

Danushka Bollegala – Curriculum Vitae

Contact Information

Dr. Danushka Bollegala (Phd)

Senior Lecturer / Associate Professor

Department of Computer Science

School of Electrical Engineering, Electronics, and Computer Science

The University of Liverpool

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Education

Ph.D., Information Sciences & Technology

September 2010

The University of Tokyo, Japan.

Thesis title: A Study on Attributional and Relational Similarity between Word Pairs on the Web

First ever, early graduation awarded to a full time PhD candidate in the Graduate School of Information Science & Technology in recognition of outstanding research achievements. Received the Dean's award for the best doctoral thesis.

M.S., Information and Communication Engineering

March 2007

The University of Tokyo, Japan

Thesis title: Improving Coherence in Multi-document Summarization through proper Ordering of Sentences

Received the Dean's award for the best masters thesis.

B.S., Information and Communication Engineering

March 2005

The University of Tokyo, Japan

Thesis title: A Machine Learning Approach to Sentence Ordering for Multi-document Summarization and its Evaluation

Received the award for the best undergraduate thesis.

Employment History

Senior Lecturer / Associate Professor September 2013 – Present

Department of Computer Science

The University of Liverpool

Duties: Undergraduate and Graduate Teaching

Senior Assistant Professor

April 2012 – August 2013

Graduate School of Information Science and Engineering

The University of Tokyo

Duties: Administrative duties, Lecturing two courses, exam grading, invigilation, advisory duties, supervise and evaluate undergraduate, masters and PhD research projects, industrial collaborations.

Assistant Professor

April 2010 – May 2012

Graduate School of Information Science and Engineering,

The University of Tokyo.

Duties: Lecturing two courses, exam grading, invigilation, advisory duties, supervise and evaluate undergraduate, masters and PhD research projects, industrial collaborations.

Post-doctorate Research Fellow

October 2009 – March 2010

Japanese Society for the Promotion of Science (JSPS)

The University of Tokyo and University of Sussex

(supervisors: Prof. John Carroll and Dr. David Weir)

Doctoral Research Fellow

April 2007 – September 2010

Japanese Society for the Promotion of Science (JSPS)

The University of Tokyo, Japan.

(supervisors: Prof. Mitsuru Ishizuka and Dr. Yutaka Matsuo)

Research Assistant

April 2005 – March 2007

National Institute of Advanced Industrial Science and Technology Japan

Research on Social Network Extraction from the Web

(supervisor: Dr. Yutaka Matsuo)

Research Consultant

June 2005 – March 2010

FAST a Microsoft Subsidiary (former FAST Search & Transfer, later acquired by Microsoft).

Chief point-of-contact for Japanese language processing.

Developed the Japanese Morphological Analyzer and the Japanese Named Entity Tagger used by an Enterprise Search Engine. (supervisor: Prof. Bjorn Olsted (CTO))

Research Interests

Computational Linguistics

- Semantic and Relational Similarity Measurement, Sentiment Analysis, Text Summarization, Discourse Analysis, Relation Extraction.

Web Mining/Information Retrieval

- Latent Relational Search, Namesake Disambiguation, Name Alias Detection, Social Network Extraction, Link prediction in hypergraphs.

Machine Learning

- Domain Adaptation, Transfer Learning, Kernel Methods, Learning to Rank, Deep Belief Networks

Honors and Awards

- [1] Best Journal Paper of the Year 2014-2015, Japanese Society for Artificial Intelligence.
- [2] IEEE Japan Chapter Young Author Award 2011.
- [3] Best paper award at 2011 Genetic and Evolutionary Computation (GECCO) Conference.
- [4] Best poster paper at 2010 Pacific Rim International Conference on Artificial Intelligence (PRICAI).
- [5] Annual Conference Award for the Best Paper at 2010 Japanese Society for Artificial Intelligence (JSAI).
- [6] Dean's Award for the Best Doctoral Thesis of the Year 2010.
- [7] Dean's Award for the Best Masters Thesis of the Year 2007.
- [8] Dean's Award for the Best Undergraduate Thesis of the Year 2005.

Fellowships

- [1] Visiting Researcher
Microsoft Research Asia, Beijing, China
October 2012 – November 2012
- [2] Visiting Research Fellow
Computer Lab, University of Cambridge, UK
April 2011 – July 2011
- [3] Visiting Research Fellow
Department of Informatics, University of Sussex, UK
January 2010 – March 2010
- [4] Post doctoral Research Fellow
Japan Society for the Promotion of Science (JSPS)
October 2009 – March 2010
- [5] Doctoral Research Fellow
Japan Society for the Promotion of Science (JSPS)
April 2007 – September 2009
- [6] Foreign Student Scholarship
April 2000 – March 2007

Research Grants and Funding

- [1] *Fletchers Digital Legal Assistant*, Knowledge Transfer Partnership (Innovate UK),
PI (GBP 490k) 2017-2020
- [2] *WEB-RADR: Recognising Adverse Drug Reactions*, (European Commission)
Innovative Medicine Initiative. Co-PI (GBP 471k) 2014-2017
- [3] *The Revierview Law Contract Map Project*, Knowledge Transfer Partnership
(Innovate UK). Co-PI (GBP 269k) 2015-2018
- [4] *Resolving Relational Ambiguity between Entities on the Web* 2013 – 2015
Microsoft Research (MSR) CORE-9 Research Grant.
Sole IP (USD 17K)
- [5] *Domain Adaptation for Semantic Relation Extraction* 2012 – 2015
Japanese Society for the Promotion of Science (JSPS), Research Grant for Young
Researchers (B). Sole IP (USD 40K)
- [6] Cross-Language Relational Search 2011 - 2012
Microsoft Research (MSR) CORE-7 Research Grant
Sole PI. (USD 26K)
- [7] Developing a Cross-Language Web Search Engine 2010 - 2011
Information Technology Promotion Agency of Japan (IPA) grant for explorative
software development (Mito Project), Co-PI with Nguyen Duc.
(USD 40K)
- [8] A Latent Relational Search Engine 2010 – 2011
Google Research Award.
PI: Prof. Mitsuru Ishizuka. (USD 25K)
- [9] Developing a Relational Search Engine to Retrieve Semantic Relations between
Entities 2010 - 2012
Japanese Society for the Promotion of Science (JSPS) research grant, Sole PI.
(USD 40K)
- [10] Research grant for overseas visiting scholars April 2011 – June 2011
Global Centers of Excellence (GCOE), Japan. Sole PI. (USD 13K)
- [11] Extracting Attributes for Entities using Web Data 2010 - 2011
Global Centers of Excellence (GCOE), Japan. Sole PI. (USD 10K)
- [12] Learning to Rank Entities on the Web 2010 - 2011
Microsoft Research (MSR) CORE-6 Research Grant
PI: Dr. Junichiro Mori (The University of Tokyo) (USD 26K)
- [13] Using Web Mining to Provide Useful Information to Drivers 2009 - 2012
Toyota InfoTechnology Center

