2005), pp. 17–28. ISSN: 0896-3207.

THESES

- [1] T. Miller. *Adjusting Sense Representations for Word Sense Disambiguation and Automatic Pun Interpretation*. Dr.-Ing. thesis. Department of Computer Science, Technische Universität Darmstadt, Apr. 2016.
- [2] T. Miller. *Generating Coherent Extracts of Single Documents Using Latent Semantic Analysis*. M.Sc. thesis. Department of Computer Science, University of Toronto, Mar. 2003.

MAGAZINE & ENCYCLOPEDIA ARTICLES

I have contributed hundreds of educational and expository articles on recreational mathematics, recreational linguistics, computing history, and other topics to venues such as *The Journal of Humanistic Mathematics*, *Word Ways: The Journal of Recreational Linguistics*, *Babel: The Language Magazine*, *Lingo: The Language Magazine for Young Readers*, *The Annals of Improbable Research*, *The On-line Encyclopedia of Integer Sequences*, and *Wikipedia*.

Invited talks

- 2017 “Sense clustering for the computational processing of humour.” Department of Linguistics, Ruhr-Universität Bochum, Germany. (forthcoming)
- 2017 NLP workshop and seminar series, School of Data Analysis and Artificial Intelligence, National Research University – Higher School of Economics, Moscow, Russia.
- 2016 “Adjusting sense representations for enhancing semantic resources and technologies.” Department of New Media Technology, MODUL University Vienna, Austria.
- 2016 “Computational detection and interpretation of puns.” 16th International Summer School and Symposium on Humour and Laughter: Theory, Research and Applications, Transilvania University of Braşov, Romania.
- 2016 “Computational interpretation of puns through knowledge-based word sense disambiguation.” Stylistics Research Centre, University of Huddersfield, UK.
- 2014 “Towards the automatic detection and identification of English puns.” Graduate Student

Award talk at the 26th International Society for Humor Studies Conference, Utrecht, Netherlands.

2011 “Exploiting Latent Semantic Relations in Highly Linked Hypertext for Information Retrieval in Wikis.” Department of Computer Science, Technische Universität Darmstadt, Germany.

Teaching

TECHNISCHE UNIVERSITÄT DARMSTADT

2011–2012 Natural Language Processing for the Web

TECHNISCHE UNIVERSITÄT KAISERSLAUTERN

2003–2005 Proseminar: Artificial Intelligence

UNIVERSITY OF TORONTO

2001–2002 CSC 270: Fundamental Data Structures and Techniques

2002 CSC 108: Introduction to Computer Programming

2001 CSC 324: Principles of Programming Languages

2000 CSC 384: Introduction to Artificial Intelligence

Advising

DOCTORAL STUDENTS

2016 (DNF) Chinnappa Guggilla. “Detection and Verification of Facts from Articles by Effectively Leveraging Online Heterogeneous Textual Sources and Knowledge Bases.” Department of Computer Science, Technische Universität Darmstadt. Co-supervised by Iryna Gurevych and Manfred Stede.

MASTER’S STUDENTS

2016–2017 Ji-Ung Lee. “Automatic Annotation of Argumentation Components for eCommerce.” Department of Computer Science, Technische Universität Darmstadt. Co-supervised by Iryna Gurevych and Steffen Eger.

2005 Elisabeth Wolf. “A Semantic-Based Word Completion Utility Using Latent Semantic Analysis.” Department of Technical Sciences, University of Applied Sciences, Oldenburg/Ostfriesland/Wilhelmshaven.

