

## SAIF M. MOHAMMAD

Researcher, Computational Linguistics  
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### AREAS OF INTEREST

Natural language processing (NLP), lexical semantics, emotion analysis, sentiment analysis, semantic distance, distributional similarity, word senses, lexical-semantic relations, antonymy, crowdsourcing, word-colour associations, and information visualization.

### CURRENT POSITION

**Senior Research Officer**, October 2014–present  
Information and Communications Technologies, National Research Council Canada, Ottawa, Canada

### PREVIOUS POSITIONS

**Research Officer**, October 2009–September 2014  
Institute of Information Technology, National Research Council Canada, Ottawa, Canada

**Research Associate**, January 2008–September 2009  
Institute of Advanced Computer Studies, University of Maryland, College Park, USA

### EDUCATION

**Doctor of Philosophy**, September 2003–February 2008  
Department of Computer Science, University of Toronto, Toronto, Canada

**Master of Science**, September 2001–August 2003  
Department of Computer Science, University of Minnesota, Duluth, USA

**Bachelor of Engineering**, August 1996–May 2000  
Department of Electronics Engineering, University of Pune, Pune, India

### HIGHLIGHTS

- Published over 70 articles and book chapters (H-index: 28; over 1,000 citations in 2016).
- Area chair for Sentiment and Opinion Mining at NAACL 2015, EMNLP 2016, ACL 2017, EMNLP 2017; publicity chair for NAACL 2015 and EMNLP 2016.
- Co-chair of SemEval-2017 and SemEval 2018. (SemEval is one of the largest NLP evaluation exercises with proceedings as large as that of top NLP conferences.)
- Co-organizer of the 8th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA-2017), to be held in conjunction with EMNLP-2017, Copenhagen, Denmark.
- Organized several international shared task competitions such as the SemEval-2016 shared task on detecting stance from tweets.
- Led the NRC-Canada team in developing a sentiment analysis system that ranked first in recent international shared tasks (among more than 40 submissions).

- Developed the NRC Emotion Lexicon, which is widely used for text analysis and information visualization—hundreds of references on Google Scholar.
- Gave keynote speeches at:
  - the 20th International Conference on Asian Language Processing (IALP 2016)
  - the COLING 2016 workshop on Computational Modeling of People’s Opinions, Personality, and Emotions in Social Media (PEOPLES 2016)
  - the 2016 IR Workshop at the Academia Sinica, November 24, 2016, Taipei, Taiwan
  - the ACL 2014 Workshop on Computational Approaches to Subjectivity, Sentiment, and Social Media (WASSA)
- Presented tutorials at international NLP conferences on Sentiment and Emotion Analysis. A video of the EMNLP-2014 tutorial has received more than 23,000 views on YouTube. (<https://www.youtube.com/watch?v=zv16Xyph7Ss>)
- Work cited in several articles in the popular press, including articles in Time, Slashdot, Live-Science, io9, The Physics arXiv Blog, PC World, and Popular Science.

## PUBLICATIONS

### *Summary*

H-index: 28

Number of publications: 70

Number of citations received: ~2,900 (over 1,000 citations in 2016)

Google Scholar profile: <http://www.purl.org/net/googlescholar>

### *Journal articles*

- Stance and Sentiment in Tweets. Saif M. Mohammad, Parinaz Sobhani, and Svetlana Kiritchenko. Special Section of the ACM Transactions on Internet Technology on Argumentation in Social Media, In Press.
- How Translation Alters Sentiment. Saif M. Mohammad, Mohammad Salameh, and Svetlana Kiritchenko, *Journal of Artificial Intelligence Research*, Volume 55, pages 95–130.
- Developing a Successful SemEval Task in Sentiment Analysis of Twitter and Other Social Media Texts. *Language Resources and Evaluation*. January 2016, pages 1–31.
- Sentiment, Emotion, Purpose, and Style in Electoral Tweets. Saif M. Mohammad, Svetlana Kiritchenko, Xiaodan Zhu, and Joel Martin. *Information Processing and Management*, Volume 51, Issue 4, July 2015, Pages 480–499.
- Sentiment Analysis of Short Informal Texts. Svetlana Kiritchenko, Xiaodan Zhu and Saif Mohammad. *Journal of Artificial Intelligence Research*, volume 50, pages 723–762, August 2014.
- Experiments with Three Approaches to Recognizing Lexical Entailment. Peter D. Turney, Saif M. Mohammad, *Natural Language Engineering*, Volume 21, Issue 3, May 2015.
- Using Hashtags to Capture Fine Emotion Categories from Tweets. Saif M. Mohammad, Svetlana Kiritchenko, *Computational Intelligence*, Volume 31, Issue 2, Pages 301–326, May 2015.

