

Curriculum Vitae

Surangika Ranathunga

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Current Address

Department of Computer Science and Engineering, University of Moratuwa,
Katubedda 10400, Sri Lanka

EDUCATION

PhD (June 2013)	Department of Information Science, University of Otago, New Zealand
M.Sc. (July 2009)	Major – Computer Science Department of Computer Science and Engineering, University of Moratuwa, Sri Lanka Overall semester grade point average (SGPA) : 3.71 (max of 4.20)
B.Sc. Eng. (Hons) (August 2005)	Major – Computer Science and Engineering Department of Computer Science and Engineering, University of Moratuwa, Sri Lanka First class, Overall SGPA : 3.76 (max of 4.20) <i>USA equivalent - Bachelor's degree in Computer Engineering, grade average 3.73 (out of 4)</i>

SCHOLARSHIPS, AWARDS, AND DISTINCTIONS

- Won the best paper award in the Big Data, machine Learning, and Cloud Computing track at the 4th Moratuwa Engineering Research Conference for the paper 'Evaluating Different Classifiers for Sinhala POS tagging'
- Outstanding research award, University of Moratuwa, 2016
- Won the best paper award in the biomedical engineering and soft computing track at the 2nd Moratuwa Engineering Research Conference for the paper 'Modeling Website User Behaviors by Combining the EM and DBSCAN Algorithms'
- Was awarded New Zealand Federation of Graduate Women (NZFGW) Otago Branch travel award (NZ \$ 1800) to travel to the 11th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2012) Valencia, Spain
- 2009 – 2012 University of Otago Out-of-Season Postgraduate Scholarship to follow the Doctor of Philosophy degree programme at University of Otago (NZ \$ 20,000 per annum plus tuition fees)
- Was among the 46 short listed candidates for the Google Anita Borg Memorial Scholarship for Australia and New Zealand 2011
- During the undergraduate degree, was included in the Dean's List (a recognition given to students who obtained SGPA > 3.8) for semesters: 2001/2002 Semester 2 , 2003/2004 Semester 1, 2004/2005 Semester 1, 2004/2005 Semester 2

EMPLOYMENT HISTORY

Senior Lecturer Grade II – Department of Computer Science and Engineering, University of Moratuwa, Sri Lanka (February 2014 – till date)

Director R & D – LKDomain Registry, Sri Lanka (May 2014 – May 2016)

Research Assistant - Department of Information Science, University of Otago (August 2012 – October 2012)

Tutor - Department of Information Science, University of Otago (August 2010- October 2012)

Software Engineer - IFS R&D International (pvt) Ltd, Sri Lanka (December 2005 – April 2009)

Pre-sales Engineer - hSenid Software International (Pvt) Ltd, Sri Lanka (August 2005 – November 2005)

Software Engineer Intern - IFS R&D International (pvt) Ltd, Sri Lanka (January 2004 – July 2004)

Trainee Banking Executive – People’s Bank, Piliyandala, Sri Lanka (January 2001 - July 2001)

PUBLICATIONS

Key 10 publications are listed below. See Appendix A for the full list

1. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2012). Identifying events taking place in Second Life virtual environments. *Applied Artificial Intelligence*, 26 (1-2), 137-181.
2. Kumarasinghe, K. and Tharanga, G. and Weerasinghe, L. and Wickramaratna, U. and **Ranathunga, S.** (2015). VISIRI - Distributed Complex Event Processing System for Handling Large Number of Queries. In Tom Holvoet, Mirko Viroli (Eds.), *Coordination Models and Languages*, Volume 9037 of Lecture Notes in Computer Science, 230-245. Springer.
3. Cranefield, S. and **Ranathunga, S.** (2015). Handling Agent Perception in Heterogeneous Distributed Systems: A Policy-Based Approach. In Tom Holvoet, Mirko Viroli (Eds.), *Coordination Models and Languages*, Volume 9037 of Lecture Notes in Computer Science, 169-185. Springer.
4. Tennage, P., Sandaruwan, P., Thilakarathne, M., Herath, A. and Ranathunga, S., 2018. Handling Rare Word Problem using Synthetic Training Data for Sinhala and Tamil Neural Machine Translation. In *Proceedings of the Eleventh International Conference on Language Resources and Evaluation*
5. Prabodha, L. H. C., Vithanage, W. R. R., Ranaweera, L. T., Dissanayake, D. M. M. A. I. B., and **Ranathunga, S.** (2017) Monitoring Health of Large Scale Software Systems Using Drift Detection Techniques. *Conference on Complex, Intelligent, and Software Intensive Systems*, 152-163. Springer.
6. Panchendrarajan, R., Ahamed, N., Sivakumar, P., Murugaiah, B., **Ranathunga, S.**, and Pemasiri, A. (2017). Eatery – A Multi-Aspect Restaurant Rating System. *ACM Conference on Hypertext and Social Media*, 225-234, ACM.

7. Kiruparan, B., **Ranathunga, S.**, (2016) Domain-Specific Term Extraction for Concept Identification in Ontology Construction. 2016 IEEE/WIC/ACM International Conference on Web Intelligence, 34-41.
8. Erabadda, B., **Ranathunga, S.**, and Dias, G. (2016) Computer Aided Evaluation of Multi-Step Answers to Algebra Questions. 16th IEEE International Conference on Advanced Learning Technologies, 199-201.
9. Panchendrarajan, R., Ahamed, N., Murugaiah, B., Sivakumar, P., **Ranathunga, S.**, and Pemasiri, A. (2016) Implicit Aspect Detection in Restaurant Reviews. In proceedings of the 7th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis, 128-136.
10. Cranefield, S. and **Ranathunga, S.** (2013) Embedding BDI agents in business applications using enterprise integration patterns (Extended Abstract). In Proceedings of the 12th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2013), 1223-1224. International Foundation for Autonomous Agents and Multiagent Systems.