PI: Prof. Yutaka Matsuo (The University of Tokyo) (USD 40K)

- [14] Disambiguating Personal Names on the Web 2007 - 2010
Japan Society for the Promotion of Science (JSPS) Research Grant
Sole PI. (USD 40K)
- [15] Using Network Theory and Machine Learning to Structure and Represent
Information Available on the Web 2009 – 2012
PI: Prof. Yutaka Matsuo (The University of Tokyo) (USD 400K)

Publications

Journal Articles

- [1] Huda Hakami, and Danushka Bollegala: A Classification Approach to Detecting Cross-lingual Biomedical Term Translations, *Journal of Natural Language Engineering (JNLE)*, to appear in 2016.
- [2] Danushka Bollegala, Tingting Mu, and John Y. Goulermas: Cross-domain Sentiment Classification using Sentiment Sensitive Embeddings, *IEEE Transactions of Knowledge and Data Engineering (TKDE)*, Issue 9, to appear in 2016.
- [3] Richard Sloane, Orod Osanlou, David Lewis, Danushka Bollegala, Simon Masekll, and Munir Pirmohamed: Social Media and Pharmacovigilance: A Review of the Opportunities and Challenges, *British Journal of Clinical Pharmacology*, Vol. 80, Issue 4, pp. 910-920, 2015.
- [4] Danushka Bollegala, Georgios Kontonatsios, and Sophia Ananiadou: A Cross-lingual Similarity Measure for Detecting Biomedical Term Translations, *PLoS ONE*, Vol. 10, no. 6, 2015.
- [5] Nozomi Nori, Danushka Bollegala, and Mitsuru Ishizuka: Interest Prediction via User's Actions on Social Media, *Transactions of the Japanese Society for Artificial Intelligence*, Vol. 30. No. 4, pp. 613-625, 2015.
- [6] Hiroyuki Sato, Yoshihiko Hasegawa, Danushka Bollegala, and Hitoshi Iba: Improved sampling using loopy belief propagation for probabilistic model building genetic programming, *Swarm and Evolutionary Computation*, Vol. 23, pp. 1-8, August, 2015.
- [7] Nozomi Nori, Danushka Bollegala, and Hisashi Kashima: Simultaneous Higher-order Relation Prediction via Collective Incidence Matrix Embedding, *Transactions of the Japanese Society for Artificial Intelligence*, Vol. 30, No. 2, pp. 459-465, 2015.
- [8] Nozomi Nori, Danushka Bollegala, Hisashi Kashima: A Dimension Reduction Approach to Multinomial Relation Prediction, *Transactions of the Japanese Society for Artificial Intelligence*, Vol. 29, No. 1, pp. 168-176, 2014.
- [9] Muhammad Asif Hossain Khan, Danushka Bollegala, Guangwen Li, and Kaoru Sezaki: Delineating Real-Time Events by Identifying Relevant Tweets with Popular Discussion

- Points, ASE Human Journal, Vol. 2, No. 3, pp. 136-150, 2013.
- [10] Danushka Bollegala: Deep Learning for Natural Language Processing, Journal of the Japanese Society for Artificial Intelligence, Vol. 29, No. 2, pp. 195-203, 2013.
- [11] Danushka Bollegala and Ekaterina Shutova: Metaphor Interpretation using Paraphrases Extracted from the Web, PLoS ONE, Vol. 8, No. 9, e74304, 2013.
- [12] Danushka Bollegala, Naoaki Okazaki, and Mitsuru Ishizuka: A Preference Learning Approach for Multi-document Summarization, Information Sciences: an International Journal, Vol. 217, pp. 78-95, Elsevier, December, 2012.
- [13] Ken-ichi Yokote, Danushka Bollegala, and Mitsuru Ishizuka: Jointly Learning Similarity Transformations for Textual Entailment, Transactions of the Japanese Society for Artificial Intelligence, Vol. 8, No. 2, pp. 220-229, 2013.
- [14] Danushka Bollegala, Naoki Tani, and Mitsuru Ishizuka: Improving the Accuracy of Attribute Extraction using the Relatedness between Attribute Values, Transactions of the Japanese Society for Artificial Intelligence, Vol. 27, No. 2, pp. 245-252, 2012.
- [15] Danushka Bollegala, Tomokazu Goto, Nguyen Tuan Duc, and Mitsuru Ishizuka: Improving Relational Similarity Measurement using Symmetries in Proportional Word Analogies, Information Processing and Management Journal, Vol. 49, Issue 1, pp. 355-369, Elsevier, January, 2013.
- [16] Danushka Bollegala, David Weir, and John Carroll: Cross-Domain Sentiment Classification using a Sentiment Sensitive Thesaurus, IEEE Transactions on Knowledge and Data Engineering (TKDE), Vol. 25, no. 8, pp. 1719-1731, August, 2013.
- [17] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Measuring the degree of Synonymy between Words using Relational Similarity between Word Pairs as a Proxy, Institute of Electronics, Information and Communication Engineers (IEICE) Transactions on Information Systems, Vol. E95-D, No. 8, pp. 2116-2123, 2012.
- [18] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Minimally Supervised Novel Relation Extraction using a Latent Relational Mapping, IEEE Transactions on Knowledge and Data Engineering, Vol. 25, Issue 2, pp. 419-432, IEEE, February, 2013.
- [19] Nguyen Tuan Duc, Danushka Bollegala, Mitsuru Ishizuka: Cross-Language Latent Relational Search between Japanese and English Languages using a Web Corpus, ACM Transactions on Asian Language Information Processing (TALIP), Vol. 11, Issue 3, pp. 11:1-33, ACM, September, 2012.
- [20] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Automatic Discovery of Personal Name Aliases from the Web, IEEE Transactions on Knowledge and Data Engineering, IEEE, Vol. 23, no. 6, pp. 831-844, 2011.
- [21] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: A Web Search Engine-based Approach to Measure Semantic Similarity between Words, IEEE Transactions on Knowledge and Data Engineering, IEEE, Vol. 23, no. 7, pp. 977-990, 2011.