- Generating Extractive Summaries of Scientific Paradigms, Vahed Qazvinian, Dragomir R. Radev, Saif M. Mohammad, Bonnie Dorr, David Zajic, Michael Whidby, Taesun Moon. *Journal of Artificial Intelligence Research (JAIR)*, 46, pages 165–201, 2013.
- Crowdsourcing the creation of an emotion lexicon. Saif Mohammad and Peter Turney. *Computational Intelligence*, 29(3), 436–465, 2013.
- Associations of Words with Emotion, Polarity, and Colour: Crowdsourcing a Lexicon. Saif Mohammad and Peter Turney. Technical Report, National Research Council Canada, Ottawa, Canada.
- Computing Lexical Contrast. Saif Mohammad, Bonnie Dorr, Graeme Hirst, and Peter Turney. *Computational Linguistics*, 39(3), 555–590, 2013.
- From Once Upon a Time to Happily Ever After: Tracking Emotions in Mail and Books, Saif Mohammad, *Decision Support Systems*, Volume 53, Issue 4, November 2012, Pages 730–741.
- Binary Classifiers and Latent Sequence Models for Emotion Detection in Suicide Notes. Colin Cherry, Saif Mohammad, and Berry de Bruijn. *Journal of Biomedical Informatics Insights*, 5 (Suppl. 1), 147–154, January 2012.
- Distributional Measures as Proxies for Semantic Distance: A Survey. Saif Mohammad and Graeme Hirst. ArXiv.

### *Theses*

- Measuring semantic distance using distributional profiles of concepts. Saif M. Mohammad. Ph.D. thesis, Department of Computer Science. February 2008, University of Toronto, Canada.
- Combining lexical and syntactic features for supervised word sense disambiguation. Saif M. Mohammad. M.Sc. thesis, Department of Computer Science. August 2003, University of Minnesota, USA.

### *Conference papers*

- Metaphor as a Medium for Emotion: An Empirical Study. Saif M. Mohammad, Ekaterina Shutova, and Peter Turney. In Proceedings of the Joint Conference on Lexical and Computational Semantics (\*Sem), August 2016, Berlin, Germany.
- Detecting Stance in Tweets And Analyzing its Interaction with Sentiment. Parinaz Sobhani, Saif M. Mohammad, and Svetlana Kiritchenko. In Proceedings of the Joint Conference on Lexical and Computational Semantics (\*Sem), August 2016, Berlin, Germany.
- Determining Word-Emotion Associations from Tweets by Multi-Label Classification. Felipe Bravo-Marquez, Eibe Frank, Saif Mohammad, and Bernhard Pfahringer. In Proceedings of the 2016 IEEE/WIC/ACM International Conference on Web Intelligence (WI'16), Omaha, Nebraska, USA.