PRESENTATIONS

- Presented the paper *Developing Active Explorers from Listeners: Encouraging engineering students to explore by asking Questions during Lectures* at 14th Conference of SLAIHEE (Sri Lanka Association for Improving Higher Education Effectiveness), 2018
- Presented the paper *Clustering Sinhala News Articles Using Corpus-Based Similarity Measures* at 2018 Moratuwa Engineering Research Conference (MERCon)
- Presented the paper *Evaluation of Different Classifiers for Sinhala POS Tagging* at 2018 Moratuwa Engineering Research Conference (MERCon)
- Presented the paper *VISIRI - Distributed Complex Event Processing System for Handling Large Number of Queries* at 17th IFIP International Conference on Coordination Models and Languages (2015).
- Presented the paper *Retrieving abstract information from multi-party conversations* at 2014 International Conference on Advances in ICT for Emerging Regions (ICTer).
- Presented the paper *Improving situation awareness in intelligent virtual agents* at the AAMAS-2012 Workshop on Cognitive Agents for Virtual Environments (CAVE 2012)
- Gave a presentation on my PhD research at the Otago University Computer Science and Information Science (CS and IS) seminar series (March 2012) video link - <http://www.cs.otago.ac.nz/csis-seminars/videos/23-Mar-2012.mp4>
- Presented the paper *Generating percepts for intelligent virtual agents* at the University of Otago School of Business Colloquium (2011)
- Presented the paper *Introducing the notion of social rules and norms in virtual communities* at the University of Otago School of Business Colloquium (2010)

- Competed in the University of Otago 3 minute thesis competition – Commerce division heats (2010)
- Presented the paper *Isolated word recognition* at the International Conference on Information and Automation (ICIA 2005), Colombo, Sri Lanka

Poster Presentations and Demonstrations

- Surangika Ranathunga and Stephen Cranefield. Expectation and Complex Event Handling in BDI-based Intelligent Virtual Agents (Demonstration) at AAMAS 2012. Demo video – <http://www.youtube.com/watch?v=bSFNatziHhg&feature=related>
- Surangika Ranathunga and Stephen Cranefield. Expectation and Complex Event Handling in BDI-based Intelligent Virtual Agents (Demonstration) at NZCSRSC 2012
- Demonstrated the initial PhD research results at the MARCUS workshop, University of Otago (2010)

STUDENT SUPERVISION

See Appendix B for the full list.

1. Rajpirathap S. – Automatic model answer generation for GCE O/L Mathematics (Part-time MSc, completed 2018)
2. Chathura Randika - Method of dynamically distribute queries in Complex Event Processing Systems (Part-time MSc, completed 2018)
3. Liyanage I.U. – Sentiment analysis of Sinhala news comments (Part-time MSc, completed 2018)
4. Shalini Rajasingham – Agents in Minecraft (Part-time MSc, completed 2018)
5. INPU Nanayakkara – Clustering Sinhala News Articles using Text-based Similarity Measures (Part-time MSc, completed 2017)
6. JCS Kadupitiya - Automated Assessment of Short Sinhala Text Answers for Mathematical Questions (Full-time MSc, completed 2017)
7. Buddhiprabha Erabadda - Computer Aided Assessment of Mathematical Equations (Full-time MSc, completed 2017)
8. Buddhima Wijeweera – Automatic assessment of student answers for geometric construction questions (Part-time MSc, completed 2017)
9. Madhuka Udantha - User Behavior modelling by Web log mining and improved cluster mechanism (Full-time MSc, completed 2016)
10. Balachandran Kiruparan - Discovering non-taxonomic relations form text (Part-time MSc, completed 2016)

GRANTS AND CONSULTANCY WORK

Co-investigator, Senate research grant, University of Moratuwa – 2015 -2017(LKR 2 million) - Automated Assessment of equation-based and drawing-based answers to Mathematics Questions

Co-investigator, Senate research grant, University of Moratuwa – 2015-2017 (LKR 2 million) - Automated Assessment of Short Sinhala Text Answers for Structured Questions

Co-investigator, Digital Learning for Development (DL4D) grant – 2016-2017 (CAD 70000) - A Localised Problem-Based Tutor for O/L Mathematics in Sri Lanka

Co-investigator, short term research grant, University of Moratuwa – 2016-2017 (LKR 0.25 million) – A Part of Speech tagger for Sinhala

Principle investigator, Senate research grant, University of Moratuwa – 2017 -2018(LKR 2 million) - Automatic Answer Generation for Ordinary Level Mathematics Questions

Principle investigator, Senate research grant, University of Moratuwa – 2018-2019 (LKR 2 million) - Speech to Capability Matching Framework for Sinhala Language

Research team member, Project to Develop a Computer-Assisted Sinhala-Tamil Translation System for Short Documents, for and funded by the Department of Official Languages, Sri Lanka (2015-2018)

TEACHING EXPERIENCE

Senior Lecturer – Department of Computer Science and Engineering, University of Moratuwa (2014 – till date)

Postgraduate

CS5612 – Pattern Recognition (2015-present)

CS5615 – Information Retrieval (2015 - present)

