# HMN Dilum Bandara

*Research Scientist*

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## Education

**2008 - 2012**  **Ph.D. in Electrical and Computer Engineering**, *NSF Engineering Research Centre for Collaborative Adaptive Sensing of the Atmosphere (CASA), Colorado State University*, Fort Collins, CO, USA.
Dissertation title: Enhancing collaborative peer-to-peer systems using resource aggregation and caching: A multi-attribute resource and query aware approach. *Advisor: Prof. Anura Jayasumana.*

**2007 - 2008**  **M.S. in Electrical and Computer Engineering**, *Colorado State University*, Fort Collins, CO, USA.
Thesis title: Top-down clustering based self-organization of collaborative wireless sensor networks. *Advisor: Prof. Anura Jayasumana.*

**2001 - 2004**  **B.Sc. (Hons) Eng. in Computer Science and Engineering**, *University of Moratuwa*, Katubedda, Sri Lanka, *First class*.
Thesis title: Universal biometric system. *Advisor: Dr. Chathura De Silva.*

**2012**  **College Teaching Certificate**, *The Institute for Learning and Teaching, Colorado State University*, Fort Collins, CO, USA.

**2004**  **Diploma in Psychology**, *Oxford College of Business*, Colombo, Sri Lanka.

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## Employment

### Academic/Research Positions

**Mar 2019 - Present**  **Research Scientist**, *Architecture and Analytics Platforms Team, Data61, Commonwealth Scientific and Industrial Research Organisation (CSIRO)*, Sydney, Australia.

**Dec 2019 - Present**  **Conjoint Senior Lecturer**, *School of Computer Science and Engineering, Faculty of Engineering, University of New South Wales (UNSW)*, Sydney, Australia.

**Feb 2017 - Feb 2019**  **Senior Lecturer – Grade I**, *Dept. of Computer Science and Engineering, University of Moratuwa*, Katubedda, Sri Lanka.

**July 2015 - July 2018**  **Director**, *Engineering Research Unit, Faculty of Engineering, University of Moratuwa*, Katubedda, Sri Lanka.

**Dec 2012 - Jan 2017**  **Senior Lecturer – Grade II**, *Dept. of Computer Science and Engineering, University of Moratuwa*, Katubedda, Sri Lanka.

**Jan 2007 - Dec. 2012**  **Graduate Research Assistant**, *Computer Networking Research Laboratory, Dept. of Electrical and Computer Engineering, Colorado State University*, Fort Collins, CO, USA.

**Fall 2007 - Spr. 2009**  **Graduate Teaching Assistant**, *Dept. of Electrical and Computer Engineering, Colorado State University*, Fort Collins, CO, USA.

**May 2005 - Dec 2012**  **Lecturer (Probationary)**, *Dept. of Computer Science and Engineering, University of Moratuwa*, Katubedda, Sri Lanka.

**Apr 2005 - Dec 2004**  **Temporary Lecturer**, *Dept. of Computer Science and Engineering, University of Moratuwa*, Katubedda, Sri Lanka.

## Industry Positions

Sep 2014 - **Senior Consultant**, *TechCERT*, Sri Lanka.
Feb 2019

Oct 2017 - **Consultant**, *99X Technology (Pvt) Ltd.*, Sri Lanka.
Jan 2019

Aug 2016 - **Co-Founder/Director**, *VaticHub (Pvt) Ltd.*, Sri Lanka.
July 2018

## Visiting Positions

Apr 2013 - **Lecturer (Visiting)**, *Faculty of Applied Sciences, Rajarata University of Sri Lanka*, Mihin-
Dec 2016 tale, Sri Lanka.

Feb 2014 - **Lecturer (Visiting)**, *Pioneer Institute of Business and Technology*, Colombo, Sri Lanka,
Apr 2014 University of Greenwich, UK affiliated institute.

Apr 2013 - **Lecturer (Visiting)**, *Northshore College of Business and Technology*, Colombo, Sri Lanka,
Aug 2014 University of the West of England (UWE), Bristol, UK affiliated institute.

2006 **Lecturer (Visiting)**, *Naval Artificer Training Institute, Sri Lanka Navy*, Sri Lanka.

Aug 2004 - **Vising Instructor**, *Dept. of Computer Science and Engineering, University of Moratuwa*,
Dec 2014 Katubedda, Sri Lanka.

## Research Interests

My research interests are in the areas of Distributed Systems (Cloud, Blockchain, and P2P), IoT, Data Engineering, Security, and Software Architecture. I am particularly interested in multi-disciplinary applications of those technologies in the supply chain, fleet management, weather monitoring, and smart cities domains.