- [22] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: A Supervised approach for Measuring Similarity between Word Pairs, Transactions of the Institute of Electronics, Information and Communication Engineers (IEICE), Vol.E94-D, no. 11, 2011.
- [23] Tomokazu Goto, Nguyen Duc, Danushka Bollegala, and Mitsuru Ishizuka: Improving Relational Search Performance using Relational Symmetries and Predictors, Transactions of the Japanese Society for Artificial Intelligence, Vol. 26, no. 6, 2011.
- [24] Keigo Watanabe, Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Automatic Extraction of Related Terms using Web Search Engines, Journal of the Japanese Society for Fuzzy Theory and Intelligent Informatics (Accepted, to appear in September 2011).
- [25] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Automatic Annotation of Ambiguous Personal Names on the Web, Computational Intelligence, Wiley, Vol. 28, Issue 3, pp. 398-425, 2012.
- [26] Wataru Sunayama, Ysufumi Takama, Danushka Bollegala, Yoko Nishihara, Hidekazu Tokunaga, Mineo Kushima, and Mitsunori Matsushita: Total Environment for Text Data Mining, Transactions of the Japanese Society for Artificial Intelligence, Vol. 26, No. 4, pp. 483-493, 2011.
- [27] Nguyen Tuan Duc, Danushka Bollegala, and Mitsuru Ishizuka: Relation Representation and Indexing Method for Fast and High Precision Latent Relational Search Engine, Special issue of the Journal of the Transactions of the Japanese Society of Artificial Intelligence, Vol. 26, issue 2, pp. 307-312, 2011.
- [28] Nguyen Tuan Duc, Danushka Bollegala, and Mitsuru Ishizuka: Exploiting Relational Similarity between Entity Pairs for Latent Relational Search, Journal of the Information Processing Society Japan (IPSJ), Vol. 52, No. 4, pp. 1790-1802, 2011.
- [29] Danushka Bollegala, Naoaki Okazaki, and Mitsuru Ishizuka: A Bottom-up Approach to Sentence Ordering for Multi-document Summarization, Information Processing and Management (IPM), Volume 46, issue 1, pp. 89-109, Elsevier, 2010.

Books

- [30] Danushka Bollegala, Takanori Maehara, Naoaki Okazaki: *Machine Learning of Web Data*, Machine Learning Professional Series, August, 2016. (in Japanese)
- [31] Danushka Bollegala: Chapter on Deep learning for Natural Language Processing, in the book *Shinso-Gakushu*, Edited by T. Kamishima (in Japanese)
- [32] Danushka Bollegala: Chapter on Coherent Ordering of Information Extracted from Multiple Sources, in the book *Multi-source, Multilingual Information Extraction and Summarization*, Editors: Thierry Poibeau, Horacio Saggion, Jakub Piskorski, and Roman Yangarber. To be published by Springer in December, 2011.
- [33] Danushka Bollegala: *Attributional and Relational Similarity on the Web* (ISBN 978-3-8456-4894-3), Lambert Academic Publishing, 2012.

Refereed International Conference Papers

- [34] Matias Garcia-Constantino, Katie Atkinson, [Danushka Bollegala](#), Karl Chapman, Frans Coenen, Clare Roberts, and Katy Robson: CLIEL: Context-Based Information Extraction from Commercial Law Documents, 16th International Conference on Artificial Intelligence and Law (ICAIL), London, UK (2017.06).
- [35] Angrosh Mandya, [Danushka Bollegala](#), Frans Coenen, and Katie Atkinson: Classifier-based Pattern Selection Approach for Relation Instance Extraction, International Conference on Computational Linguistics and Intelligent Text Processing (CICLing), Budapest, Hungary. (2017.04).
- [36] Abdullah Alsheri, Frans Coenen, and [Danushka Bollegala](#): Towards Keystroke Continuous Authentication Using Time Series Analytics, Research and Development in Intelligent Systems XXXIII (SGAI 2016), pp. 325-339, Springer. (2016.12) [First author received the Best Student Paper Award]
- [37] Pavithra Rajendran, [Danushka Bollegala](#), and Simon Parsons: Assessing Weight of Opinion by Aggregating Coalitions of Arguments, 6th International Conference on Computational Models of Argument (COMMA), pp. 431-438, Postdam, Germany (2016.08).
- [38] Pavithra Rajendran, [Danushka Bollegala](#), and Simon Parsons: Contextual Stance Classification of Opinions: A Step Towards Enthymeme Reconstruction in Online Reviews, 3rd Workshop on Argument Mining at Annual Conference of the Association for Computational Linguistics, pp. 31-39, Berlin, Germany (2016.08).
- [39] Abdullah Alsheri, Frans Coenen, and [Danushka Bollegala](#): Keyboard Usage Authentication using Time Series Analysis, 18th International Conference on Big Data Analytics and Knowledge Discovery (DaWak 2016), pp. 239-252, Porto, Portugal (2016.09).
- [40] [Danushka Bollegala](#), Mohammed Alsuhaibani, Takanori Maehara, and Ken-ichi Kawarabayashi: Joint Word Representation Learning using a Corpus and a Semantic Lexicon, 30th AAAI Conference on Artificial Intelligence (AAAI 2016), Arizona, USA. to appear in (2016.2).
- [41] [Danushka Bollegala](#), Takanori Maehara, and Ken-ichi Kawarabayashi: Learning Word Representations from Relational Graphs, 53rd Annual Meeting of the Association for Computational Linguistics (ACL 2015), and the 7th International Joint Conference on Natural Language Processing of the Asian Federation of Natural Language Processing (IJCNLP 2015), pp. 730-740, Beijing, China, (2015.07).
- [42] [Danushka Bollegala](#), Takanori Maehara, and Ken-ichi Kawarabayashi: Embedding Semantic Relations into Word Representations, International Joint Conferences on Artificial Intelligence (IJCAI 2015), pp. 1222-1228, Buenos Aires, Argentina, (2015.07).
- [43] Pascal Kuyten, [Danushka Bollegala](#), Bernd Hollerit, Helmut Prendinger, and Kiyoharu