CS5616 – Natural Language Processing (2015 - present)

Undergraduate

CS2012 Principles of Object Oriented Programming (2014-present) – 100 students

CS3612 Intelligent Systems (2014) – 150+students

CS4642 Data Mining and Information Retrieval (2015 - 2016, co-teaching) – 100 students

CS2202 Programming Challenge I (2014-present, coordinating) – 125 students

CS2212 Programming Challenge II(2014-2015, coordinating) – 100 students

CS2062 Object Oriented Software Design (2014-present) – 100 students

CS2222 Principles of Embedded Systems Programming (2014) – 25 students

Tutor/Demonstrator - Department of Information Science, University of Otago (2010- 2013)

Information and Communication in Organisations (BSNS106)

Work load: (2 or 3 labs) X weekly, semester-long (30 - 60 students)

Assignment Marker - Department of Information Science, University of Otago (2011- 2013)

Information and Communication in Organisations (BSNS106)

Work load: Essay questions (200 - 250 students)

INDUSTRY EXPERIENCE

Software Engineer- IFS R&D International (pvt) Ltd (www.ifsworld.com), Colombo Sri Lanka
(December 2005 – April 2009)

Responsibilities:

- IFS R&D Edge Project team –Implemented the IFS Applications 7 Enterprise Resource Planning (ERP) system.
- IFS R&D 3rd line support team- Supports the IFS Applications core product by adding functional and technical enhancements and fixing reported bugs in the released product.
- 2nd Line Support Team – Closely interacts with the IFS 1st line support team and provides fast and timely solutions to the functional and technical issues of individual customers.
- Development Services Team – Customises the IFS Applications core product according to customer requirements.

TECHNICAL EXPERTISE

Programming Languages: Java, C#, Python, Linden Scripting Language (LSL), Jason agent programming language, Esper Event processing Language (EPL)

Databases: Oracle, Microsoft SQL Server, MS Access, MySql

Other Technologies/ Concepts:

Object Oriented Systems Design and Implementation
Multiagent systems concepts, design and programming
XML and related technologies
Second Life virtual world scripting
Second Life client development using LIBOMV library
C# and Python integration using Ironpython
C# scripting
Complex Event Processing (Esper CEP engine)
Natural language processing (NLTK tool kit)
Apache Camel enterprise integration framework

PROJECT PROFILE

Increasing awareness of Intelligent Virtual Agents – PhD research project (individual), August 2009 – May 2013

I am looking into the problem of making a virtual agent aware of the dynamic environment around it, at physical, as well as social levels. Two major contributions:

1) A framework that employs complex event recognition and natural language processing techniques to convert low-level sensor data to high-level abstract models of virtual environments to be used by agents.

2) An interface between Belief-Desire-Intention (BDI) agents and expectation monitoring tools that enables agents to identify fulfilments and violations of their expectations.

Integrating the Belief-Desire-Intention (BDI) agent paradigm with enterprise computing infrastructure – research assistant, August 2012 – October 2012

Developed an Apache Camel component for the Jason BDI agent development platform. This enables Jason agents to make use of enterprise integration techniques when communicating with different software systems.

Course Editor 2.0 – Advanced web content authoring tool for e-learning systems – MSc research project (individual), May 2008– July 2009

Implemented Course Editor 2.0, which is a non-commercial web authoring tool. It enables web content creators to convert Microsoft Word 2007 Documents in to sophisticated e-learning content that is SCORM 1.2 and SCORM 1.3 compliant. This tool was designed with a localisation framework, targeting the Sinhala speaking teaching community of Sri Lanka.

Upasirasi- Speech to Text Converter for English Movies – BSc final year research project (group), September 2004– September 2005

This project involved developing a speech recognition system that enables real time speech to text conversion. *This project was among the selected Innovative Software Projects at the “Innovations 2005” exhibition held in Colombo, Sri Lanka.*

PROFESSIONAL DEVELOPMENT

- Completed a Course in Certificate in Teaching in Higher Education (CTHE 20) conducted by the Staff Development Centre of University of Colombo, Sri Lanka (2018)
- Participated in a semester-long programme: preparing for an academic career at University of Otago, New Zealand (competitive entry) (July 2011)

PROFESSIONAL QUALIFICATIONS/MEMBERSHIPS

- SEDA (Staff and Educational Development Association) accredited teacher
- Associate Member (2018 – till date) – Sri Lanka Association for Improving Higher Education Effectiveness
- Associate Member (2016-till date) – Institute of Engineers, Sri Lanka (IESL)
- Member (2010 – 2013) - New Zealand Federation of Graduate Women, Otago Branch
- Member (2011 - 2013) – New Zealand Computer Society (NZCS)
- IPM Professional Qualification in Human Resource Management (PQHRM) Stage I, at Institute of Personnel Management (IPM), Sri Lanka (2007)

PROFESSIONAL ACTIVITIES

Reviewer – IEEE Region 10 Humanitarian Technology Conference 2018
Reviewer – 4th Moratuwa Engineering Research Conference (2018)
Reviewer – 3rd Moratuwa Engineering Research Conference (2017)
PC Member - International conference on principles and practices of multi-agent systems (PRIMA 2016)
Reviewer - Wayamba International Conference (WinC 2016)
Reviewer – IET YP Annual Technical Conference 2016
Session chair - 2nd Moratuwa Engineering Research Conference (MERCon 2016)
Judge – Best Web competition organized by the LKDomain Registry Sri Lanka (2014)
Judge – TADHack Srilanka 2014 (<https://www.hsenidmobile.com/events/tadhack-sri-lanka-2014/>)
Reviewer - New Zealand Computer Science Research Student Conference (NZCSRSC 2012)