## Publications

Journals

1. S. Nanayakkara, S. Perera, S. Senaratne, G.T. Weerasuriya, and H.M.N.D. Bandara, "Blockchain and Smart Contracts: A Solution for Payment Issues in Construction Supply Chains," Informatics 8, no. 2: 36. 2021, doi: 10.3390/informatics8020036.
2. H. Paik, X. Xu, H.M.N.D. Bandara, S.U. Lee, and S.K. Lo, "Analysis of Data Management in Blockchain-based Systems: From Architecture to Governance," IEEE Access, Vol. 7, pp. 186091-186107, 2019, doi: 10.1109/ACCESS.2019.2961404.
3. R.N. Navagamuwa, K.J.P.G. Perera, M.R.M.J. Sally, L.A.V.N. Prashan, and H.M.N.D. Bandara, "Automated Query Generation for Complex Event Processing: A Shapelets, Parallel Coordinates, and Clustering Based Approach," Int. Journal of Computing and Digital Systems (IJCDS), vol. 6, no. 4, July 2017.
4. M. Amarasinghe, S. Muramudalige, S. Kottegoda, A.L. Arachchi, and H.M.N.D. Bandara, "Cloud-Based Driver Monitoring and Vehicle Diagnostic with OBD2 Telematics," Int. Journal of Handheld Computing Research (IJHCR), vol. 6, no. 4, 2015.
5. H.M.N.D. Bandara and A.P. Jayasumana, "P2P-Based, Multi-Attribute Resource Discovery Under Real-World Resources and Queries," ACM Transactions on Internet Technology, vol. 15, no. 1, 2015.
6. H.M.N.D. Bandara and A.P. Jayasumana, "Resource and Query Aware, Multi-Attribute Resource Discovery for P2P Systems," Int. Journal of Computing and Network Technology, vol. 2, no. 2, 2014, pp. 47-57.

7. H.M.N.D. Bandara and A.P. Jayasumana, "Distributed, Multi-User, Multi-Application, and Multi-Sensor Data Fusion Over Named Data Networks," Computer Networks, 2013.

8. H.M.N.D. Bandara and A.P. Jayasumana, "Community-Based Caching for Enhanced Lookup Performance in P2P Systems," IEEE Transactions on Parallel and Distributed Systems, vol. 24, no. 9, Sep. 2013.

9. H.M.N.D. Bandara and A.P. Jayasumana, "Collaborative Applications over Peer-to-Peer Systems – Challenges and Solutions," Peer-to-Peer Networking and Applications, Springer, vol. 6, no. 3, 2012, pp. 257-276.

10. P. Lee, A.P. Jayasumana, H.M.N.D. Bandara, S. Lim, and V. Chandrasekar, "A Peer-to-Peer Collaboration Framework for Multi-Sensor Data Fusion," Journal of Network and Computer Applications, vol. 35, no. 2, May 2012, pp. 1052-1066.

11. H.M.N.D. Bandara, A.P. Jayasumana, and Tissa H. Illangasekare, "A Top-Down Clustering and Cluster-Tree Based Routing Scheme for Wireless Sensor Networks," Int. Journal of Distributed Sensor Networks, vol. 2011.

Conferences (selected)

1. R. Hobeck, C. Klinkmüller, H.M.N.D. Bandara, I. Weber, and W.V. Aalst, "Process Mining on Blockchain Data: A Case Study of Augur," in Proc. 19th Business Process Management Conf. (BPM 2021), Sep. 2021, Rome, Italy, Accepted.

2. Q. Lu, X. Xu, H.M.N.D. Bandara, S. Chen, and L. Zhu, "Design Patterns for Blockchain-Based Payment Applications," European Conf. on Pattern Languages of Programs 2021 (EuroPLoP 2021), July 2021, Accepted.

3. X. Xu, H.M.N.D. Bandara, Q. Lu, I. Weber, L. Bass, and L. Zhu, "A Decision Model for Choosing Patterns in Blockchain-Based Applications," in Proc. 18th IEEE Int. Conf. on Software Architecture (ICSA 2021), Mar. 2021, Stuttgart, Germany.

4. P.L.M.K. Bandara, H.M.N.D. Bandara, and S. Fernando, "Evaluation of Re-identification Risks in Data Anonymization Techniques Based on Population Uniqueness," in Proc. 5th Int. Conf. on Information Technology Research (ICITR 2020), Dec. 2020, Sri Lanka.

5. A.M.H. Adikari, H.M.N.D. Bandara, S. Herath, and C. Chitraranjan, "An Automated Decision-Making Framework for Precipitation-Related Workflows," in Proc. 5th Int. Conf. on Information Technology Research (ICITR 2020), Dec. 2020, Sri Lanka.

6. X. Xu, H.M.N.D. Bandara, Q. Lu, D. Zhang, and L. Zhu, "Understanding and Handling Blockchain Uncertainties," in Proc. 2020 Int. Conf. on Blockchain (ICBC 2020), Aug. 2020, Honolulu, Hawaii.

7. H.M.N.D. Bandara, X. Xu, and I. Weber, "Patterns for Blockchain Data Migration," European Conf. on Pattern Languages of Programs 2020 (EuroPLoP 2020), July 2020, Virtual Event, Germany.

8. P.D.I. Perera, S.P.T. Hettige, H.A.W. Abeygunawardhana, S.A.P. Jayatilake, and H.M.N.D. Bandara, "Blockchain-Based Product Traceability Beyond Proof of Existence," in Proc. 6th Moratuwa Engineering Research Conf. (MERCon 2020), Sri Lanka, July 2020.

9. G. Karunarathne, H.M.N.D. Bandara, and S. Herath, "WDIAS: A Microservices-Based Weather Data Integration and Assimilation System," in Proc. 6th Moratuwa Engineering Research Conf. (MERCon 2020), Sri Lanka, July 2020.