- Capturing Reliable Fine-Grained Sentiment Associations by Crowdsourcing. Svetlana Kiritchenko and Saif M. Mohammad. In *Proceedings of the 15th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. June 2016. San Diego, CA.
- Sentiment Composition of Words with Opposing Polarities. Svetlana Kiritchenko and Saif M. Mohammad. In *Proceedings of the 15th Annual Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*. June 2016. San Diego, CA.
- Sentiment Lexicons for Arabic Social Media. Saif M. Mohammad, Mohammad Salameh, and Svetlana Kiritchenko. In *Proceedings of the 10th edition of the Language Resources and Evaluation Conference*, May 2016, Portoro, Slovenia.
- A Dataset for Detecting Stance in Tweets. Saif M. Mohammad, Svetlana Kiritchenko, Parinaz Sobhani, Xiaodan Zhu, and Colin Cherry. In *Proceedings of the 10th edition of the Language Resources and Evaluation Conference*, May 2016, Portoro, Slovenia.
- Happy Accident: A Sentiment Lexicon of Opposing Polarity Phrases. Svetlana Kiritchenko and Saif M. Mohammad. In *Proceedings of the 10th edition of the Language Resources and Evaluation Conference*, May 2016, Portoro, Slovenia.
- Sentiment After Translation: A Case-Study on Arabic Social Media Posts. Mohammad Salameh, Saif M Mohammad and Svetlana Kiritchenko, In *Proceedings of the North American Chapter of the Association for Computational Linguistics (NAACL-2015)*, June 2015, Denver, Colorado. (Acceptance rate: 29%)
- An Empirical Study on the Effect of Negation Words on Sentiment. Xiaodan Zhu, Hongyu Guo, Saif Mohammad and Svetlana Kiritchenko. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics*, June 2014, Baltimore, MD. (Acceptance rate: 26%)
- Portable Features for Classifying Emotional Text. Saif M. Mohammad. In *Proceedings of the 2012 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies*, June 2012, Montreal, Canada. (Acceptance rate: 34%)
- #Emotional Tweets. Saif M. Mohammad. In *Proceedings of the First Joint Conference on Lexical and Computational Semantics (\*Sem)*, June 2012, Montreal, Canada. (Acceptance rate: 18%)
- Even the Abstract have Colour: Consensus in Word-Colour Associations. Saif M. Mohammad. In *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL-2011)*, June 2011, Portland, OR. (Acceptance rate: 25%)
- Generating high-coverage semantic orientation lexicons from overtly marked words and a thesaurus. Saif M. Mohammad, Bonnie Dorr, and Cody Dunne. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2009)*, August 2009. Singapore. (Acceptance rate: 34%)

- Estimating semantic distance using soft semantic constraints in knowledge-source–corpus hybrid models. Yuval Marton, Saif M. Mohammad, and Philip Resnik. *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2009)*, August 2009, Singapore. (Acceptance rate: 34%)
- Generating surveys for research paradigms. Saif M. Mohammad, Bonnie Dorr, Dragomir Radev, Melissa Egan, Ahmed Hassan, Pradeep Muthukrishnan, Vahed Qazvinian, and David Zajic. In *Proceedings of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies (NAACL-HLT-2009)*, May 2009, Boulder, Colorado. (Acceptance rate: 28%)
- Computing word-pair antonymy. Saif M. Mohammad, Bonnie Dorr, and Graeme Hirst. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2008)*, October 2008, Waikiki, Hawaii. (Acceptance rate: 21%)
- Cross-lingual distributional profiles of concepts for measuring semantic distance. Saif M. Mohammad, Iryna Gurevych, Graeme Hirst, and Torsten Zesch. In *Proceedings of the Joint Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning (EMNLP-CoNLL 2007)*, July 2007, Prague, Czech Republic. (Acceptance rate: 16%)
- Distributional measures of concept-distance: A task-oriented evaluation. Saif M. Mohammad and Graeme Hirst. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2006)*, July 2006, Sydney, Australia. (Acceptance rate: 18%)
- Determining word sense dominance using a thesaurus. Saif M. Mohammad and Graeme Hirst. In *Proceedings of the Conference of the European chapter of the Association for Computational Linguistics (EACL-2006)*, April 2006, Trento, Italy. (Acceptance rate: 19%)
- Combining lexical and syntactic features for supervised word sense disambiguation. Saif M. Mohammad and Ted Pedersen. In *Proceedings of the Conference on Computational Natural Language Learning (CoNLL-2004)*, May 2004. Boston, MA. (Acceptance rate: 47%)
- Guaranteed pre-tagging for the Brill Tagger. Saif M. Mohammad and Ted Pedersen. In *Proceedings of the International Conference on Intelligent Text Processing and Computational Linguistics (CICLing-2003)*, February 2003, Mexico City, Mexico. (Acceptance rate: 46%)

### *Book Chapters*

- Sentiment Analysis: Detecting Valence, Emotions, and Other Affectual States from Text. Saif M. Mohammad, Book chapter in *Emotion Measurement*, Elsevier. 2016.
- Challenges in Sentiment Analysis. Saif M. Mohammad, Book chapter in *A Practical Guide to Sentiment Analysis*, Springer. 2016.
- Semantic distance measures with distributional profiles of coarse-grained concepts. Graeme Hirst and Saif Mohammad. Book chapter in *Modeling, Learning and Processing of Text Technological Data Structures*, Editors Alexander Mehler, Kai-Uwe Kühnberger, Henning Lobin, Harald Lungen, Angelika Storrer, and Andreas Witt. Springer. 2009.