UNIVERSITY SERVICE

Member – Orientation Committee, University of Moratuwa (2018 – till date)
Member – Quality assurance cell, University of Moratuwa (2018- till date)
Treasurer - Computer Science and Engineering Society (CS&ES), Department of Computer Science and Engineering, University of Moratuwa 2015-2016
Main Organiser - Department of Information Science Postgraduate Day (University of Otago) 2012
Member - New Zealand Computer Science Research Student Conference (NZCSRSC 2012) organising committee, 2011- 2012
Volunteer - User Forum for the School of Business IT Strategy 2012
Volunteer - Otago Advanced School Sciences Academy Programme 2011
Secretary - Computer Science and Engineering Society (CS&ES), Department of Computer Science and Engineering, University of Moratuwa 2005-2006 (**Chaired the organising committee of the CS&ES AGM 2005**)
Member - Rotaract Club, University of Moratuwa 2002-2005
(Project chairperson of the Professional Development Project ‘Are You Ready?’ 2004, which is the official career guidance program of the university)
Secretary - University of Moratuwa Computer Society (UMCS) 2004 – 2005
Assistant Secretary - University of Moratuwa Computer Society (UMCS) 2003 – 2004
Batch representative - CS&ES, 2002 – 2004

RAEFERENCES

Associate Professor Stephen Cranefield
Department of Information Science

Prof Gihan Dias
Department of Computer Science and Engineering

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University of Moratuwa

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APPENDIX A - PUBLICATIONS

Journals

1. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2012). Identifying events taking place in Second Life virtual environments. *Applied Artificial Intelligence*, 26 (1-2), 137-181.
2. Hettiarachchi, H.A.H., Wickramasinghe, C.N. and **Ranathunga, S.**, 2017. The Role of Social Commerce on Consumer Decisions: A Theoretical Foundation. *Journal of Business and Technology* 1 (02), 120-139

Book Chapters

1. Kumarasinghe, K. and Tharanga, G. and Weerasinghe, L. and Wickramaratna, U. and **Ranathunga, S.** (2015). VISIRI - Distributed Complex Event Processing System for Handling Large Number of Queries. In Tom Holvoet, Mirko Viroli (Eds.), *Coordination Models and Languages*, Volume 9037 of *Lecture Notes in Computer Science*, 230-245. Springer.
2. Cranefield, S. and **Ranathunga, S.** (2015). Handling Agent Perception in Heterogeneous Distributed Systems: A Policy-Based Approach. In Tom Holvoet, Mirko Viroli (Eds.), *Coordination Models and Languages*, Volume 9037 of *Lecture Notes in Computer Science*, 169-185. Springer.
3. **Ranathunga, S.** and Cranefield, S. (2012). Improving situation awareness in intelligent virtual agents. In F. Dignum, C. Brom, K. Hindriks, M. Beer, D. Richards (Eds.), *Cognitive Agents for Virtual Environments*, Volume 7764 of *Lecture Notes in Computer Science*, 134-148. Springer.
4. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2012). Integrating expectation monitoring into BDI agents. In L. Dennis, O. Boissier, and R. Bordini (Eds.), *Programming Multi-Agent Systems*, Volume 7217 of *Lecture Notes in Computer Science*, 74–91. Springer.
5. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2012). Interfacing a cognitive agent platform with Second Life. In M. Beer, C. Brom, F. Dignum, and V.-W. Soo (Eds.), *Agents for Educational Games and Simulations*, Volume 7471 of *Lecture Notes in Computer Science*, 1-21. Springer.

Conferences and Workshops (published)

1. **Ranathunga, S.**, Farhath, F., Thayasivam, U., Jayasena, S. and Dias, G., 2018, October. Si-Ta: Machine Translation of Sinhala and Tamil Official Documents. In *2018 National Information Technology Conference (NITC)* (pp. 1-6). IEEE.
2. Farhath, F., **Ranathunga, S.**, Jayasena, S. and Dias, G., 2018, May. Integration of Bilingual Lists for Domain-Specific Statistical Machine Translation for Sinhala-Tamil. In *2018 Moratuwa Engineering Research Conference (MERCon)* (pp. 538-543). IEEE.