10. A.L. Samarakkody, U. Kulatunga, and H.M.N.D. Bandara, "A Systematic Review of Performance Measurement Models for Smart Cities," in Proc. 10th Annual Int. Conf. on Industrial Engineering and Operations Management, Dubai, UAE, March 2020.

11. K.V.J. Padmini, G.I.U.S. Perera, H.M.N.D. Bandara, and R.K.O.H. Silva, "A Decision Support Tool to Select Candidate Business Processes in Robotic Process Automation (RPA): An Empirical Study," in Proc. 3rd SLAAI - Int. Conf. on Artificial Intelligence, Sri Lanka, Dec. 2019.

12. S. Nanayakkara, S. Perera, H.M.N.D. Bandara, G.T. Weerasuriya, and J. Ayoub, "Blockchain Technology and its Potential for the Construction Industry," 43rd Annual Australasian University Building Educators Association (AUBEA 2019) Conf., Noosa, Australia, Nov. 2019.

13. A.L. Samarakkody, U. Kulatunga, and H.M.N.D. Bandara, "What Differentiate a Smart City? A Comparison with a Basic City," The 8th World Construction Symposium (WCS 2019), Sri Lanka, Nov. 2019.

14. T. Ariyarathna, P. Harankahadeniya, S. Isthikar, N. Pathirana, H.M.N.D. Bandara, and A. Madanayake, "Dynamic Spectrum Access via Smart Contracts on Blockchain," in Proc. EEE Wireless Communications and Networking Conf. (WCNC '19), Marrakech, Morocco, Apr. 2019.

15. M.W.P Maduranga, P. Saengudomlert, and H.M.N.D. Bandara, "Redundant Node Management in Wireless Sensor Networks with Multiple Sensor Types," in Proc. National IT Conf. (NITC 2018), Sri Lanka, Oct. 2018.

16. B.D. Hettiarachchi, H.M.N.D. Bandara, and N.A. Samarasekera, "Automated Multi-Plant Scheduling of Ready-Mixed Concrete Trucks," in Proc. 2018 IEEE Int. Conf. on Service Operations and Logistics, and Informatics (SOLI 2018), Singapore, July/Aug. 2018.

17. N.A.C.M. Keerthisinghe, H.M.N.D Bandara, and N.A. Samarasekera, "Optimization of Truck and Driver Scheduling Using Simulated Annealing," in Proc. 2018 IEEE Int. Conf. on Service Operations and Logistics, and Informatics (SOLI 2018), Singapore, July/Aug. 2018.

18. K.V.J. Padmini, P.S. Kankanamge, H.M.N.D. Bandara, and G.I.U.S Perera, "Challenges Faced by Agile Testers: A Case Study," in Proc. 4th Moratuwa Engineering Research Conf. (MERCon 2018), Sri Lanka, May 2018.

19. W.M.D.R. Prasad, G.I.U.S Perera, K.V.J. Padmini, and H.M.N.D. Bandara, "Design Thinking Practices to Satisfy Customer Expectations in Agile Practices," in Proc. 4th Moratuwa Engineering Research Conf. (MERCon 2018), Sri Lanka, May 2018.

20. B. Nirmali, S. Wickramasinghe, T. Munasinghe, C.R.J. Amalraj, and H.M.N.D. Bandara, "Vehicular Data Acquisition and Analytics System for Real-Time Driver Behavior Monitoring and Anomaly Detection," in Proc. 12th IEEE Int. Conf. on Industrial and Information Systems (ICIIS), Sri Lanka, Dec. 2017.

21. S.R. Muramudalige and H.M.N.D. Bandara, "Automated Driver Scheduling for Vehicle Delivery," Kováčiková T., Buzna Ľ., Pourhashem G., Lugano G., Cornet Y., Lugano N. (eds) Intelligent Transport Systems – From Research and Development to the Market Uptake (INTSYS 2017), Lecture Notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering, vol 222, pp. 215-225, Nov. 2017, Springer, Cham.

22. T. Piyadasun, B. Kalansuriya, M. Gangananda, M. Malshan, and H.M.N.D. Bandara, "Rationalizing Police Patrol Beats Using Heuristic-Based Clustering," in Proc. 3rd Moratuwa Engineering Research Conf. (MERCon 2017), Sri Lanka, May 2017.

23. R.N. Navagamuwa, K.J.P.G. Perera, M.R.M.J. Sally, L.A.V.N. Prashan, and H.M.N.D. Bandara, "Shapelets and Parallel Coordinates Based Automated Query Generation for Complex Event Processing," in Proc. IEEE Smart Data, China, Dec. 2016.

24. R.S. Shariffdeen, D.T.S.P. Munasinghe, H.S. Bhathiya, U.K.J.U. Bandara, and H.M.N.D. Bandara, "Workload and Resource Aware Proactive Auto-Scaler for PaaS Cloud," in Proc. 9th IEEE Int. Conf. on Cloud Computing, San Francisco, USA, June/July 2016.

25. L. Logeswaran, H.M.N.D. Bandara, and H.S. Bhathiya, "Performance, Resource, and Cost Aware Resource Provisioning in the Cloud," in Proc. 9th IEEE Int. Conf. on Cloud Computing, San Francisco, USA, June/July 2016.

