



## rada mihalcea

home . **research** . publications . teaching . downloads . lit@umich . random . contact

### research

[interests](#) . [projects](#) . [activities](#) . [invited talks](#) . [tutorials](#) . [conferences](#) . [workshops](#) . [resources](#)

### awards

- Honorary Citizen of Cluj-Napoca, Romania, 2013.
- [Presidential Early Career Award for Scientists and Engineers \(PECASE\)](#), 2009. Awarded by President Barack Obama.
- [UNT Early Career Award for Research and Creativity](#), 2009.
- National Science Foundation CAREER award, 2008.
- Best paper award, second place, International Conference on Computational Linguistics and Intelligent Text Processing, 2007.
- Best paper award, International Conference of the Florida Artificial Intelligence Research Society, 1999, 2000.
- National Mathematics Olympiads, Romania, 1986, 1987, 1990.

### research group

My research group is the [Language and Information Technologies](#) group (LIT@UMich). Our work has been funded by the National Science Foundation, the Templeton Foundation, Google, IBM, Samsung, DARPA, NGO, and the states of Texas and Michigan.

### research interests

My research interests are in Natural Language Processing, Multimodal Processing, Computational Social Sciences. Research topics that I worked on over the years include:

- Computational sociolinguistics (cross-cultural value learning, text-based geolocation, language-based modeling of worldview, multimodal personality detection, deception detection)
- Multimodal sensing and tracking of human behavior (deception, affect, stress, alertness)
- Joint modeling of language and vision (text-video question answering, text-image similarity, image annotation)
- Lexical semantics (semantic similarity, word sense disambiguation, lexical substitution)
- Graph-based algorithms for natural language processing (text summarization, word sense disambiguation, keyphrase extraction, category assignment)
- Multilingual natural language processing
- Multilingual subjectivity, sentiment, and emotion analysis
- Computational humor

### current research projects

<a href="#">Computational Sociolinguistics</a>	methods to identify people's values, behaviors, personality, worldviews from their language
<a href="#">Multimodal Deception Detection</a>	multimodal deception detection using physiological and linguistic signals
<a href="#">Sentiment and Subjectivity Analysis</a>	multilingual sentiment and subjectivity analysis, emotion analysis
<a href="#">Conversational Technologies</a>	natural language understanding and dialog systems for student advising
<a href="#">Natural Language Processing for Motivational Interviewing</a>	language analysis of counseling behavior during MI encounters
<a href="#">Joint Language-Vision Models</a>	joint models of language and vision applied to image tagging, text-image similarity, movie question answering
<a href="#">Computational Humor</a>	computational approaches for humour recognition and generation

### previous research projects

<a href="#">Automatic Semantic Interpretation</a>	semantic interpretation with monolingual and cross-lingual evidence
---	---

<a href="#">MuSeNet</a>	multilingual semantic networks for text processing applications
<a href="#">TextRank</a>	graph-based ranking algorithms for text processing
<a href="#">Babylon</a>	methods for building and exploiting parallel texts <a href="#">Resources for word / sentence alignment</a>
<a href="#">SenseLearner</a>	tools for finding the meaning of all words in unrestricted text
<a href="#">Text-to-image Synthesis</a>	language processing models for text-to-image synthesis and automatic image annotation
<a href="#">Teach-Computers</a>	data collection with volunteer contributions over the Web
<a href="#">SPOT</a>	semantic parsing for open text

### current activities

- Journal of Artificial Intelligence Research, associate editor (2016-2019).
- Computer Speech and Language, associate editor (2016-2018).

### past activities

- Transactions of the Association of Computational Linguistics, associate editor (2012-2015).
- IEEE Transactions of Affective Computing, associate editor (2012-2014).
- [Journal of Natural Language Engineering](#) (2007-2012)
- [John Benjamins series on Natural Language Processing](#), advisory board
- [SIGLEX](#) president (2004-2007)
- [Computational Linguistics](#) editorial board (2005-2007)
- [Language Resources and Evaluation](#) editorial board (2005-2006)
- [Research on Language and Computation](#) (2007-2011)
- [Journal of Interesting Negative Results in Natural Language Processing and Machine Learning](#) editorial board (2006-present)
- [SIGNLL](#) board member (2002-2010)
- [Senseval/Semeval](#) advising committee (2004-2010)
- Guest editor for JNLE Special Issue on Parallel Texts, 2005 (with Michel Simard)

### conferences

- [North American Association for Computational Linguistics](#), general chair, Denver, Colorado, 2015.
- [Association for Computational Linguistics](#), co-chair, Portland Oregon 2011.
- [Empirical Methods in Natural Language Processing](#), co-chair, Singapore, 2009.