- Aizawa: A Discourse Search Engine based on Rhetorical Structure Theory, 37th European Conference on Information Retrieval (ECIR 2015), Vienna, Austria. (2015.03).
- [44] Danushka Bollegala, Takanori Maehara, Yuichi Yoshida, and Ken-ichi Kawarabayashi: Learning Word Representations from Relational Graphs, 29th AAAI Conference on Artificial Intelligence (AAAI 2015), pp. 2146-2152, Texas, USA. (2015.01).
- [45] Muhammad Asif Hossain Khan, Danushka Bollegala, Guangwen Liu, and Kaoru Sezaki: Multi-Tweet Summarization of Real-Time Events ASE/IEEE International Conference on Social Computing, Washington D.C., USA (2013.9).
- [46] Danushka Bollegala, Mitsuru Kusumoto, Yuichi Yoshida, and Ken-ichi Kawarabayashi: Mining for Analogous Tuples from Entity-Relation Graph. 23rd International Joint Conference on Artificial Intelligence (IJCAI 2013), pp. 2064-2070, Beijing, China, (2013.8).
- [47] Hiroyuki Sato, Danushka Bollegala, Yoshihiko Hasegawa, and Hitoshi Iba: Learning Non-linear Ranking Functions for Web Search using Probabilistic Model Building GP, IEEE Congress on Evolutionary Computation (CEC 2013), Cancun, Mexico. (2013.6)
- [48] Francisco Tacoa, Danushka Bollegala, and Mitsuru Ishizuka: A Context Expansion Method for Supervised Word Sense Disambiguation, Sixth International Conference on Semantic Computing (ICSC 2012), poster paper, Palermo, Italy. (2012.9)
- [49] Nozomi Nori, Danushka Bollegala, and Hisashi Kahsima: Multinomial Relation Prediction in Social Data: A Dimension Reduction Approach, Proceedings of the 26th National Conference on Artificial Intelligence (AAAI 2012), pp. 115 – 121, Toronto, Canada. (2012.7)
- [50] Ken-ichi Yokote, Danushka Bollegala, and Mitsuru Ishizuka: Similarity is not Entailment – Jointly Learning Similarity Transformations for Textual Entailment, Proceedings of the 26th National Conference on Artificial Intelligence (AAAI 2012), pp. 1720 – 1726, Toronto, Canada. (2012.7)
- [51] Hiroyuki Sato, Yoshihiko Hasegawa, Danushka Bollegala, and Hitoshi Iba: Probabilistic Model Building GP with Belief Propagation, IEEE Congress on Evolutionary Computation (CEC 2012), pp. 1 - 8, Brisbane, Australia. (2012.7)
- [52] Naoki Tani, Danushka Bollegala, Naiwala Chandrasiri, Shuhei Iitsuka, Keisuke Okamoto, Kazunari Nawa, and Yutaka Matsuo: Collaborative Search in Real-World Context, Proceedings of the 20th ACM Conference on Information and Knowledge Management (CIKM 2011), pp. 2137 - 2140, Glasgow, UK. (2011.10)
- [53] Nguyen Duc, Danushka Bollegala, and Mitsuru Ishizuka: Cross-Language Latent Relational Search: Mapping Knowledge across Languages, Proceedings of the 25th National Conference on Artificial Intelligence (AAAI 2011), pp. 1237-1242, San Francisco, USA, (2011.08).
- [54] Danushka Bollegala, Nasimul Noman, Hitoshi Iba: RankDE: Learning a Ranking Function for Information Retrieval using Differential Evolution, Proceedings of the