26. R.S. Shariffdeen, D.T.S.P. Munasinghe, H.S. Bhathiya, U.K.J.U. Bandara, and H.M.N.D. Bandara, "Adaptive Workload Prediction for Proactive Auto Scaling in PaaS Systems," in Proc. 2nd Int. Conf. on Cloud Computing Technologies and Applications (CloudTech '16), Marrakesh, Morocco, May 2016.

27. H.M.C. Chandrathilake, H.T.S. Hewawitharana, R.S. Jayawardana, A.D.D. Viduranga, H.M.N.D. Bandara, S. Marru, and S. Perera, "Reducing Computational Time of Closed-Loop Weather Monitoring: A Complex Event Processing and Machine Learning Based Approach," in Proc. 2nd Moratuwa Engineering Research Conf. (MERCon 2016), Sri Lanka, Apr. 2016.

28. S. Wickramanayake and H.M.N.D. Bandara, "Fuel Consumption Prediction of Fleet Vehicles Using Machine Leaning: A Comparative Study," in Proc. 2nd Moratuwa Engineering Research Conf. (MERCon 2016), Sri Lanka, Apr. 2016.

29. K.V.J. Padmini, I. Perera, and H.M.N.D. Bandara, "Applying Agile Practices to Avoid Chaos in User Acceptance Testing: A Case Study," in Proc. 2nd Moratuwa Engineering Research Conf. (MERCon 2016), Sri Lanka, Apr. 2016.

30. P.S. Rodrigo, H.M.N.D. Bandara, and S. Perera, "Accelerating Complex Event Processing through GPUs," in Proc. 22nd IEEE Int. Conf. on High Performance Computing (HiPC 2015), India, Dec. 2015.

31. M. Amarasinghe, S. Kottegoda, A.L. Arachchi, S. Muramudalige, H.M.N.D. Bandara, and A. Azeez, "Cloud-Based Driver Monitoring and Vehicle Diagnostic with OBD2 Telematics," in Proc. 15th Int. Conf. on Advances in ICT for Emerging Regions (ICTer), Sri Lanka, Aug. 2015.

32. D. Jayasekara, M. Infaz, V. Money, S. Hashan, and H.M.N.D. Bandara, "A Resource and Policy Aware VM Scheduler for Medium-Scale Clouds," in Proc. Int. Conf. on Advances in ICT for Emerging Regions (ICTer), Sri Lanka, Aug. 2015.

33. K.V.J. Padmini, H.M.N.D. Bandara, and I. Perera, "Use of Software Metrics in Agile Software Development Process," in Proc. Moratuwa Engineering Research Conf. (MERCon 2015), Sri Lanka, Apr. 2015.

34. S. Nakandala, S.D. Withana, D. Kumarasiri, H. Jayawardena, H.M.N.D. Bandara, S. Perera, S. Marru, and S. Pamidighantam, "Schema Independent Scientific Data Cataloging Framework," in Proc. Moratuwa Engineering Research Conf. (MERCon 2015), Sri Lanka, Apr. 2015.

35. H.M.N.D. Bandara, A.P. Jayasumana, and M. Zink, "Radar Networking in Collaborative Adaptive Sensing of Atmosphere: State of the Art and Research Challenges," in Proc. IEEE Globecom workshop on Radar and Sonar Networks, Anaheim, CA, USA, Dec. 2012.

36. H.M.N.D. Bandara and A.P. Jayasumana, "Resource and Query Aware, Peer-to-Peer-Based Multi-Attribute Resource Discovery," in Proc. 37th IEEE Conf. on Local Computer Networks (LCN '12), Clearwater, FL, USA, Oct. 2012.

37. H.M.N.D. Bandara and A.P. Jayasumana, "Evaluation of P2P Resource Discovery Architectures Using Real-Life Multi-Attribute Resource and Query Characteristics," in Proc. IEEE Consumer Communications and Networking Conf. (CCNC '12), Las Vegas, USA, Jan. 2012.

38. H.M.N.D. Bandara and A.P. Jayasumana, "On Characteristics and Modeling of P2P Resources with Correlated Static and Dynamic Attributes," in Proc. IEEE GLOBECOM '11, Houston, USA, Dec. 2011.

39. H.M.N.D. Bandara and A.P. Jayasumana, "Exploiting Communities for Enhancing Lookup Performance in Structured P2P Systems," in Proc. IEEE Int. Conf. on Communications (ICC '11), Kyoto, Japan, June 2011.

40. H.M.N.D. Bandara, A.P. Jayasumana, and T.H. Illangasekare, "Cluster Tree Based Self Organization of Virtual Sensor Networks," in Proc. IEEE Globecom Workshop on Wireless Mesh and Sensor Networks: Paving the Way to the Future or yet Another?, New Orleans, Nov. 2008.

41. H.M.N.D. Bandara, A.P. Jayasumana, and I. Ray, "Key Pre-Distribution Based Secure Backbone Design for Wireless Sensor Networks," in Proc. 3rd IEEE Int. Workshop on Practical Issues in Building Sensor Network Applications (SenseApp), Montreal, Canada, Oct. 2008, pp. 786-793.