3. Tennage, P., Herath, A., Thilakarathne, M., Sandaruwan, P. and **Ranathunga, S.**, 2018, May. Transliteration and Byte Pair Encoding to Improve Tamil to Sinhala Neural Machine Translation. In 2018 Moratuwa Engineering Research Conference (MERCon) (pp. 390-395). IEEE.
4. Nanayakkara, P. and **Ranathunga, S.**, 2018, May. Clustering Sinhala News Articles Using Corpus-Based Similarity Measures. In 2018 Moratuwa Engineering Research Conference (MERCon) (pp. 437-442). IEEE.
5. Fernando, S. and **Ranathunga, S.**, 2018, May. Evaluation of Different Classifiers for Sinhala POS Tagging. In 2018 Moratuwa Engineering Research Conference (MERCon) (pp. 96-101). IEEE.
6. Thayaparan, M., **Ranathunga, S.** and Thayasivam, U., (2018) Graph Based Semi-Supervised Learning Approach for Tamil POS tagging. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation
7. Chathuranga, J., Ediriweera, S., Hasantha, R., Munasinghe, P. and **Ranathunga, S.**, 2018. Annotating Opinions and Opinion Targets in Student Course Feedback. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation
8. Farhath, F., Theivendiram, P., **Ranathunga, S.**, Jayasena, S. and Dias, G., 2018. Improving domain-specific SMT for low-resourced languages using data from different domains. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation
9. Tennage, P., Sandaruwan, P., Thilakarathne, M., Herath, A. and **Ranathunga, S.**, 2018. Handling Rare Word Problem using Synthetic Training Data for Sinhala and Tamil Neural Machine Translation. In Proceedings of the Eleventh International Conference on Language Resources and Evaluation
10. Dewappriya, N., Kankanamge, G.U., Wellappili, D., Hevopathige, A. and **Ranathunga, S.**, 2018, May. Unit Conflict Resolution for Automatic Math Word Problem Solving. In 2018 Moratuwa Engineering Research Conference (MERCon) (pp. 191-196). IEEE.
11. Tennage, P., Sandaruwan, P., Thilakarathne, M., Herath, A., **Ranathunga, S.**, Jayasena, S. and Dias, G., 2017, December. Neural machine translation for sinhala and tamil languages. In Asian Language Processing (IALP), 2017 International Conference on (pp. 189-192). IEEE.
12. Mendis, C., Lahiru, D., Pamudika, N., Madushanka, S., **Ranathunga, S.** and Dias, G., 2017, May. Automatic assessment of student answers for geometric theorem proving questions. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 413-418). IEEE.
13. Thirunavukkarasu, N., Selvarasa, A., Rajendran, N., Yogalingam, C., **Ranathunga, S.** and Dias, G., 2017, May. Automatic assessment and error identification of multi-step

- answers for matrix questions. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 123-128). IEEE.
14. Selvarasa, A., Thirunavukkarasu, N., Rajendran, N., Yogalingam, C., **Ranathunga, S.** and Dias, G., 2017, May. Short Tamil sentence similarity calculation using knowledge-based and corpus-based similarity measures. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 443-448). IEEE.
 15. Mohamed, M.Z., Ihalapathirana, A., Hameed, R.A., Pathirennhelage, N., **Ranathunga, S.**, Jayasena, S. and Dias, G., 2017, May. Automatic creation of a word aligned Sinhala-Tamil parallel corpus. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 425-430). IEEE.
 16. Ranaweera, L., Vithanage, R., Dissanayake, A., Prabodha, C. and **Ranathunga, S.**, 2017, May. Anomaly detection in complex trading systems. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 437-442). IEEE.
 17. Kahaduwa, H., Pathirana, D., Arachchi, P.L., Dias, V., **Ranathunga, S.** and Kohomban, U., 2017, May. Question Answering system for the travel domain. In Engineering Research Conference (MERCon), 2017 Moratuwa (pp. 449-454). IEEE.
 18. Jihan, N., Senarath, Y., Tennekoon, D., Wickramarathne, M. and **Ranathunga, S.**, 2017. Multi-Domain Aspect Extraction using Support Vector Machines. In Proceedings of the 29th Conference on Computational Linguistics and Speech Processing (ROCLING 2017) (pp. 308-322).
 19. Chathuranga, J., Ediriweera, S., Munasinghe, P., Hasantha, R. and **Ranathunga, S.**, 2017. Opinion Target Extraction for Student Course Feedback. In Proceedings of the 29th Conference on Computational Linguistics and Speech Processing (ROCLING 2017) (pp. 295-307).
 20. Hettiarachchi, H.A.H., Wickramasinghe, C.N. and **Ranathunga, S.**, 2017. Social Commerce and Consumer Decision Making: A Conceptual Model from Social Support Perspective. Sixth International Conference on Advances in Economics, Social Science and Human Behaviour Study (ESSHBS).
 21. Prabodha, L. H. C., Vithanage, W. R. R., Ranaweera, L. T., Dissanayake, D. M. M. A. I. B., and **Ranathunga, S.** (2017) Monitoring Health of Large Scale Software Systems Using Drift Detection Techniques. Conference on Complex, Intelligent, and Software Intensive Systems, 152-163. Springer.
 22. Erabadda, B., **Ranathunga, S.**, and Dias, G. (2017) Automatic Identification of Errors in Multi-Step Answers to Algebra Questions. 17th IEEE International Conference on Advanced Learning Technologies, 215-219, IEEE.
 23. Kadupitiya, J.C.S., **Ranathunga, S.**, Dias, G., (2017) A Framework for Assessment and Error Identification of Answers to Mathematical Word Problems. 17th IEEE International Conference on Advanced Learning Technologies, 55-59, IEEE.