- Genetic and Evolutionary Computation Conference (GECCO 2011), pp. 1171-1178, Dublin, Ireland, (2011.07). **Received the Best Paper Award**
- [55] Nasimul Noman, Danushka Bollegala, Hitoshi Iba: Differential Evolution with Self Adaptive Local Search, Proceedings of the Genetic and Evolutionary Computation Conference (GECCO 2011), pp. 1099-1106, Dublin, Ireland, (2011.07).
- [56] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Relation Adaptation: Learning to Extract Novel Relations with Minimum Supervision, Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI 2011), pp. 2205-2210, Barcelona, Spain, (2011.07).
- [57] Nozomi Nori, Danushka Bollegala, and Mitsuru Ishizuka: Interest Prediction on Multinomial, Time-Evolving Social Graphs, Proceedings of the 22nd International Joint Conference on Artificial Intelligence (IJCAI 2011), pp. 2507-2512, Barcelona, Spain, (2011.07).
- [58] Nozomi Nori, Danushka Bollegala, and Mitsuru Ishizuka: Exploiting User Interest on Social Media for Aggregating Diverse Data and Predicting Interest, Proceedings of the 5th International AAI Conference on Weblogs and Social Media (ICWSM 2011), pp. 241-248, Barcelona, Spain, (2011.07).
- [59] Nasimul Noman, Danushka Bollegala, and Hitoshi Iba: An Adaptive Differential Evolution Algorithm, Proceedings of the IEEE Congress on Evolutionary Computation (IEEE CEC 2011), pp. 2229-2236, New Orleans, USA, (2011.06).
- [60] Danushka Bollegala, David Weir, and John Carroll: Using Multiple Sources to Construct a Sentiment Sensitive Thesaurus for Cross-Domain Sentiment Classification, Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics: Human Language Technologies (ACL/HLT 2011), pp. 132-141, Portland, Oregon, USA, (2011.06).
- [61] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: From Actors, Politicians, to CEOs: Domain Adaptation of Relational Extractors using a Latent Relational Mapping, Proceedings of the 20th International World Wide Web Conference (WWW 2011) poster session, pp. 13-14, Hyderabad, India, (2011.03).
- [62] Hugo Hernault, Danushka Bollegala, and Mitsuru Ishizuka: Semi-Supervised Discourse Relation Classification with Structural Learning, Proceedings of the Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2011), Lecture Notes in Computer Science, vol. 6608/2011, pp. 340-352, Tokyo, Japan, (2011.02).
- [63] Haibo Li, Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Using Graph based Method to Improve Bootstrapping Relation Extraction, Proceedings of the Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2011), Lecture Notes in Computer Science, vol. 6609/2011, pp. 127-138, Tokyo, Japan, (2011.02).
- [64] Danushka Bollegala: A Supervised Ranking Approach for Detecting Relationally Similar

- Word Pairs, Proceedings of the International Conference on Information and Automation for Sustainability (ICIAfs 2011), pp. 323-328, Colombo, Sri Lanka. (2010.12)
- [65] Hugo Hernault, [Danushka Bollegala](#), and Mitsuru Ishizuka: A Semi-Supervised Approach to Improve Classification of Infrequent Discourse Relations using Feature Vector Extension, Proceedings of the Empirical Methods in Natural Language Processing (EMNLP 2010), pp. 399-409, Massachusetts, USA, (2010.10).
- [66] Hugo Hernault, [Danushka Bollegala](#), and Mitsuru Ishizuka: Towards Semi-Supervised Classification of Discourse Relations using Feature Correlations, Proceedings of the 11th Annual SIGdial Meeting on Discourse and Dialogue (SIGDIAL 2010), short paper, pp. 55-58, Tokyo, Japan, (2010.09).
- [67] Nugyen Duc, [Danushka Bollegala](#), and Mitsuru Ishizuka: Using Relational Similarity between Word Pairs for Latent Relational Search on the Web, Proceedings of the IEEE/WIC/ACM International Conference on Web Intelligence (WI 2010) (short paper), pp. 196-199, Toronto, Canada, (2010.09).
- [68] Tomokazu Goto, Nguyen Duc, [Danushka Bollegala](#), and Mitsuru Ishizuka: Exploiting Symmetry in Relational Similarity for Ranking Relational Search Results, Proceedings of the 11th Pacific Rim International Conference on Artificial Intelligence (PRICAI 2010), pp. 595-600, Daegu, South Korea, (2010.09). **Received the Best Poster Paper Award**
- [69] [Danushka Bollegala](#), Yutaka Matsuo, Mitsuru Ishizuka: Relational Duality: Unsupervised Extraction of Semantic Relations between Entities on the Web, Proceedings of the 19th International World Wide Web Conference (WWW 2010), pp. 151-160, North Carolina, USA, (2010.04).
- [70] Hugo Hernault, [Danushka Bollegala](#), Mitsuru Ishizuka: A Sequential Model for Discourse Segmentation, Proceedings of the 11th International Conference on Intelligent Text Processing and Computational Linguistics (CICLing 2010), Lecture Notes in Computer Science, vol. 6008/2010, pp. 315-326, Romania, (2010.03).
- [71] [Danushka Bollegala](#), Yutaka Matsuo and Mitsuru Ishizuka: A Relational Model of Semantic Similarity between Words using Automatically Extracted Lexical Pattern Clusters from the Web, Proceedings of Empirical Methods in Natural Language Processing (EMNLP 2009), pp. 803-812, Singapore, (2009.08).
- [72] [Danushka Bollegala](#), Yutaka Matsuo and Mitsuru Ishizuka: Measuring the Similarity between Implicit Semantic Relations from the Web, Proceedings of the 18th International World Wide Web Conference (WWW 2009), pp. 651-660, Madrid, Spain, (2009.04).
- [73] [Danushka Bollegala](#), Yutaka Matsuo and Mitsuru Ishizuka: Measuring the Similarity between Implicit Semantic Relations using Web Search Engines, Proceedings of the 2nd ACM International Conference on Web Search and Data Mining Conference (WSDM 2009), pp. 104-113, Barcelona, Spain, (2009.02).
- [74] [Danushka Bollegala](#), Taiki Honma, Yutaka Matsuo and Mitsuru Ishizuka: Automatically