Service to the profession

EDITORIAL BOARD MEMBER

2005–2006 *The PracT_EX Journal*, T_EX Users Group, ISSN: 1556-6994

ADVISORY BOARD MEMBER

2014– *Babel: The Language Magazine*, University of Huddersfield, ISSN: 2051-7297

REVIEWER (BOOKS & JOURNAL ARTICLES)

- 2013 I. Gurevych and J. Kim, eds. *The People's Web Meets NLP: Collaboratively Constructed Language Resources*. Vol. 378 of Theory and Applications of Natural Language Processing. Springer, 2013. ISBN: 978-3-642-35084-9. DOI: 10.1007/978-3-642-35085-6
- 2003–2005 Lawrence Erlbaum Associates: various book proposals
- 2005 *International Journal on Document Analysis and Recognition*, Springer, ISSN: 1433-2833
- 2004 *Machine Vision and Applications*, Springer, ISSN: 0932-8092

MEMBERSHIP IN TECHNICAL & PROFESSIONAL SOCIETIES

- 2014– International Society for Humor Studies (ISHS)
- 2000– Association for Computational Linguistics (ACL)
- 2004–2011 T_EX Users Group (TUG) and UK T_EX Users Group (UK-TUG)
- 1999–2002 Canadian Information Processing Society (CIPS); executive member of University of Regina chapter (1999)

STUDENT BODY & DEPARTMENTAL SERVICE

- 2000–2003 University of Toronto Computer Science Graduate Students' Benevolent Society; executive member (2000–2003)
- 1996–1999 University of Regina Computer Science Students' Society; executive member (1998–1999)

Software

PRIMARY DEVELOPER AND/OR MAINTAINER

- DKPro WSD (word sense disambiguation framework)
- GPP (general-purpose preprocessor)
- CHEOPS (AI chess engine)
- DELORES (forward-chaining reasoning engine for defeasible logic)
- eoconv (Esperanto encoding converter)

CONTRIBUTING DEVELOPER

- DKPro Core (natural language processing toolkit)
- UBY API (linked lexical semantic resource)
- WEBWEAVR-III (Bayesian network research toolkit)
- TWSI Sense Substituter (lexical substitution software)

QUALITY ASSURANCE

- Firefox, SeaMonkey, Thunderbird (web browsers and e-mail client)
- KDE (desktop environment)
- openSUSE (GNU/Linux distribution)
- freedesktop.org (desktop environment frameworks)
- LibreOffice (office suite)

Apache OpenOffice (office suite)
 MEAD (multilingual summarization system)

Skills

NATURAL LANGUAGES

Native: English

Proficient: German, French

Limited: Hungarian, Icelandic

PROGRAMMING/MARKUP LANGUAGES & FRAMEWORKS

Proficient: C, Java, BASIC, Bash, lex, yacc, L^AT_EX, XML, (X)HTML, CSS, UIMA

Familiar: C++, Perl

DEVELOPMENT & ANNOTATION TOOLS

Git, Subversion, Eclipse, Apache Maven, Jenkins, GNU Autotools, RPM, Amazon Mechanical Turk

Conferences & workshops

Legend: (P)articipant (A)uthor (S)peaker (C)hair of event/track (R)eviewer/PC member

EVENT	LOCATION	P	A	S	C	R
SemEval-2018 12th International Workshop on Semantic Evaluation	TBD					*
ArgMining 2017 4th Workshop on Argument Mining at EMNLP 2017	Copenhagen, Denmark					*
EMNLP 2017 2017 Conference on Empirical Methods in Natural Language Processing	Copenhagen, Denmark					*
*SEM 2017 6th Joint Conference on Lexical and Computational Semantics	Vancouver, Canada					*
ACL 2017 55th Annual Meeting of the Association for Computational Linguistics	Vancouver, Canada	*				*
SemEval-2017 11th International Workshop on Semantic Evaluation	Vancouver, Canada	*	*	*	*	*