24. Wijeweera, W., **Ranathunga, S.**, Dias, G., (2017) Automatic Assessment of Student Answers for Geometric Construction Questions. 17th IEEE International Conference on Advanced Learning Technologies (accepted), 238-242, IEEE.
25. Wijesinghe D.B., **Ranathunga, S.**, and Dias, G., Kadupitiya, J.C.S., (2017) Automatic Assessment of Student Answers Consisting of Venn and Euler Diagrams. 17th IEEE International Conference on Advanced Learning Technologies, 243-247, IEEE.
26. Panchendrarajan, R., Ahamed, N., Sivakumar, P., Murugaiah, B., **Ranathunga, S.**, and Pemasiri, A. (2017). Eatery – A Multi-Aspect Restaurant Rating System. ACM Conference on Hypertext and Social Media, 225-234, ACM.
27. Fernando, S., **Ranathunga, S.**, Jayasena, S., Dias, G., (2016) Comprehensive Part-Of-Speech Tag Set and SVM Based POS Tagger for Sinhala. 6th Workshop on South and Southeast Asian Natural languages, 163-172.
28. Kadupitiya, J.C.S., **Ranathunga, S.**, Dias, G., (2016) Sinhala Short Sentence Similarity Measures using Corpus-Based Similarity for Short Answer Grading. 6th Workshop on South and Southeast Asian Natural languages, 44-53.
29. Hameed, A.B., Pathirennehelage, N., Ihalapathirana, A., Mohamed, M.Z., **Ranathunga, S.**, Jayasena, S., Dias, G., Fernando, S. (2016) Automatic Creation of a Sentence Aligned Sinhala-Tamil Parallel Corpus. 6th Workshop on South and Southeast Asian Natural languages, 114-122.
30. Kiruparan, B., **Ranathunga, S.**, (2016) Domain-Specific Term Extraction for Concept Identification in Ontology Construction. 2016 IEEE/WIC/ACM International Conference on Web Intelligence, 34-41.
31. Wijesinghe D.B., **Ranathunga, S.**, and Dias, G. (2016) Computer Representation of Venn and Euler Diagrams. 16th International Conference on Advances in ICT for Emerging Regions, 100-105.
32. Kadupitiya, J.C.S., **Ranathunga, S.**, and Dias, G. (2016) Automated Assessment of Multi-Step Answers for Mathematical Word Problems. 16th International Conference on Advances in ICT for Emerging Regions, 66-71.
33. Erabadda, B., **Ranathunga, S.**, and Dias, G. (2016) Computer Aided Evaluation of Multi-Step Answers to Algebra Questions. 16th IEEE International Conference on Advanced Learning Technologies, 199-201.
34. Panchendrarajan, R., Ahamed, N., Murugaiah, B., Sivakumar, P., **Ranathunga, S.**, and Pemasiri, A. (2016) Implicit Aspect Detection in Restaurant Reviews. In proceedings of the 7th Workshop on Computational Approaches to Subjectivity, Sentiment and Social Media Analysis, 128-136.
35. Imalka, T., Nisansala, H., Subasinghe, S., Warnakulasuriya, S., Kohomban, U., **Ranathunga, S.**, and Pemasiri K. (2016) NetoTrades: Agent-Based Framework for

- One-to-many Bi-lateral Negotiation in Online Trading. 9th International Workshop on Agent-based Complex Automated Negotiations (ACAN). (accepted)
36. Uthayakumar, M., Theivendiram, P., Nadarasamoorthy, N., Thayaparan, M., Jayasena, S., Dias, G., and **Ranathunga, S.** (2016) Named-Entity-Recognition (NER) for Tamil Language Using Margin-Infused Relaxed Algorithm (MIRA). 17th International Conference on Intelligent Text Processing and Computational Linguistics. (accepted)
 37. Uthayakumar, M., Theivendiram, P., Nadarasamoorthy, N., Thayaparan, M., Jayasena, S., Dias, G., and **Ranathunga, S.** (2016) Tamil Morphological Analyzer using Support Vector Machines. 21st International Conference on Applications of Natural Language to Information Systems, 15-23. Springer
 38. Sivakumar, P., Ahamed, N., Panchendrarajan, R., Murugaiah, B., **Ranathunga, S.**, and Pemasiri, A. (2016) Categorizing food names in restaurant reviews. In proceedings of the 2nd Moratuwa Engineering Research Conference, 1-5.
 39. Panchendrarajan, R., Murugaiah, B., Sivakumar, P., Ahamed, N., **Ranathunga, S.**, and Pemasiri, A. (2016) Cheap Food or Friendly Staff? Weighting Hierarchical Aspects in the Restaurant Domain. In proceedings of the 2nd Moratuwa Engineering Research Conference, 24-29.
 40. Ahamed, F., Reemal, A., Rajapakshe, E., Samarakoon, P., Jayasena, S., Dias, G., and **Ranathunga, S.** (2016) Ananya - A Named Entity Recognition System for Sinhala Language. In proceedings of the 2nd Moratuwa Engineering Research Conference, 30-35.
 41. Udantha, M., **Ranathunga, S.**, and Dias, G. (2016) Modeling Website User Behaviors by Combining the EM and DBSCAN Algorithms. In proceedings of the 2nd Moratuwa Engineering Research Conference, 168-173. (Best paper award in the biomedical engineering and soft computing track)
 42. Udantha, M., **Ranathunga, S.**, and Dias, G. (2016) An Episode-based Approach to Identify Website User Access Patterns. In proceedings of the 2016 International Conference on Pattern Recognition Applications and Methods, 343-350.
 43. Palihakkara, S., Sahabandu, D., Shamsudeen A., Bandara, C. and **Ranathunga, S.** (2015) Dialogue Act Recognition for Text-based Sinhala. 12th International Conference on Natural Language Processing (ICON) http://ltrc.iiit.ac.in/icon2015/icon2015_proceedings/index.html.
 44. Ahiladas, B., Saravanaperumal, P., Balachandran S., Sripalan, T. and **Ranathunga, S.** (2015) Ruchi: Rating Individual Food Items in Restaurant Reviews. 12th International Conference on Natural Language Processing (ICON) http://ltrc.iiit.ac.in/icon2015/icon2015_proceedings/index.html.
 45. **Ranathunga, S.** (2014) Retrieving abstract information from multi-party conversations. International Conference on Advances in ICT for Emerging Regions (ICTer). IEEE.