- Extracting Personal Name Aliases from the Web, Proceedings of the 6th International Conference on Natural Language Processing (GoTAL 2008), Advances in Natural Language Processing Springer LNCS 5221, pp 77-88, Gothenburg, Sweden, (2008.08).
- [75] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: WWW sits the SAT: Measuring Relational Similarity from the Web, Proceedings of the 18th European Conference on Artificial Intelligence (ECAI 2008), pp. 333-337, Patras, Greece, (2008.07).
- [76] Danushka Bollegala, Taiki Honma, Yutaka Matsuo and Mitsuru Ishizuka: Mining for Personal Name Aliases on the Web, Proceedings of the 17th International World Wide Web Conference (WWW 2008), Vol. II, pp. 1107-1108, Beijing, China, (2008.04).
- [77] Danushka Bollegala, Taiki Honma, Yutaka Matsuo and Mitsuru Ishizuka: Identification of Personal Name Aliases on the Web, Online Proceedings of WWW 2008 Workshop on Social Web Search and Mining (SWSM 2008), 8 pages, Beijing, China, (2008.04).
- [78] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: A Co-occurrence Graph-based Approach for Personal Name Alias Extraction from Anchor Texts, Proceedings of the 3rd International Joint Conferences on Natural Language Processing (IJCNLP 2008), Vol. II. pp. 865-870, Hyderabad, India, (2008.01).
- [79] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: Measuring Semantic Similarity between Words Using Web Search Engines, Proceedings of the 16th International World Wide Web Conference (WWW 2007), pp. 757-766, Banff, Canada, (2007.05).
- [80] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: An Integrated Approach to Measuring Semantic Similarity between Words using Information Available on the Web, Proceedings of the conference on Human Language Technologies and North American Chapter of the Association for Computational Linguistics (HLT-NAACL 2007), pp. 340-347, Rochester, New York, (2007.04).
- [81] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: Disambiguating Personal Names on the Web using Automatically Extracted Key Phrases, Proceedings of the 17th European Conference on Artificial Intelligence (ECAI 2006), pp. 553-557, Italy, (2006.08).
- [82] Danushka Bollegala, Naoaki Okazaki and Mitsuru Ishizuka: A Bottom-up Approach to Sentence Ordering for Multi-document Summarization, Proceedings of the joint 21st International Conference on Computational Linguistics and the 44th Annual Meeting of the Association for Computational Linguistics (COLING-ACL 2006), pp. 385-392, Sydney, Australia, (2006.07).
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- [85] Danushka Bollegala, Naoaki Okazaki, Mitsuru Ishizuka: A Machine Learning Approach to Sentence Ordering for Multidocument Summarization and Its Evaluation, Proceedings of the International Joint Conferences on Natural Language Processing (IJCNLP 2005), pp 624-635, Jeju Island, South Korea, (2005.10).

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- [86] Danushka Bollegala and Hitoshi Iba: Feature Scaling for Online Learning of Binary Classifiers, Technical report of the Special Interest Group of Natural Language Processing of the Information Processing Society in Japan (IPSJ-NL), Vol. 2012-NL-207, No. 13, Sapporo, Hokkaido, Japan. (2012.7).
- [87] Nozomi Nori, Danushka Bollegala, and Hisashi Kashima: Predicting User Actions in Social Web Services: A Dimension Reduction Approach, Proceedings of the 26th Annual Conference of the Japanese Society for Artificial Intelligence (JSAI 2012), Yamaguchi, Japan. (2012.6)
- [88] Danushka Bollegala: A Comparative Study of Similarity Measures for Cross-Domain Sentiment Classification, Technical report of the Special Interest Group on Natural Language Processing of the Information Processing Society in Japan (IPSJ-NL), Vol.2011-NL-204, No. 16, Ishigaki Island, Okinawa, Japan. (2011.11)
- [89] Danushka Bollegala, Nasimul Noman, and Hitoshi Iba: RankDE: Learning a Ranking Function for Information Retrieval using Differential Evolution, Symposium of the Japanese Society for Evolutionary Computation (SIG-ECF), Tokyo, Japan. (2011.09)
- [90] Danushka Bollegala, Yutaka Matsuo, and Mitsuru Ishizuka: Relation Adaptation: Domain Adaptation of Relation Extraction Systems, Proceedings of the 17th Annual Meeting of the Natural Language Processing Society of Japan, pp. 770-773, Toyohashi, Japan, (2011.03).
- [91] Nozomi Nori, Danushka Bollegala, and Mitsuru Ishizuka: Interest Prediction in Multi-Domain, Multi-Relational Social Media), Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [92] Sho Kawazaki, Nguyen Tuan Duc, Danushka Bollegala, and Mitsuru Ishizuka: Accurate relation Name Extraction from Entity Pair Set using the Web, Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [93] Tomokazu Goto, Nguyen Tuan Duc, Danushka Bollegala, and Mitsuru Ishizuka: Improving Relational Search Performance using Relational Symmetries and Predictors,

- Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [94] Nguyen Tuan Duc, [Danushka Bollegala](#), and Mitsuru Ishizuka: Latent Relational Search using Cross-Language Relational Similarity, Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [95] Takeshi Inagaki, [Danushka Bollegala](#), and Mitsuru Ishizuka: An Empirical Analysis of Matrix Approximation via Sequential Co-clustering, Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [96] Nguyen Tuan Duc, [Danushka Bollegala](#), and Mitsuru Ishizuka: Relation Representation and Indexing Method for Fast and High Precision Latent Relational Search Engine, Proceedings of the 24th Annual Conference of the Japanese Society for Artificial Intelligence, (2010.06). **Best Paper Award**
- [97] Naoki Tani, [Danushka Bollegala](#), and Mitsuru Ishizuka: Attribute Extraction using Attribute Correlation, Proceedings of the 73rd Annual Conference of the Information Processing Society of Japan, (2011.03).
- [98] Naoki Tani, [Danushka Bollegala](#), and Mitsuru Ishizuka: Attribute Extraction from the Web based on Correlation between Attributes, Proceedings of the 24th Annual Conference of the Japanese Society for Artificial, (2010.06).
- [99] Tomokazu Goto, Nguyen Tuan Duc, [Danushka Bollegala](#), and Mitsuru Ishizuka: Ranking Method based on Symmetry and Complementary Words of Latent Relational Search), Proceedings of the 24th Annual Conference of the Japanese Society for Artificial Intelligence, (2010.06).
- [100] [Danushka Bollegala](#) and Mitsuru Ishizuka: Relation Extraction using Relational Duality, Proceedings of the 24th Annual Conference of the Japanese Society for Artificial Intelligence, (2010.06).
- [101] Nguyen Tuan Duc, [Danushka Bollegala](#), Mitsuru Ishizuka: A Relational Search Engine using Latent Relations between Word Pairs, Proceedings of the 72nd Annual Conference of the Information Processing Society of Japan, (2010.03).
- [102] Tomokazu Goto, Nguyen Tuan Duc, [Danushka Bollegala](#), Mitsuru Ishizuka: A Candidate Re-ranking Method using symmetry for a Relational Search Engine, Proceedings of the 72nd Annual Conference of the Information Processing Society of Japan, (2010.03).
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- [104] Keigo Watanabe, [Danushka Bollegala](#), Yutaka Matsuo and Mitsuru Ishizuka: A Two-Step Approach to Extracting Attributes for People on the Web, Online proceedings of the Second Web People Search Task (WePS2) Workshop at 18th International World Wide Web Conference (WWW 2009), Madrid, Spain. (2009.04).