42. H.M.N.D. Bandara and A.P. Jayasumana, "An Enhanced Top-Down Cluster and Cluster Tree Formation Algorithm for Wireless Sensor Networks," in Proc. 2nd Int. Conf. on Industrial and Information Systems (ICIIS 2007), Peradeniya, Sri Lanka, Aug. 2007, pp. 565-570 (invited paper).

43. H.M.N.D. Bandara, S.M.R.P. De Silva, and P.W.H.D. Weerasinghe, "The Universal Biometric System," 6th Int. Information Technology Conf. (IITC '04), Sri Lanka, Nov. 2004.


Talks
1. "Smart Contract Testing," Colombo Blockchain Summit 2020, Dec 19, 2020.
2. "What's Not a (Public) Cloud," Cloud Infrastructure Meetup, Sri Lanka, Oct. 18, 2018.
3. "Blockchain – A Catalyst for Solving Age-Old Distributed Systems Problems," Colombo Blockchain Dev Meetup, Sri Lanka, Sep. 4, 2018.
4. "Use of Technology in Toll Collection and Management," Transport Research Forum 2018, Sri Lanka, Aug 3, 2018.
5. "Big data, Security, or Privacy in IoT: Choice is Yours," Mobitel NB-IoT Forum, Sri Lanka, Mar 23, 2018.
6. "IoT and Big Data for Smart Transportation Systems," Manufacturing & Industrial Engineering Symposium, Sri Lanka, Oct. 2016.
7. "Vehicular Data Analytics for Smart Driving," Int. Symposium on Applied Analytics for a Smart Society, Sri Lanka, Sep. 2016.
8. "Data-Driven Education, Research, and Trade Using the Cloud," Seychelles and Sri Lanka: Investment and Education – 2016, University of Seychelles, Seychelles, July 2016.
9. "Globally Distributed Datacenters: A Collaborative Peer-to-Peer Approach," 2nd Annual Front Range High Performance Computing Symposium, USA, Aug. 2012.
10. "Collaborative P2P Systems for Distributed Data Fusion and Beyond," CS Graduate Student Research Symposium, Colorado State University, USA, Apr. 2010.


11. "An application-aware overlay network architecture," Front Range Architecture, Compilers, Tools, and Languages Workshop (FRACTAL '09), Colorado State University, USA, Apr. 2009.

## Teaching

**Graduate Teaching** — **University of Moratuwa, Sri Lanka**.
- CS5102 IT Policy and Planning (2018)
- CS5122 Descriptive and Predictive Analytics (2015 - 2018)
- CS5242 Software Development on Cloud Platforms (2016 - 2018)
- CS5429 Distributed Computing (2016 - 2018)
- CS5440 Wireless Access Networks (2014 - 2018)
- CS5442 Pervasive Computing (2015 – 2018). Team-taught with Dr. Malaka Walpola
- CS5192 Skills for Research Project (2015 - 2017)
- CS5406 Performance Engineering of Computer Systems (2014 - 2017). Team-taught with Prof. Sanath Jayasena
- CS5312 High Performance Computer Architecture (2017)
- CS5214 Principles of Operating Systems (2015 - 2016)
- CS5202 Advanced Operating Systems (2013 - 2015). Team-taught with Ms. Vishaka Nanayakkara
- CS5225 Parallel and Concurrent Programming (2013 - 2015). Team-taught with Dr. Srinath Perera (2013) of WSO2 Inc.
- CS5114 E-Commerce: Principles and Infrastructure (2013 - 2014)
- CS5901 Research Seminar (2014)
- CS5452 Wireless Networks (2013)
- CS5701 Advanced Algorithms (2013). Team-taught with Dr. Malaka Walpola
- IT556 Operating Systems (PG Diploma for School Teachers) (2006)

**Pioneer Institute of Business & Technology, Sri Lanka**.
- COMP1617 Network Architectures and Services
- COMP1426 Network Management

**Colorado State University, USA**.
- ECE658 Internet Engineering (Spring 2009-2011) – Teaching Assistant and substitute for classes

**Undergraduate Teaching** — **University of Moratuwa, Sri Lanka**.
- CS2052 Computer Architecture (2014 - 2018)
- CS3032 Computer Networks (2013 - 2018) Team-taught with Dr. Shantha Fernando
- CS4262 Distributed Systems (2013 - 2018)
- CS4342 Advanced Computer Architecture (2013 - 2018)
- CS4532 Concurrent Programming (2013 - 2018). Team-taught with Dr. Srinath Perera (2012-2013), Mr. Samisa Abeysinghe (2014), Dr. Malith Jayasinghe (2016), and Dr. Chathura Ekayake (2018) of WSO2 Inc.
- CS4492 Wireless and Broadband Networking (2013 - 2017)