## Symposia

- My N is Ten Million: Using Social Media to Track Emotion, Mental Health, and Measure Personality Across Entire Populations. Gregory J. Park, Saif M. Mohammad, and Johannes C. Eichstaedt. In *Proceedings of the Symposium at the International Convention of Psychological Science (ICPS)*, March 2015, Amsterdam, The Netherlands.
- Cross-Document Coreference Resolution: A Key Technology for Learning by Reading. James Mayfield, Bonnie Dorr, Jason Eisner, Tim Finin, Saif M. Mohammad, Douglas Oard, Ralph Weischedel, David Yarowsky, and others. In *Proceedings of the AAAI Spring Symposium on Learning by Reading and Learning to Read (AAAI-09)*, March 2009, Menlo Park, CA.

## Workshops

- Semeval-2016 Task 6: Detecting Stance in Tweets. Saif M. Mohammad, Svetlana Kiritchenko, Parinaz Sobhani, Xiaodan Zhu, and Colin Cherry. In *Proceedings of the International Workshop on Semantic Evaluation (SemEval-2016)*. June 2016. San Diego, CA.
- Semeval-2016 Task 7: Determining Sentiment Intensity of English and Arabic Phrases. Svetlana Kiritchenko, Saif M. Mohammad, and Mohammad Salameh. In *Proceedings of the International Workshop on Semantic Evaluation (SemEval-2016)*. June 2016. San Diego, CA.
- Imagisaurus: An Interactive Visualizer of Valence and Emotion in the Rogets Thesaurus. Saif M. Mohammad. In *Proceedings of the EMNLP 2015 Workshop on Computational Approaches to Subjectivity, Sentiment, and Social Media (WASSA)*, September 2015, Lisbon, Portugal.
- SemEval-2015 Task 10: Sentiment Analysis in Twitter. Sara Rosenthal, Preslav Nakov, Svetlana Kiritchenko, Saif M Mohammad, Alan Ritter, and Veselin Stoyanov. In *Proceedings of the ninth international workshop on Semantic Evaluation Exercises (SemEval-2015)*, June 2015, Denver, Colorado.
- NRC-Canada-2014: Detecting Aspects and Sentiment in Customer Reviews, Svetlana Kiritchenko, Xiaodan Zhu, Colin Cherry, and Saif M. Mohammad. In *Proceedings of the eighth international workshop on Semantic Evaluation Exercises (SemEval-2014)*, August 2014, Dublin, Ireland.
- NRC-Canada-2014: Recent Improvements in Sentiment Analysis of Tweets, Xiaodan Zhu, Svetlana Kiritchenko, and Saif M. Mohammad. In *Proceedings of the eighth international workshop on Semantic Evaluation Exercises (SemEval-2014)*, August 2014, Dublin, Ireland.
- Semantic Role Labeling of Emotions in Tweets. Saif M. Mohammad, Xiaodan Zhu, and Joel Martin, In *Proceedings of the ACL 2014 Workshop on Computational Approaches to Subjectivity, Sentiment, and Social Media (WASSA)*, June 2014, Baltimore, MD.
- Generating Music from Literature. Hannah Davis and Saif M. Mohammad, In *Proceedings of the EACL Workshop on Computational Linguistics for Literature*, April 2014, Gothenburg, Sweden.
- NRC-Canada: Building the State-of-the-Art in Sentiment Analysis of Tweets, Saif M. Mohammad, Svetlana Kiritchenko, and Xiaodan Zhu, In *Proceedings of the seventh international workshop on Semantic Evaluation Exercises (SemEval-2013)*, June 2013, Atlanta, USA.