- [105] Yutaka Matsuo, Danushka Bollegala, Hironori Tomobe, YingZi Jin, Junichiro Mori, Keigo Watanabe, Taiki Honma, Masahiro Hamasaki, Kotaro Nakayama and Mizuki Oka: Social Network Mining from the Web (poster), NSF Sponsored Symposium on Semantic Knowledge Discovery, Organization and Use, New York, (2008.11).
- [106] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: WWW sits the SAT: Measuring Relational Similarity on the Web, Proceedings of the 22nd Annual Conference of the Japanese Society for Artificial Intelligence, (2008.06).
- [107] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: WebSim: A Web-based Semantic Similarity Measure, Proceedings of the 21st Annual Conference of the Japanese Society for Artificial Intelligence, (2007.06).
- [108] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: Disambiguating Personal Names on the Web using Automatically Extracted Key Phrases, Proceedings of International Joint Conferences on Artificial Intelligence (IJCAI 2007) Workshop on Text-Mining and Link-Analysis (TextLink 2007), 10 pages, Hyderabad, India, (2007.01).
- [109] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: Extracting Key Phrases to Disambiguate Personal Name Queries in Web Search, Proceedings of the Workshop "How can Computational Linguistics improve Information Retrieval?", at the joint 21st International Conference on Computational Linguistics and the 44th Annual Meeting of the Association for Computational Linguistics (COLING-ACL 2006), pp. 17-24, Sydney, Australia, (2006.07).
- [110] Danushka Bollegala, Yutaka Matsuo and Mitsuru Ishizuka: Disambiguating Personal Names on Web, Annual Conference of the Japanese Society for Artificial Intelligence, (2006.06)
- [111] Danushka Bollegala, Naoaki Okazaki and Mitsuru Ishizuka: Agglomerative Clustering Based Approach to Sentence Ordering for Multi-document Summarization, Technical Committee on Natural Language Understanding and Models of Communication (NLC), The Institute of Electronics, Information and Communication Engineers (IEICE) Japan, pp. 13-18, (2006.02).
- [112] Danushka Bollegala, Naoaki Okazaki and Mitsuru Ishizuka: Agglomerative Clustering Based Approach to Sentence Ordering for Multidocument Summarization, Annual Conference of the Japanese Society for Artificial Intelligence, (2005.08).
- [113] Danushka Bollegala, Naoaki Okazaki and Mitsuru Ishizuka: A Machine Learning Approach to Sentence Ordering for Multi-document Summarization, Proceedings of the Annual Meeting of the Natural Language Processing Society of Japan, pp. 636-639, (2005.03).
- [114] Danushka Bollegala, Naoaki Okazaki and Mitsuru Ishizuka: A Machine Learning Approach to Sentence Ordering for Multi-document Summarization, Proceedings of the Annual Meeting of the Information Processing Society of Japan (IPSJ), (2005.03).

Professional Service Activities

Membership in Professional Organizations

- Association for Computational Linguistics (ACL), Member
- Institute of Electrical and Electronics Engineers (IEEE) Computer Science Society, Member. (Membership no: 92061682)
- Japanese Society for Artificial Intelligence (JSAI) (Member, Editorial Board)

Service Activities

- [1] Associate Editor, Transactions of the Japanese Society for Artificial Intelligence (JSAI).
- [2] Area Chair Information Extraction and Database Linking COLING 2014.
- [3] PC member European Conference on Artificial Intelligence (ECAI 2014).
- [4] PC member North American Chapter of the Association for Computational Linguistics (NAACL 2013).
- [5] PC member International Conference on Computational Linguistics (COLING 2012)
- [6] PC member Annual Conference of the Association for Computational Linguistics (ACL 2012).
- [7] PC member for the International conference on weblogs and social media (ICWSM 2012).
- [8] Organizer for the International Special Sessions (IOS) at the Annual Conference of the Japanese Society for Artificial Intelligence (JSAI 2013).
- [9] Organizer for the International Special Sessions (IOS) at the Annual Conference of the Japanese Society for Artificial Intelligence (JSAI 2012).
- [10] Reviewer for the Genetic and Evolutionary Computation Conference (GECCO 2012).
- [11] Reviewer for the Neural Information Processing Systems (NIPS 2011) Conference.
- [12] Area Chair, 12th International Conference on Web-Age Information Management (WAIM 2011)
- [13] Editorial board, International Journal of Research and Reviews in Information Sciences (IJRRIS).
- [14] Program committee, 18th World Wide Web Conference, 2nd Web People Search Evaluation Workshop.
- [15] Reviewer for Journal of Artificial Intelligence Research (JAIR).
- [16] Reviewer for Computational Intelligence Journal.
- [17] Web Mining session chair, Annual Conference of the Japanese Society for Artificial Intelligence 2009.
- [18] Web Attribute Extraction session chair, Annual Conference of the Japanese Society for Artificial Intelligence 2010.
- [19] Reviewer for the ACM Transactions of Intelligent Systems and Technology.