46. Cranefield, S. and **Ranathunga, S.** (2013) Embedding BDI agents in business applications using enterprise integration patterns (Extended Abstract). In Proceedings of the 12th International Conference on Autonomous Agents and Multiagent Systems (AAMAS 2013), 1223-1224. International Foundation for Autonomous Agents and Multiagent Systems.
47. Cranefield, S. and **Ranathunga, S.** (2013) Embedding BDI agents in business applications using enterprise integration patterns. International workshop on Engineering Multi-Agent Systems (EMAS 2013)
48. **Ranathunga, S.** and Cranefield, S. (2012). Expectation and complex event handling in BDI-based intelligent virtual agents (Demonstration). In Proceedings of the 11th International Conference on Autonomous Agents and Multiagent Systems, 1491–1492. International Foundation for Autonomous Agents and Multiagent Systems.
49. **Ranathunga, S.**, Cranefield, S., and Purvis, M. K. (2011). Interfacing a cognitive agent platform with a virtual world: A case study using Second Life. In Proceedings of the 10th International Conference on Autonomous Agents and Multiagent Systems, 1181-1182. International Foundation for Autonomous Agents and Multiagent Systems.
50. **Ranathunga, S.** and Cranefield, S. (2012). Improving situation awareness in intelligent virtual agents. In Proceedings of the AAMAS-2012 Workshop on Cognitive Agents for Virtual Environments, 134-148. Springer

Conferences and Workshops (unpublished)

1. **Ranathunga, S.** (2018). Developing Active Explorers from Listeners: Encouraging engineering students to explore by asking Questions during Lectures, at the 14th Conference of SLAIHEE (Sri Lanka Association for Improving Higher Education Effectiveness).
2. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2011). Generating percepts for intelligent virtual agents, at the University of Otago School of Business Colloquium.
3. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2010). Integrating expectation monitoring into Jason: A case study using Second Life. In the 8th European Workshop on Multi-Agent Systems.
4. **Ranathunga, S.**, Cranefield, S., and Purvis, M. (2010). Introducing the Notion of Social Rules and Norms in Virtual Communities, at the University of Otago School of Business Colloquium.
5. Perera K.A.D., **Ranathunga R.A.D.S.**, Welivitigoda I.P, and Withanawasam R.M. (2005). Isolated word recognition. In the International Conference on Information and Automation (ICIA 2005), Colombo, Sri Lanka.
6. Perera K.A.D., **Ranathunga R.A.D.S.**, Welivitigoda I.P, and Withanawasam R.M. (2005). Connected speech recognition with an isolated word recognizer. In the International Conference on Information and Automation (ICIA 2005), Colombo, Sri Lanka.

Technical Reports

- **Ranathunga, S.,** Cranefield, S., and Purvis, M. K. (2011). Extracting Data from Second Life. Discussion Paper 2011/07, Department of Information Science, University of Otago.

Dissertations

- PhD Thesis: Improving Awareness of Intelligent Virtual Agents
- MSc Thesis : Course Editor 2.0 – Advanced web content authoring tool for e-learning systems
- BSc (group) Thesis: Upasirasi- Speech to text converter for English movies

APPENDIX B - STUDENT SUPERVISION

Postgraduate

1. Rajpirathap S. – Automatic model answer generation for GCE O/L Mathematics (Part-time MSc, completed 2018)
2. Mokbanarangan Thayaparan – Improving Statistical Machine Translation using Named Entity Recognition (Full-time MSc, completed 2018)
3. Chathura Randika - Method of dynamically distribute queries in Complex Event Processing Systems (Part-time MSc, completed 2018)
4. Liyanage I.U. – Sentiment analysis of Sinhala news comments (Part-time MSc, completed 2018)
5. Shalini Rajasingham – Agents in Minecraft (Part-time MSc, completed 2018)
6. INPU Nanayakkara – Clustering Sinhala News Articles using Text-based Similarity Measures (Part-time MSc, completed 2017)
7. JCS Kadupitiya - Automated Assessment of Short Sinhala Text Answers for Mathematical Questions (Full-time MSc, completed 2017)
8. Buddhiprabha Erabadda - Computer Aided Assessment of Mathematical Equations (Full-time MSc, completed 2017)
9. Buddhima Wijeweera – Automatic assessment of student answers for geometric construction questions (Part-time MSc, completed 2017)
10. Madhuka Udantha - User Behavior modelling by Web log mining and improved cluster mechanism (Full-time MSc, completed 2016)
11. Balachandran Kiruparan - Discovering non-taxonomic relations form text (Part-time MSc, completed 2016)
12. Fathima Farhath – A Statistical Machine Translation System for Sinhala and Tamil (Full-time MPhil, ongoing)
13. Kulakshi Fernando – Automated Answer Generation for Mathematics Questions (Full-time MSc, ongoing)
14. Ishadi Jayasinghe - Automatic Grading of Open-Ended Geometry and Trigonometry Mathematical Questions (Full-time MSc, ongoing)