### invited talks

- Keynote talk, *Deception Detection using Real-life Trial Data*, NAACL Workshop on Computational Approaches to Deception Detection, San Diego, June 18, 2016.
- Keynote talk, *Deception Detection using Real-life Trial Data*, International Conference on Pervasive Technologies Related to Assistive Environments (PETRA 2016), Corfu Island, Greece, July 1, 2016.
- Oakland University, *Deception Detection using Real-life Trial Data*, ACM Women and Diversity in Technology Lecture Series, Rochester, MI, March 30, 2016.
- Oxford University, *What Men Say, What Women Hear: Using Semantics To Make Better Sense of Gender Differences in Social Media*, Oxford, UK, October 13, 2015.
- Keynote talk, *What Men Say, What Women Hear: Using Semantics To Make Better Sense of Gender Differences in Social Media*, LSDSem 2015/LSD-Sem: EMNLP Workshop on Linking Models of Lexical, Sentential and Discourse-level Semantics, Lisbon, Portugal, September 18, 2015.
- University of Michigan, *Multimodal Sentiment Analysis*, NCIBI Tools and Technology, Ann Arbor, MI, May 14, 2015.
- Florida Institute for Human and Machine Cognition, *What Women Want: Tracking and Understanding Gender Differences using Large-Scale Text Mining*, Occala, FL, April 2, 2015.
- Invited talk, *The Joy of Computing*, Girls in Research Engineering and Technology (GREAT) Day, presentation made to the parents of approximately 240 middle/high-school girls and parents, U. Michigan, April 12, 2014.
- Keynote talk, *Multimodal Sentiment Analysis*, German Society of Computational Linguistics (GSCL), Darmstadt, Germany, September 27, 2013.
- Keynote talk, *Multilingual Natural Language Processing*, Cross-Lingual Evaluation Framework (CLEF), Valencia, Spain, September 25, 2013.
- Keynote talk, *Multimodal Sentiment Analysis*, ICDM 2012: SENTIRE Workshop on Sentiment Elicitation from Natural Text for Information Retrieval and Extraction, Bruxelles, Belgium, December 10, 2012.
- Texas A&M College Station, *Multimodal Sentiment Analysis*, College Station, TX, November 5, 2012.
- Invited presentation, *Emotion Annotation and Recognition in Text*, NSF workshop on Opinion Summarization, University of Pennsylvania, October 20, 2012.
- University of Texas at Dallas, *Using Wikipedia for Natural Language Processing*, Dallas, TX, October 1, 2012.
- Keynote talk, *Multimodal Sentiment Analysis*, ACL 2012: 3rd Workshop on Computational Approaches to Subjectivity and Sentiment Analysis, July 12, 2012, Jeju Island, Korea.
- Samsung R&D Dallas, *Random Walks on Text Structures*, Dallas, TX, July 30, 2012.
- Keynote talk, *Large scale graph algorithms for topic identification in Wikipedia*, ACL 2012: TextGraphs-7: Graph-based Methods for Natural Language Processing, July 13, 2012, Jeju

Island, Korea.