- Identifying Purpose Behind Electoral Tweets, Saif Mohammad, Svetlana Kiritchenko and Joel Martin, In *Proceedings of the KDD Workshop on Issues of Sentiment Discovery and Opinion Mining (WISDOM-2013)*, August 2013, Chicago, USA.
- Using Nuances of Emotion to Identify Personality, Saif M. Mohammad and Svetlana Kiritchenko, In *Proceedings of the ICWSM Workshop on Computational Personality Recognition*, July 2013, Boston, USA.
- Saif M. Mohammad and Tony Yang. Tracking Sentiment in Mail: How Genders Differ on Emotional Axes. June 2011. *Proceedings of the ACL 2011 Workshop on ACL 2011 Workshop on Computational Approaches to Subjectivity and Sentiment Analysis (WASSA)*, Portland, OR.
- Saif M. Mohammad. From Once Upon a Time to Happily Ever After: Tracking Emotions in Novels and Fairy Tales. June 2011. *Proceedings of the ACL 2011 Workshop on Language Technology for Cultural Heritage, Social Sciences, and Humanities (LaTeCH)*, Portland, OR.
- Saif M. Mohammad. Colourful Language: Measuring Word-Colour Associations. June 2011. *Proceedings of the ACL 2011 Workshop on Cognitive Modeling and Computational Linguistics (CMCL)*, Portland, OR.
- Getting Emotional About News. Alistair Kennedy, Anna Kazantseva, Saif Mohammad, Terry Copeck, Diana Inkpen, Stan Szpakowicz. *Proceedings of the Text Analysis Conference (TAC-2011)*, November 2011, Gaithersburg, MD.
- Saif M. Mohammad and Peter Turney. June 2010. Emotions Evoked by Common Words and Phrases: Using Mechanical Turk to Create an Emotion Lexicon. *Proceedings of the NAACL-HLT 2010 Workshop on Computational Approaches to Analysis and Generation of Emotion in Text*, LA, California.
- Saif M. Mohammad, Bonnie Dorr, Melissa Egan, Jimmy Lin, and David Zajic. November 2008. Multiple alternative sentence compressions and word-pair antonymy for automatic text summarization and recognizing textual entailment. *Proceedings of the Text Analysis Conference (TAC-2008)*, Gaithersburg, MD.
- Saif M. Mohammad, Bonnie Dorr, and Graeme Hirst. November 2008. Towards antonymy-aware natural language applications. *Proceedings of the Symposium on Semantic Knowledge Discovery, Organization and Use (SKDOU-2008)*, New York, NY.
- Bonnie Dorr, Saif M. Mohammad, and Boyan Onyshkevych. November 2008. From linguistic annotations to knowledge objects. *Proceedings of the Symposium on Semantic Knowledge Discovery, Organization and Use (SKDOU-2008)*, New York, NY.
- Saif M. Mohammad, Graeme Hirst, and Philip Resnik. July 2007. TOR, TORMD: Distributional profiles of concepts for unsupervised word sense disambiguation. *Proceedings of the International Workshop on Semantic Evaluations (SemEval-2007)*, Prague, Czech Republic.
- Saif M. Mohammad and Ted Pedersen. July 2004. Complementarity of lexical and simple syntactic features: The SyntaLex approach to SensEval-3. *Proceedings of the International Workshop on Semantic Evaluations (SensEval-3)*, Barcelona, Spain.