**University of Moratuwa, Sri Lanka (Cont.)**.
- CS4482 High Performance Networking (2013)
- CS101 Computer Systems (2005-2006). Team-taught with Dr. Chathura De Silva and Dr. Gihan Dias
- CS102 Introduction to Programming (2006). Team-taught with Dr. Sanath Jayasena and Mr. Samantha Senaratna
- CS204 Operating Systems (2006)
- EN196 Skill Development (2006). Team-taught with Mr. Samantha Senaratna
- EN202 Computer Organization (2005-2006). Team-taught with Mr. Kithsiri Samarasinghe
- CS405 Computer Security (2006) – Teaching Assistant
- CS303 Computer Networks (2005). Team-taught with Mr. Shantha Fernando
- CS445 Internetworking (2005) – Teaching Assistant

**Rajarata University of Sri Lanka**.
- ICT 4407/4405 Parallel and Cluster Computing at Rajarata (2013 - 2016)

**Northshore College of Business and Technology, Sri Lanka**.
- UFCE9A-20-2 Human-Computer Interaction (2013-2014)
- UFCEHX-20-2 Computer Networks and O/S (2014)
- UFMETU-20-1 Digital Systems Development (2013)

**Colorado State University, USA**.
- ECE102 Digital Circuit Logic (Fall 2007, 2009-2010, and Fall 2012) – Teaching Assistant and substitute for classes

Vocational Teaching **Naval Artificer Training Institute (NATI), Sri Lanka Navy**.
- DCS201 Computer Science (2006)
- DEN202 Microprocessor Systems (2006)

## Grants, Awards, and Scholarships

Grants **Metro Colombo Urban Development Project**, *Ministry of Megapolis and Western Development, Sri Lanka (Funding agency – World Bank)*, 2017/2018, Title: Real-Time Control Centre Data Integration and Forecasting.

**Senate Research Grant**, *University of Moratuwa, Sri Lanka*, 2018/2019, Title: Data Integration Platform for Smart Cities.

**Senate Research Grant**, *University of Moratuwa, Sri Lanka*, 2016/2017, Title: Descriptive and Predictive Data Analytics Platform for Vehicular Sensor Data.

**Senate Research Grant**, *University of Moratuwa, Sri Lanka*, 2014/2015, Title: Distributed, Infrastructure as a Service Cloud Computing Platform for High Performance Computing Requirements of the Sri Lankan Scientific Community.

Awards **Award of Excellence – Outstanding Research Performances with Distinction**, *University of Moratuwa, Sri Lanka*, 2016.

**Award of Excellence – Outstanding Research Performances**, *University of Moratuwa, Sri Lanka*, 2015, 2017, 2018.

**Student Paper Award (Merit)**, *2018 IEEE Int. Conf. on Service Operations and Logistics, and Informatics (SOLI 2018), Singapore*, 2018, Title: Automated Multi-Plant Scheduling of Ready-Mixed Concrete Trucks.

**Best Poster**, *ERU Symposium 2018, University of Moratuwa, Sri Lanka*, May 2018, Title: Product Attribute Extraction Based Real-Time C2C Matching of Microblogging Messages.

**Best Poster**, *ISTec Student Research Poster Contest 2008, Colorado State University, USA*, 2008, Title: A wireless sensor network based system for underground chemical plume tracking.

**Dean's List**, *Faculty of Engineering, University of Moratuwa, Sri Lanka*, Semester 2, 4, and 8.

Scholarships **Migara Ratnatunga Trust Award for excellent performance in the Undergraduate Industrial Training Program**, *Institution of Engineers Sri Lanka*, 2004.

**Mahapola Higher Education (Merit) Scholarship**, *University Grants Commission of Sri Lanka*, 2001-2004.

**University Education Scholarship**, *Cooperative Society of Academics, Sri Lanka*, 2001-2004.

## University Service

**Coordination and Committees**
- Industrial Training and Relations Coordinator (Jan 2013 - Feb 2019)
- Course Coordinator, MBA in IT (Oct 2014 - Feb 2019)
- Member, Faculty of Graduate Studies (Jan 2018 - Feb 2019)
- Member, Faculty Higher Degrees Committee (July 2018 - Feb 2019)
- Member/Convener, Postgraduate Board of Studies (Jan 2015 - Feb 2019)
- Member, Board of Management of Industry Technical Collaboration with TechCERT (Jan 2018 - Feb 2019)
- Member, Board of Management of E-WIS-UOM Computer Product & Process Development Research Centre (Jan 2018 - Feb 2019)
- Vibhava Product Accelerator (Nov 2017 - Dec 2018)
- Member, Orientation Committee (2015 - 2017)
- Editor/Member, Engineering Research Unit (Jan 2013 - June 2015)
- Academic Coordinator – Semester 6 (2013)
- Academic Coordinator – Semester 2 (2006)
- Member, Timetable Committee (2005)
- Member, Going Digital Committee (2016)

**Curriculum Development**
- External Moderator for BSc (Hons) in IT specializing in Computer Systems and Network Engineering, Sri Lanka Institute of Information Technology (Jan 2017 - Dec 2018)
- Proposed and Developed curriculum for Business Analytics Specification, MBA in IT, University of Moratuwa, Sri Lanka (Oct 2014). Minor curriculum revision (July/Aug 2018)
- Member Subject Review Panel, Bachelor of Science in Information Technology (Networking and Mobile Computing) by Horizon College of Business and Technology (Pvt) Ltd, Ministry of Higher Education, Sri Lanka (2014 - 2016)
- Subject Specialist, CS curriculum development, Faculty of Engineering, University of Sri Jayewardenepura (Oct - Dec 2015)
- Consultant, Revision of ICT curriculum at all Faculties of the Eastern University of Sri Lanka (Aug 2014 - Mar 2015)
- Subject Specialist, CS curriculum development, Faculty of Engineering, South Eastern University of Sri Lanka (Jan - Feb 2013)