[20] Reviewer for the Journal of the Japanese Society for Artificial Intelligence (JSAI).

[21] Reviewer for IEEE Intelligent Systems Journal.

Patents

[1] A Method for Extracting the Semantic Relations that exist between two Entities from a Text Corpus, Danushka Bollegala and Mitsuru Ishizuka, Japanese patent pending (application no: 2010-096551), applied on 20th of April 2010.

[2] A Relational Search System, Danushka Bollegala, Nguyen Duc, and Mitsuru Ishizuka, Japanese patent pending (application no: 2009-275762), applied on 3rd December 2009.

Publicly Available Software

MLIB: A Machine Learning Library in Python. Implements classification (e.g. logistic regression models, support vector machines, truncated gradient-based online learning algorithms etc.), clustering (sequential clustering and co-clustering algorithms), and data sampling (holdout data selection, one-sided undersampling) algorithms that are frequently used in my papers.

<http://www.iba.t.u-tokyo.ac.jp/~danushka/mlib.html>

Relation Adaptation: Source code and dataset for my IJCAI-2011 paper on domain adaptation for relation extraction.

<http://www.iba.t.u-tokyo.ac.jp/~danushka/RA/>

Sentiment Sensitive Thesaurus: Source code for my ACL-2011 paper on cross-domain sentiment classification using a sentiment sensitive thesaurus.

<http://www.iba.t.u-tokyo.ac.jp/~danushka/SST/>

Teaching Experience

Data Mining The University of Liverpool
Lecturer for the Graduate Level 15 credit module
MSC in Big Data and High Performance Computing

Distributed Systems The University of Liverpool
BSC in Computer Science 2nd year 15 credit module

Computer Programming The University of Tokyo
Lecturer for the 3rd year undergraduate level course on C programming language

Practical course on Electronic Circuits

The University of Tokyo

Lecturer for the 3rd year undergraduate level practical course on electronic circuits

Doctoral Research Assessment

The University of Tokyo

Evaluate and comment on Doctoral Research Projects in the Graduate School of Information Science and Technology.

Invited Talks

- [1] Relation Extraction with Minimum Supervision, Microsoft Research Asia, Beijing, October, 2013.
- [2] Relation Extraction from the Web, The 14th Information-Based Induction Sciences Workshop (IBIS 2011), Relational Data and Tensor Decomposition Invited Session, Nara, Japan, November, 2011.
- [3] Cross-Language Latent Relational Web Search, Google Inc., Mountain View, California, USA, August 2011.
- [4] Relation Adaptation: Learning to Extract Novel Relations with Minimum Supervision, TOSHIBA Cambridge Research Laboratory, Cambridge, UK, June 2011.
- [5] Domain Adaptation for NLP, ILCC School of Informatics, University of Edinburgh, UK, June 2011.
- [6] Cross-Domain Sentiment Classification, Department of Informatics, University of Sussex, UK, May 2011.
- [7] Relational Duality: Unsupervised Extraction of Semantic Relations between Entities on the Web, Microsoft Research, Seattle, USA, May 2010.
- [8] Measuring Relational Similarity between Entities using Web Texts, Rakuten corporation tech-talk series, Tokyo, Japan, March 2010.
- [9] Creating Artificial Intelligence from the Web, First Japanese Web Symposium, Tokyo, Japan, December 2009.

Student Supervision

Current Students:

- PhD: Pavithra Rajendran (University of Liverpool), Pascal Kuyten (University of Tokyo)

Former Students

- PhD: Nguyen Duc, Francisco Tacoa, Akio Watanabe, Liu Shu, Suresh Hettiarachhi, Leon Palafox, Mohammad Asif Khan
- MS: Nozomi Nori, Sho Kawasaki, Takeshi Inagaki, Koji Jakudo, Komiya Kazuki, Vishal

Soam, Hiroyuki Sato, Hakami Huda, Al Bazar Noor, Franklin Ochieng

- BS: Ken-ichi Yokote, Kazuo Makishima, Yasunobu Ushiyama, Ari Presto, Yonosuke Ishiwatari, Hideki Mori, Shintaro Murakami

Internal Services

- The University of Liverpool, Department of Computer Science, Disability and Contact Officer.
- The University of Tokyo, undergraduate admission exams 2011 (grader)
- The University of Tokyo, Graduate School of Information Science & Technology, graduate admission exams (proof reader, invigilator)
- The University of Tokyo, Office of International Relations (advisor for the Asia Pacific regional affairs), 2010, 2011.

Language Proficiency

- Sinhalese: Native Speaker
- English: Native level proficiency (TOEFL score 289 out of 300)
- Japanese: Native level proficiency (Higher education in Japanese, Conducted lectures in Japanese at Undergraduate and Graduate level, Academic presentations in Japanese)

Programming Skills

- Languages: Python, C++, C#, Perl, Java, .NET framework
- Operating Systems: Linux/Unix systems, Mac OSX, Windows
- Other: MySQL, Hadoop, SWIG, SVN, CVS, Apache

Miscellaneous

- Diploma in Japanese Language, Osaka University of Foreign Studies, Japan (2000 April – 2001 March)
- G.C.E. Ordinary Level distinction passes (highest obtainable) for all 8 subjects
- G.C.E. Advanced Level A passes (highest obtainable) for all 4 subjects (Pure Mathematics, Applied Mathematics, Physics, and Chemistry) Ranked 3rd in Sri Lanka. Total Marks: 349 (out of 400)
- National Team Member for International Mathematical Olympiad (IMO) 1997.
- All Island Field Hockey Champions, Sri Lanka. 1994, 1995, 1996.
- All Island first place in cultural music (vocal) 1997.
- SAT I (1400), SAT II Mathematics (800/800), Physics (800/800), Chemistry (780/800)

References

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