## NOTABLE PRESS MENTIONS

- Washington Post, October 22, 2016. Donald Trump and Hillary Clinton took to the debate stage and made sweet, sweet music. The article mentions NRC in relation to the lexicons we created, which were used to generate music from the Trump-Hillary debate text.
- Washington Post, CBS News, Columbia Tribune, and others, September 23, 2016. This symphony had both human and computer composers. Articles about a symphony orchestra performed music composed using the NRC Emotion Lexicon under the glass of the Louvre museum in Paris on Sept. 20, 2016. [Click here](#) for a video of the performance.
- Washington Post, August 12, 2016. Two people write Trumps tweets. He writes the angrier ones.
- BGR, August 11, 2016. Donald Trumps angriest tweets are sent from his Android while the nice ones are sent from an iPhone.
- NYC Data Science Academy, August 7, 2016. Twitter Analysis of Presidential Candidates 2016.
- Variance Explained, August 6, 2016. Text analysis of Trump's tweets confirms he writes only the (angrier) Android half. News also picked up by NPR, Los Angeles Times, Scientific American, The Verge, and others.
- The Telegraph, June 15, 2016: EU referendum: Remain uses Project Fear more in tweets than Leave, analysis shows. [Use of the NRC Emotion Lexicon, aka EmoLex, to track sentiment in EU referendum tweets (Brexit).]
- An art project, the Wishing Wall, that uses the NRC Emotion lexicon was displayed in:
  - Tekniska Museet, Stockholm, Sweden (Oct 14 Aug 15)
  - Onassis Cultural Centre, Athens (19th Oct15 10th Jan16)
  - Zorlu Centre in Istanbul (16th Feb 12th June16)
- Fast Company, March 25, 2016: An Emotional Map Of The City, As Captured Through Its Sounds. [Use of the NRC Emotion Lexicon, aka EmoLex to create Chatty Maps.]
- Press release stating the use of EmoLex to create Chatty Maps.
- PC World, May 15, 2014: AI System Reads Novels, Writes Music for Them.
- Popular Science, May 14, 2014: Robot Reads Novels, Writes Songs about Them.
- io9, May 12, 2014: Researchers Train Computers to Manipulate Human Emotions with Art.
- LiveScience, May 11, 2014: 'TransProse' Software Creates Musical Soundtracks from Books.
- TIME, May 7, 2014: This Is What Classic Novels Sound Like When a Computer Turns Them Into Piano Music.
- SlashDot, March 23, 2014: Algorithm Composes Music By Text Analyzing the World's Best Novels.



- The Physics arXiv Blog, March 20, 2014: The Music Composed By An Algorithm Analysing The Worlds Best Novels.
- Glass Hammer, December 3, 2013: Are Your Emails Communicating a Lack of Confidence?
- Singularity Hub, November 10, 2013: Algorithm Tracks Literary Emotion in Shakespeare, the Brothers Grimm.
- The Physics ArXiv, October 4, 2013: Data Mining Reveals the Emotional Differences in Emails Written by Men and Women.
- SlashDot, October 4, 2013: Data Mining Reveals the Emotional Differences In Emails From Men and Women.
- The Physics ArXiv, October 1, 2013: Text Analyser Reveals Emotional Temperature of Novels and Fairy Tales. Also in EduBits.
- SlashDot, October 1, 2013: Text Analyzer Reveals Emotional 'Temperature' of Novels and Fairy Tales.
- The New Scientist, September 27: What your email style says about your personality. Also in Times of India, MSN, Pharmacon, Galileo, Amic, and others.
- Article in MIT Technology Review, September 5, 2013: How Mechanical Turkers Crowdsourced a Huge Lexicon of Links Between Words and Emotion.
- TIME, August 14, 2013: Main Tweet: Researchers Dig Into The Intersection of Politics and Twitter.

## **PROFESSIONAL ACTIVITIES**

### *Positions Held at International Conferences and Journals:*

- 2017: Area chair for Sentiment and Opinion Mining at ACL 2017 and EMNLP 2017.
- 2016: Area chair for Sentiment and Opinion Mining at EMNLP 2016; Publicity chair for EMNLP 2016.
- 2015: Area chair for Sentiment and Opinion Mining at NAACL 2015; Publicity chair for NAACL 2015.
- Most years: Program committee member for many journals and conferences, including TACL, ACL, NAACL, EMNLP, CL, CI, NLE, JAIR, TSLP, IJCNLP, and IJCAI.

### *Tutorials Presented at International Conferences:*

- Computational Analysis of Affect and Emotion in Language. Saif M. Mohammad and Cecilia Ovesdotter Alm. Tutorial at the 2015 Conference on Empirical Methods on Natural Language Processing, September 2015, Lisboa, Portugal.
- Sentiment Analysis of Social Media Texts. Saif M. Mohammad and Xiaodan Zhu. Tutorial at the 2014 Conference on Empirical Methods on Natural Language Processing, October 2014, Doha, Qatar.