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EVENT	LOCATION	P	A	S	C	R
ISHS 2017 29th International Society for Humor Studies Conference	Montreal, Canada		*			
AIST 2017 6th Conference on the Analysis of Images, Social Networks, and Texts	Moscow, Russia					*
EACL 2017 15th Conference of the European Chapter of the Association for Computational Linguistics	Valencia, Spain		*			*
COLING 2016 26th International Conference on Computational Linguistics	Osaka, Japan		*			*
ACL 2016 54th Annual Meeting of the Association for Computational Linguistics	Berlin, Germany					*
*SEM 2016 5th Joint Conference on Lexical and Computational Semantics	Berlin, Germany					*
ISSSHL 2016 16th International Summer School and Symposium on Humour and Laughter	Braşov, Romania	*		*		
LREC 2016 10th International Conference on Language Resources and Evaluation	Portorož, Slovenia	*	*	*		
GermEval 2015: LexSub 1st Workshop on German Lexical Substitution	Essen, Germany	*	*	*	*	*
ACL-IJCNLP 2015 53rd Annual Meeting of the Association for Computational Linguistics and the 7th International Joint Conference on Natural Language Processing	Beijing, China	*	*	*		*
HIHC 2014 International Humour Symposium of the 4th Hungarian Interdisciplinary Humour Conference	Komárno, Slovakia	*		*		
KONVENS 2014 12. Konferenz zur Verarbeitung natürlicher Sprache	Hildesheim, Germany	*	*	*		

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EVENT	LOCATION	P	A	S	C	R
ISHS 2014 26th International Society for Humor Studies Conference	Utrecht, Netherlands	*	*	*		
LREC 2014 9th International Conference on Language Resources and Evaluation	Reykjavík, Iceland	*	*	*		
GSCL 2013 25th International Conference of the German Society for Computational Linguistics and Language Technology	Darmstadt, Germany	*		*		*
ACL 2013 51th Annual Meeting of the Association for Computational Linguistics	Sofia, Bulgaria	*	*	*		
COLING 2012 24th International Conference on Computational Linguistics	Mumbai, India	*	*	*		
RANLP 2009 7th International Conference on Recent Advances in Natural Language Processing	Borovets, Bulgaria	*	*	*		
ICPR 2006 18th International Conference on Pattern Recognition	Hong Kong		*			
FinTAL 2006 5th International Conference on Natural Language Processing	Turku, Finland		*			
DAS 2006 7th IAPR Workshop on Document Analysis Systems	Nelson, New Zealand					*
STI Jahrestreffen 2005 2005 Jahrestreffen der Software Technologie Initiative Kaiserslautern	Kaiserslautern, Germany	*				
K-CAP 2005 3rd International Conference on Knowledge Capture	Banff, Canada	*	*	*		
ICDAR 2005 8th International Conference on Document Analysis and Recognition	Seoul, South Korea					*
Wikimania 2005 1st International Wikimedia Conference	Frankfurt, Germany	*				

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EVENT	LOCATION	P	A	S	C	R
ICAPR 2005 3rd International Conference on Advances in Pattern Recognition	Bath, UK					*
PracT_EX 2005 Practical T _E X 2005	Chapel Hill, USA	*	*	*		
SPC 2005 2nd International Conference on Security in Pervasive Computing	Boppard, Germany		*			
SAC 2005 20th Annual ACM Symposium on Applied Computing	Santa Fe, New Mexico					*
DAS 2004 6th IAPR Workshop on Document Analysis Systems	Florence, Italy					*
ICPR 2004 17th International Conference on Pattern Recognition	Cambridge, UK					*
DIAL 2004 1st International Workshop on Document Image Analysis for Libraries	Palo Alto, USA					*
RANLP 2003 4th International Conference on Recent Advances in Natural Language Processing	Borovets, Bulgaria	*	*	*		
LinuxTag 2003	Karlsruhe, Germany	*				
EACL 2003 10th Conference of the European Chapter of the Association for Computational Linguistics	Budapest, Hungary	*				
ACL 2002 40th Annual Meeting of the Association for Computational Linguistics	Philadelphia, USA	*				
NAACL 2001 2nd Meeting of the North American Chapter of the Association for Computational Linguistics	Pittsburgh, USA	*				
ICTAI 2000 12th IEEE International Conference on Tools with Artificial Intelligence	Vancouver, Canada		*			

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