- Keynote talk, *Multilingual Natural Language Processing*, EACL 2012: Workshop on Innovative hybrid approaches to the processing of textual data, April 23, 2012.
- Southern Methodist University, *Multimodal Sentiment Analysis*, Dallas, April 12, 2012.
- University of Alabama at Birmingham, *Multimodal Sentiment Analysis*, Birmingham, April 6, 2012.
- Keynote talk, Mexican Conference on Artificial Intelligence (MICA I 2011), *Natural Language Processing using Wikipedia*, Puebla, Mexico, November 30, 2011.
- Keynote talk, MICA I-HLT 2011: 7th MICA I Workshop on Human Language Technologies, *Multilingual Natural Language Processing: Are More Languages Better?*, Puebla, Mexico, November 29, 2011.
- University of Illinois at Urbana Champaign, *Multilingual Subjectivity Analysis*, Urbana, October 28, 2011.
- Rutgers University, *Using Wikipedia for Natural Language Processing*, Brunswick, New Jersey, September 2011.
- Northwestern University, *The Language of Humor*, Chicago, IL, May 13, 2011.
- Johns Hopkins University, Center for Speech and Language Processing *Multilingual Subjectivity Analysis*, Baltimore, MD, May 2, 2011.
- Temple University, *Multilingual Subjectivity Analysis*, Philadelphia, PA, April 15, 2011.
- University of Texas Health Science, *Using Wikipedia for Natural Language Processing*, Houston, February 16, 2011.
- Texas A&M Commerce, *Linking Documents to Encyclopedic Knowledge*, Commerce, October 18, 2010.
- *Linking Documents to Encyclopedic Knowledge*, Texas A&M, College Station, November 16, 2009.
- *The Language of Humor*, Southern Methodist University, Dallas, October 8, 2009.
- *The Language of Humor*, Massachusetts Institute of Technology, Media Arts and Sciences, Boston, October 2, 2009.
- *Linking Documents to Encyclopedic Knowledge*, keynote at the ACL workshop [The People's Web Meets NLP: Collaboratively Constructed Semantic Resources](#), Singapore, August 2009.
- *Linking Documents to Encyclopedic Knowledge*, Computational Linguistics group, University of Texas at Austin, March 9, 2009.
- *Linking Documents to Encyclopedic Knowledge*, Education Testing Services, Princeton, NJ, September 5, 2008.
- *Linking Documents to Encyclopedic Knowledge: Using Wikipedia as a Source of Linguistic Evidence*, Dublin City University, February 8, 2008.
- keynote at the [International Conference on Linguistic Evidence](#), Tübingen, Germany, February 1, 2008.
- *Linking Documents to Encyclopedic Knowledge: Using Wikipedia as a Source of Linguistic Evidence*, University of Toronto, January 30, 2008.
- *Learning Multilingual Subjective Language via Cross-Lingual Projections*, Columbia University, New York, September 2007.
- *The Language of Humour*, keynote at the [Workshop on Cross-lingual Information Processing](#), Camogli, Italy, July 2007.
- *Using Wikipedia for Word Sense Disambiguation*, keynote at the [International Conference on Knowledge Engineering Principles and Techniques](#), Cluj-Napoca, Romania, June 2007.
- *Measures of Text Semantic Similarity*, Sussex University, Brighton, United Kingdom, May 17, 2007.
- *A Picture is Worth Seven Thousand Words: Toward Communicating Simple Sentences using Pictorial Representations*, [Turing Center, Washington University](#), Seattle, Washington, April 17, 2007.
- *A Picture is Worth Seven Thousand Words: Toward Communicating Simple Sentences using Pictorial Representations*, [National Polytechnic Institute, Mexico City](#), March 20, 2007.
- *The Language of Humour*, keynote at the [NAACL workshop on Computational Approaches to Figurative Language](#), Rochester, NY, April 26, 2007.
- *Building Multilingual and Crosslingual Semantic Resources with Volunteer Contributions over the Web*, invited presentation at the workshop on "Multi-lingual semantic annotation: Theory and applications", Saarland University, Saarbrücken, Germany, June 23, 2006.
- *Measures of Text Semantic Similarity*, University of Oxford, Oxford, United Kingdom, June 16, 2006.
- *Measures of Text Semantic Similarity*, [University of Wolverhampton](#), Wolverhampton, UK, June 2006.
- *Random Walks on Text Structures*, keynote at the [International Conference on Intelligent Text Processing and Computational Linguistics](#), CILing, Mexico City, Mexico, February 2006.
- *Text Processing with Graph-based Ranking Algorithms*, [Instituto Nacional de Astrofísica Óptica y Electrónica \(INAOE\)](#), Puebla, Mexico, September 6, 2005.
- *Text Processing with Graph-based Ranking Algorithms*, [University of Ottawa, TAMALE Research Day](#), Ottawa, Canada, May 25, 2005.
- *Graph-based Algorithms for Text Processing*, [University of Memphis](#), Memphis, March 17, 2005.
- *Random Walks on Text Structures*, [University of Texas, Forum for Artificial Intelligence](#), Austin, February 24, 2005.
- *Using Your Algorithm to Solve My Problems*, [Google](#), Sunnyvale, December 16, 2004.
- *Making Sense Out of the Web*, keynote at [Lexical Resources and the Web for Word Sense Disambiguation](#), IBERAMIA, Puebla, Mexico, November 22, 2004.
- *Text Processing with Graph-based Ranking Algorithms*, School of Libraries and Information Sciences, UNT, November 3, 2004.
- *Graph-Theory Meets Computational Linguistics: Text Processing with Graph-based Ranking Algorithms*, keynote at [EsTAL 2004](#), Alicante, Spain, October 21, 2004.
- *Text Summarization with Graph-based Ranking Algorithms*, [Microsoft Research](#), Seattle, September 10, 2004.