### *Organization of Workshops and Shared Task Competitions:*

- Co-chair of SemEval-2017 and SemEval 2018. (SemEval is one of the largest NLP evaluation exercises with proceedings as large as that of top NLP conferences.)
- Co-organizer of the 8th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis (WASSA-2017), to be held in conjunction with EMNLP-2017, Copenhagen, Denmark. Alexandra Balahur, Saif M. Mohammad, and Erik van der Goot.
- Co-organizer of Semeval-2016 Task 6: Detecting Stance in Tweets. Saif M. Mohammad, Svetlana Kiritchenko, Parinaz Sobhani, Xiaodan Zhu, and Colin Cherry.
- Co-organizer of Semeval-2016 Task 7: Determining Sentiment Intensity of English and Arabic Phrases. Svetlana Kiritchenko, Saif M. Mohammad, and Mohammad Salameh.
- Co-organizer of SemEval-2015 Task 10: Sentiment Analysis in Twitter. Sara Rosenthal, Preslav Nakov, Svetlana Kiritchenko, Saif M Mohammad, Alan Ritter, and Veselin Stoyanov.
- Co-organizer of SemEval-2012 Task 2: Measuring Degrees of Relational Similarity, David Jurgens, Saif Mohammad, Peter Turney and Keith Holyoak.

### *Submissions to Shared Task Competitions*

- SemEval-2014 Task 4: Aspect Based Sentiment Analysis, August 2014, Dublin, Ireland.  
*Task:* Determine sentiment towards aspect terms and aspect categories.  
*Team:* NRC-Canada: Saif Mohammad, Svetlana Kiritchenko, and Xiaodan Zhu.  
*Result:* Placed **first** in two of the three sentiment tasks. (30+ teams participated.)
- SemEval-2014 Task 9: Sentiment Analysis in Twitter, August 2014, Dublin, Ireland.  
*Task:* Determine sentiment of tweets, SMS messages, and blog posts.  
*Team:* NRC-Canada: Saif Mohammad, Svetlana Kiritchenko, and Xiaodan Zhu.  
*Result:* Placed **first** in five of ten sub-tasks. (40+ teams participated.)
- SemEval-2013 Task 2: Sentiment Analysis in Twitter, June 2013, Atlanta, USA.  
*Task:* Determine sentiment of tweets and SMS messages.  
*Team:* NRC-Canada: Saif Mohammad, Svetlana Kiritchenko, and Xiaodan Zhu.  
*Result:* Placed **first** in three of four sub-tasks. (40+ teams participated.)
- Automatic Content Extraction Evaluation (ACE-08), September 2008, Baltimore, MD.  
*Task:* Multidocument coreference resolution.  
*Team:* Johns Hopkins HLT/COE team.  
*Result:* Placed third (behind IBM and BBN Technologies).

### **DATA VISUALIZATION AND INFORMATION SONIFICATION DEMOS**

- *TransProse: Converting Text to Music.* Hannah Davis and Saif M. Mohammad.  
<http://www.musicfromtext.com>  
A system that takes as input classic English novels and generates music that captures the flow of emotions in it.

- *ImagiSaurus: An Interactive Visualization of the Roget's Thesaurus*  
<http://www.saifmohammad.com/WebPages/imagisaurus.html>  
 Imagisaurus helps users quickly grasp the nature and size of the thesaurus taxonomy. Additionally, Imagisaurus allows exploration of affectual categories in the thesaurus.
- *Lexichrome: An Interactive Word–Color Catalogue for Scholars, Designers, and Writers*. Chris Kim, Saif M. Mohammad, and Christopher Colins.  
<http://www.lexichrome.com/#palette>  
 Lexichrome is an application that maps the NRC Word–Colour Association Lexicon to a web-based catalogue that users can browse and analyze. It allows visitors to view the chromatic makeup (color associations) of a user-provided text.
- *An Interactive Visualizer for the NRC Emotion Lexicon*  
<http://www.saifmohammad.com/WebPages/NRC-Emotion-Lexicon.htm>  
 The NRC Emotion Lexicon is a list of English words and their associations with eight basic emotions (anger, fear, anticipation, trust, surprise, sadness, joy, and disgust) and two sentiments (negative and positive). The annotations were manually done by crowdsourcing.
- *An Interactive Visualizer for Sentiment Composition Lexicons*  
<http://www.saifmohammad.com/WebPages/SCL.html>  
 Sentiment composition is the determining of sentiment of a multi-word linguistic unit, such as a phrase or a sentence, based on its constituents. We present two visualizations: (1) exploring sentiment composition in phrases formed by at least one positive and at least one negative word-phrases like happy accident and best winter break, and (2) exploring sentiment composition in phrases formed with negators, modals, and degree adverbs.
- *An Interactive Visualizer for the Stance Dataset*  
<http://www.saifmohammad.com/WebPages/StanceDataset.htm>  
 We visualize a dataset of tweets manually annotated for stance towards given target, target of opinion (opinion towards), and sentiment (polarity).