15. Rajith Priyanga – A Morphological Analyzer/Synthesizer for Sinhala Nouns (Part-time MPhil, ongoing)
16. Charmy Weerakoon - Unsupervised Question Classification System for the Travel Domain (Part-time MSc, ongoing)
17. Chamodi Adikaram - Social Media Sentiment Analysis based on ABC model of attitudes (Part-time MSc, ongoing)
18. MSF Fayaza - Tamil Online News Clustering (Part-time MSc, ongoing)
19. Kirishanthy Mohanachandran – Automatic Answer Generation for Geometric Questions (Part-time MSc, ongoing)
20. Sampath Rajapaksha – Aspect Based Opinion Mining for Sportswear Apparel Reviews (Part-time MSc, ongoing)
21. Ranith Ranawaka - Tracking drug adverse events using Twitter (Part-time MSc, ongoing)
22. Nilaxan Satkunanantham – Automatic Taxonomy generation for the restaurant domain (Part-time MSc, ongoing)
23. Paranawithana W.D.A.I. - Meta language to specify CEP rules, and a parser to convert these rules to specific CEP languages (Part-time MSc, ongoing)
24. Dilrukshi I.M.T. - Improve static query distribution in complex event processing system (Part-time MSc, ongoing)
25. Iroshan A.K.A. – Unsupervised implicit aspect detection in restaurant reviews (Part-time MSc, ongoing)
26. Basuru W.W.A.C.S. - Building a Sentiment Summarizer for Amazon Book reviews (Part-time MSc, ongoing)
27. Kariyawasam K.K.R. – Community question answering – multi-domain duplicate detection (Part-time MSc, ongoing)

Undergraduate

1. P. D. Geethika, W. G. T. Ashen, T. A. S. Y. Jayathilaka, M. G. R. Y. Gunarathne: Time series anomaly detection in software systems (2018)
2. H. S. Biyanwila, M. M. Hettihewa, S. G. Kumarawadu, A. W. W. A. Nadeeshani, D. S. G. Jayarathne: Taxonomy generation for the travel domain (2018)
3. Nadheesh Jihan, Dulanjaya Tennekoon, Shehan Wickramarathne, Yayas Senarath: Effective Aspect Extraction for Sentiment Analysis (2017)
4. Shanika Ediriweera, Janaka Chathuranga, Ravindu Hasantha, Pranidhith Munasinghe: Automatic summarization of student course feedback (2017)
5. H.U.K.Gimhani Uthpala, H.P.Asela, B.L.Nuwantha Dewappriya, Dushani Wellappili: Automatic answer generation for Math word problems (2017)
6. Tharindu Kumaraage, Chamal Kuruppu, Malsha Lahiruni, Nadun De Silva: Fault detection in industrial software systems (2017)

7. G.B.W.D.Karunaratne, W.L.D.S.A.Liyanaarachchi, A.Vithusha Aarabhi, W.M.M.R.Weerasekara: Automatic Assessment and Feedback Generation for Mathematical Diagrams (2017)
8. Pasindu Tennage, Achini Herath, Malith Thilakarathne, Prabath Sandaruwan: Neural Machine Translation for Sinhala and Tamil (2017)
9. Dhanushka Lahiru, Chamupathi Mendis, Supun Madushanka, Naduni Pamudika: Automatic Assessment of Student Answers for O/L Mathematics (Geometric theorem proving) (2016-2017)
10. Niveethika Rajendran, Chinthoori Yogalingam, Nilasini Thirunavukkarasu, Anutharsha Selvarasa: Automatic Assessment of Student Answers for O/L Mathematics (Simple Algebra) (2016-2017)
11. Dilshan Pathirana, Hasangi Thathsarani, Pathum Rupasinghe, Vishma Dias: Intelligent Travel Planning Assistant (2016-2017)
12. Dissanayake D. M. M. A. I. B., Prabodha L. H. C., Ranaweera L. T., Vithanage W. R. R.: Anomaly Detection in Complex Trading Systems (2016-2017)
13. Pathirennehelage Nadeeshani, Abdul Hameed Fathima Riyafa, Maryam Ziyad, Anusha Ihalapathirana: Automatic Creation of a Sentence and Word Aligned Sinhala-Tamil Parallel Corpus (2016-2017)
14. Nazick Ahamed, M. Brunthavan, R.Panchandrarajan, S.Prakhash: Cincowatch - Categorizing merchant and products based on social media contents(2015- 2016)
15. S. I. Warnakulasuriya, S. T. Imalka, S. H. S. P. Subasinghe, M. A. H. Nisansala: Neto Trades - Agent-Based Trade Platform(2015- 2016)
16. Buddhika Dilhan, Upekshe Jayasekera, Nisala Niroshana, Shehan Madushanka: Log analyzers - Identifying user-behaviour in websites by analyzing web log data and proxy log data(2015-2016)
17. Ahamed Farasath Ahamed, Galle Hettiarachchige Achintha Reemal, Rajapakshe Arachchillage Eranda Chandrika Rajapakshe, Samarakoon Arachchige Prabushi Muthulal Manamini: Named Entity Recognizer for Sinhala (2015- 2016, co-supervised)
18. Theivendiram Pranavan, Megala Uthayakumar, Thayaparan Mokbanarangan, Nilusija Nadarasamoorthy: Named Entity Recognizer for Tamil (2015-2016, co-supervised)
19. Ujitha Iroshan, Lasitha Weerasinghe, Malinda Kumarasinghe, Geeth Tharanga: Visiri - Distributed complex event processing system (2014- 2015)
20. Sanjith Balachandran, Thamayanthi Sripalan, Paranetharan Sarvanaperumal, Burusothman Ahiladas: Ruchi - Restaurant recommendation system (2014-2015)
21. Dammina Sahabandu, Sudheera Palihakkara, Ahsan Samsudeen, Chamika Kasun: Sanwada - Dialogue act recognition for Sinhala (2014- 2015)