- [Text Summarization with Graph-based Ranking Algorithms](#), [Xerox Research Center Europe](#), Grenoble, France, August 20, 2004.
- [Unsupervised Word Sense Disambiguation using Graph-based Ranking Algorithms](#), [Istituto Trentino di Cultura ITC/IRST](#), Trento, Italy, August 4, 2004.
- [Graph-based Ranking Algorithms for Language Processing](#), [USC/ISI](#), April 16, 2004 [[abstract](#)]
- [The Quest for Meaning](#), [Berlin-Brandenburg Academy of Science](#), August 23, 2003.
- [The Web as Collective Mind: Building Large Annotated Corpora with Web Users' Help](#), invited presentation at the [1st Meaning Workshop](#), San Sebastian, Basque Country, April 11-12, 2003.
- [Using the Web for Word Sense Disambiguation](#), [University of Minnesota, Duluth](#), October 24, 2002 [[abstract](#)]
- [Efficient Data Driven Methods for Word Sense Disambiguation](#), [University of Ottawa](#), March 11, 2002 [[abstract](#)]

### tutorials

- Multilingual Sentiment and Subjectivity Analysis, tutorial at the Mexican Conference on Artificial Intelligence (MICA I 2011), November 2011, Association for Computational Linguistics (ACL 2012) (with Jan Wiebe, Carmen Banea)
- [Words, meanings, and Emotions](#), tutorial at the Eurolan Summer School, Iasi, Romania, August 2007 (with Carlo Strapparava).
- [Graph-based Algorithms for Information Retrieval and Natural Language Processing](#), tutorial at RANLP 2005 Borovetz Bulgaria September 2005, HLT-NAACL 2006 New York City June 2006 (with Drago Radev).
- [How to add a new language on the NLP map](#), tutorial at EUROLAN 2005, Cluj-Napoca, Romania, August 2005 (with Vivi Nastase, Doina Tatar), IJCNLP 2008, Hyderabad, India, 2008.
- [Advances in Word Sense Disambiguation](#) (with Ted Pedersen), tutorial at IBERAMIA 2004 Puebla Mexico November 2004, ACL 2005 Ann Arbor June 2005, AAAI 2005 Pittsburgh July 2005.

### workshops

- [Workshop on Multimodal Deception Detection](#), ICMI 2015 (with Mohamed Abouelenien, Mihai Burzo, Veronica Perez-Rosas)
- [NAACL 2012 workshop on Computational Linguistics for Literature](#), Montreal, June 2012. (with David Elson, Anna Kazantseva, Stan Szpakowicz)
- [IJCAI 2009 workshop on User-contributed knowledge and artificial intelligence](#), an evolving synergy, Pasadena, July 2009. (with Razvan Bunescu, Evgeniy Gabrilovich, Vivi Nastase)
- [AAAI 2008 Workshop on Wikipedia and Artificial Intelligence: An Evolving Synergy \(WIKIAI-08\)](#), Chicago, July 2008. (with Razvan Bunescu, Evgeniy Gabrilovich)
- [NAACL 2007 workshop on Textgraphs: Graph-based Algorithms for Natural Language Processing](#), Rochester, April 2007. (with Chris Biemann, Irina Matveeva, Drago Radev)
- [NAACL 2006 workshop on Textgraphs: Graph-based Algorithms for Natural Language Processing](#), New York City, June 2006. (with Drago Radev)
- [ACL 2005 workshop on Building and Using Parallel Texts: Data Driven Machine Translation and Beyond](#), Ann Arbor, July 2005. (with Philipp Koehn, Joel Martin, Christof Monz, Ted Pedersen)
- AAAI 2005 Spring Symposium on [Knowledge Collection from Volunteer Contributors](#), March 2005. (with Timothy Chklovski, Pedro Domingos, Henry Lieberman, Push Singh)
- [Senseval-3](#), "3rd International Workshop on the Evaluation of Systems for the Semantic Analysis of Text", ACL, Barcelona, July 2004. (with Phil Edmonds)
- [HLT-NAACL 2003 Workshop on "Building and Using Parallel Texts: Data Driven Machine Translation and Beyond"](#), Edomonton, May 2003. (with Ted Pedersen)
- [ACL 2002 Workshop on "Word Sense Disambiguation: Recent Advances and Future Directions"](#), Philadelphia, July 2002. (with Phil Edmonds)

### resources

- [Senseval 2004](#)
- [Workshop on Parallel Texts, 2003](#)
- [Workshop on Parallel Texts 2005](#)
- [Resources for Sentence and Word Alignment](#)