## SELECTED INVITED TALKS

- Affect Associations in Creative Language. **Keynote speech** at the COLING 2016 workshop on Computational Modeling of People's Opinions, Personality, and Emotions in Social Media (PEOPLES 2016), December 12, 2016, Osaka, Japan.
- Affect Associations: The Building Blocks of Sentiment Analysis. **Keynote speech** at the 20th International Conference on Asian Language Processing (IALP 2016), November 21-23, 2016, National Cheng Kung University, Tainan, Taiwan.
- Affect Associations in Creative Language. **Keynote speech** at the 2016 IR Workshop at the Academia Sinica, November 24, 2016, Taipei, Taiwan.
- Capturing Reliable Fine-Grained Sentiment Associations by Crowdsourcing and BestWorst Scaling. Invited talk at the TAMALE seminar series, September 15, 2016, University of Ottawa. (Joint work with, and talk given by, Svetlana Kiritchenko.)

- Metaphor as a Medium for Emotion: An Empirical Study. Invited talk at the TAMALE seminar series, September 15, 2016, University of Ottawa. (Joint work with Ekaterina Shutova and Peter Turney.)
- Sentiment and Emotions in Tweets. Department of Geography and Geoinformation Science at George Mason University. May 29, 2016, Fairfax, Virginia.
- The Words are Alive: Associations with Sentiment, Emotions, Colours, and Music. Language Technology Institute, Carnegie Mellon University, September 2014, Pittsburgh, PA.
- Words: Evaluative, Emotional, Colourful, Musical! **Keynote speech** at the ACL 2014 Workshop on Computational Approaches to Subjectivity, Sentiment, and Social Media (WASSA), June 2014, Baltimore, MD.
- Crowdsourcing Word-Emotion Associations. October 2013, University of Pennsylvania, Philadelphia, PA.
- Sentiment Analysis with Social Media Text.
  - ★ June 2013, MediaMiser, Ottawa, Canada.
  - ★ June 2013, Thales, Ottawa, Canada.
- Analyzing Electoral Tweets for Affect, Style, and Purpose. April 2013, University of Ottawa.
- From Once Upon a Time to Happily Ever After: Tracking Emotions in Books and Mail.
  - ★ July 2011: Digital Books and Social Media groups, Amazon Research, Seattle, OR, USA.
  - ★ June 2011: Defence Research and Development Canada (DRDC) workshop, Ottawa, Canada.
- Crowdsourcing the creation of an emotion lexicon.
  - ★ August 2010: Microsoft Research, Bangalore, India.
  - ★ August 2010: IBM Research, Bangalore, India.
  - ★ July 2010: Department of Computational Linguistics at the University of Heidelberg and the NLP group from HITS gGmbH, Heidelberg, Germany.
  - ★ July 2010: Department of Computer Science, Technische Universität Darmstadt, Darmstadt, Germany.
- Hybrid approaches to semantic closeness and oppositeness.
  - ★ June 2009: The Text Analysis and Machine Learning Group, University of Ottawa, Ottawa, Canada.
  - ★ June 2009: National Research Council - The Institute for Information Technology (NRC-IIT), Ottawa, Canada.
- Hybrid approaches to semantic closeness and semantic oppositeness.
  - ★ October 2008: Text Mining Sciences, Yahoo! Research, Santa Clara, CA.
  - ★ October 2008: Human Language Technology Research Institute, University of Texas at Dallas, Dallas, TX.
  - ★ October 2008: University of North Texas, Dallas, TX.
- Determining Degree of Antonymy: Step 1 for Detecting Erroneous Coreference Links by Contradiction. March 2008. *Human Language Technology Center of Excellence (HLT/COE) Quarterly Technical Exchange*, Johns Hopkins HLT/COE, Baltimore, MD.