**Department Development**
- MoU for academic cooperation between the University of Seychelles, Seychelles and University of Moratuwa, Sri Lanka (Oct 2018)
- E-WIS-UOM Computer Product and Process Development Research Centre (Dec 2017)
- Industry Technical Collaboration with TechCERT (Oct 2017)
- Epic-UOM Innovation Lab (Oct 2017)
- Leapset CSE Lounge (now renamed as "Sysco Lab's CSE Lounge") (Dec 2015)

## Professional Activities

**Professional Membership**
- Charted Engineer, Institution of Engineers, Sri Lanka (IESL) (Feb 2019 - Present)
- Senior Member, Institute of Electrical and Electronics Engineers (IEEE) (Feb 2018 - Present)
- Member, Institute of Electrical and Electronics Engineers (IEEE) (Jan 2017 - Jan 2018)
- Associate Member, Institution of Engineers, Sri Lanka (IESL) (Jan 2017 - Feb 2019)

- Professional Member, Association for Computing Machinery (ACM) (2014 - 2016)
- Student Member, Institute of Electrical and Electronics Engineers (IEEE) (2007 - 2012)
- President, Student Leadership Council, NSF Engineering Research Centre for Collaborative Adaptive Sensing of the Atmosphere (CASA) (2010 - 2012)
- President, Computer Science and Engineering Society, University of Moratuwa, Sri Lanka (2005/2006)
- Vice President, Computer Science and Engineering Society, University of Moratuwa, Sri Lanka (2004/2005)

**Committees**
- Committee Member, Institute of Electrical and Electronics Engineers (IEEE), Sri Lanka Section (2018/2019)
- Member, Steering Committee for Information Technology, Colombo International Nautical and Engineering College, Sri Lanka (Sep 2016 - Feb 2019)

**PC/TPC**
- Chair, MERCon 2016 - 2018; Co-Chair, MERCon 2015, Exhibition Chair, IEEE R10 HTC 2018;
- TPC – IEEE LCN (2013 - 2017), IEEE ICC GCSN (2017), IEEE R10 HTC (2018), MERCon (2019), ICEED (2019) APACE (2019), ICCAIS (2018), SSCC (2015, 2018), SAI (2017 - 2018), ICCISN (2017), MADS (2017), WSCAR (2015 - 2016), CoCoNet (2015, 2019), IBMSGS (2015), ISCAIE (2014), ISIEA (2014), CCNC (2014), CloudCrypto (2014)

- Reviewer (Journal only) – IEEE Trans. on Parallel and Distributed Systems; ACM Trans. on Internet Technology; IEEE Trans. on Network and Service Management; IEEE Access; J. of Systems and Software; Applied Soft Computing; J. of Network and Computer Applications; J. of Distributed and Parallel Databases; Wireless Communications and Mobile Computing; Future Generation Computer Systems; The Int. J. of Technological Innovation, Entrepreneurship and Technology Management; JCM Special Issues; J. of National Science Foundation of Sri Lanka (JNSF)
- Reviewer (Grants) – National Science Foundation of Sri Lanka; National Research Council, Sri Lanka

**Consultancies**
- Expert Assistance, Department of Industry, Science, Energy and Resources, Australia (Mar 2020 - Present)
- Subcontractor for Blockchain Security Review, KPMG, Australia (Feb 2020 - Present)
- Consultant, University IT Policy, University of Moratuwa, Sri Lanka (Jan 2018 - Feb 2019)
- Member, IT Infrastructure Technical Evaluation Committee (TEC), Dept. of Registration of Persons, Sri Lanka (Apr - Dec 2018)
- Chairman, IT Systems TEC, Ministry of Education, Sri Lanka (July 2017 - Feb 2019)
- Member, Container Movement Tracking and Monitoring System TEC, Sri Lanka Customs (Nov 2016 - Feb 2019)
- Systems and Network Specialist for University Admissions Online System, University Grants Commission, Sri Lanka (Nov 2014 - Feb 2019)
- Chairman/Member, multiple TECs, University of Moratuwa, Sri Lanka (Jan 2013 - Feb 2019)
- Consultant, Non-Functional Testing of Integrated Treasury Management Information System, Ministry of Finance, Sri Lanka (May 2016 - Dec 2018)

- Chairman/Member, multiple TECs, Inland Revenue Department, Sri Lanka (Mar 2016 - Dec 2018)
- Consultant, Customer Service Representative Monitoring and Management System, Sri Lanka Insurance Corporation (Aug 2015 - Dec 2017)
- Member, Review on National Payment Platform (NPP), Information Communication Technology Agency of Sri Lanka (Aug 2017)
- Chairman, multiple TECs, Ministry of Higher Education, Sri Lanka (May 2013 - May 2014)
- Consultant, Management Information System, National Institute of Occupational Safety and Health, Sri Lanka (2017)
- Consultant, Expert Opinion on the IT Systems Maintenance and Software Application Development, Colombo International Nautical and Engineering College, Sri Lanka (Nov. 2015 - July 2016)
- Consultant, External UAT Expert for Sri Lanka Biometrics Project, International Organization for Migration, Mission to Sri Lanka (May 2015 - Mar 2016)
- Consultant, Non-Functional Testing of Revenue Administration Management Information System, Inland Revenue Department, Sri Lanka (Sep - Dec 2015)
- Consultant, Forensic Analysis of e-Mails for Authenticity, Beverley International Group, Sri Lanka/New Zealand (Sep 2015)
- ERP Technical Consultant, Cargills (Ceylon) PLC, Sri Lanka (Mar - June 2015)
- Consultant, Maternal and Newborn Care Guideline Mobile App, Family Health Bureau, Ministry of Health, Sri Lanka (Nov 2014 - Sep 2015)
- Implementation of Sarbanes-Oxley (SOX) compliance and preparation of Disaster Recovery (DR) plan, Celltel Lanka (Pvt) Ltd, Sri Lanka (Feb - May 2005)

Seminars and Workshops Conducted

- Secure Software Development, TechCERT, Sri Lanka – *Series of workshops conducted to Banks, Telcos, and Insurance companies in Sri Lanka* (2006 - 2019)
- Descriptive, Predictive, & Prescriptive Analytics, University of Moratuwa, Sri Lanka (2016)
- Decisive and Descriptive Analytics with R, University of Moratuwa, Sri Lanka (2016)
- Datacentre Service Management & Consolidation, TechCERT, Sri Lanka (July 2015)
- Moodle and e-Learning, Higher Education for the Twenty-First Century (HETC), Ministry of Higher Education, Sri Lanka – *Series of workshops conducted at the University of Colombo, University of Ruhuna, University of Peradeniya, Rajarata University of Sri Lanka, and Colombo International Nautical and Engineering College* (Feb - Dec 2014)

- Porting Applications on the Computational Grid, University of Colombo, Sri Lanka (Dec 2006)
- Grid Computing and Programming for Grid Environment, University of Colombo, Sri Lanka and Uppsala University, Sweden (Aug 2006)
- Linux Server Administration, University of Moratuwa, Sri Lanka (2006)
- Linux as Your Operating System, University of Moratuwa, Sri Lanka (2005 - 2006)
- Introduction to Networking, University of Moratuwa, Sri Lanka (2005)
- Advanced Networking, University of Moratuwa, Sri Lanka (2005)
- Teacher Training Program on Microsoft .NET, University of Moratuwa, Sri Lanka (2005)

## Training and Experience

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|---|---|
| Seminars and Workshops | **Project Management Fundamentals**, *CSIRO*, June 2021. |
| | **Comcare Initial 5-Day Health and Safety Representative Course**, *Recover*, Sep 2020. |
| | **Seminar for University Teachers from Asian Countries – China's Education System**, *Northeast Normal University, Changchun, Jilin, China*, Sponsor: China Aid, May 2014. |
| | **High Performance Computing (HPC) Architecture and Applications**, *Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy*, Sponsor: ICTP and University of Moratuwa, Oct 2013. |
| | **Grid Computing Training**, *Abdus Salam International Centre for Theoretical Physics (ICTP), Trieste, Italy.*, Sponsor: ICTP/EGRID project, June-July 2006. |
| | **Applications of Grid computing**, *University of Colombo, Sri Lanka and Uppsala University, Sweden*, Feb 2006. |
| Certifications | **WatchGuardTM certified System Professional for Firebox Systems and Server Security Expert**, 2003. |
| Internship | **Industrial Training**, *Bluechip Customer Engineering Lanka (Pvt) Ltd., Sri Lanka*, 2003. |

## Skills

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|---|---|
| Technical Expertise | Cloud, distributed, and HPC systems; Blockchain; Wireless computing; Data analytics; Vulnerability assessment and penetration testing; Secure architecture, code, and risk assessment; Application, systems, and network performance testing; Digital forensics |
| Platforms and Networking | Administrating Linux/UNIX and Windows servers, firewalls, proxies, mail, web, and directory services; MS SQL and MySQL; LAN, WAN, WLAN, WSN, and IoT; |
| Programming | Python, Node.js, C/C++, R, MATLAB, C# .NET, VB 6, VBA, PHP, JavaScript, HTML, REST, Java, Assembly, CUDA, git, system analysis & design |
| Simulators | Discrete event simulation, OMNet++, OverSim, OPNET |
| Other Skills | Curriculum Development, Project Management, Budgeting, and Event Organizing |

## Volunteer Activities

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|---|---|
| 2019 - Present | Health and Safety Coordinator, Data61, CSIRO, Australia. |
| 2014 - 2016 | Level 1 Student Personal Mentor, University of Moratuwa, Sri Lanka. |
| 2010 - 2012 | Mentor, Research Experience for Undergraduates, Colorado State University, USA |
| 2008 - 2012 | Webmaster/volunteer, Fort Collins International Centre, USA |
| 2003 - 2006 | Consultant, HorizonLanka Foundation, Mahavilachchiya, Sri Lanka |