

# VINDULA JAYAWARDANA

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Laboratory for Information and Decision Systems, Massachusetts Institute of Technology,  
77 Massachusetts Avenue, Room 32-D631, Cambridge, MA 02139

## EDUCATION

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### Massachusetts Institute of Technology

*September 2019 - Present*

Department of Electrical Engineering and Computer Science

PhD in Computer Science

GPA 5.0/5.0

Advisor: Professor Cathy Wu

### University of Moratuwa, Sri Lanka

*January 2014 - December 2017*

B.Sc Engineering (Hons) specialized in Computer Science and Engineering

First Class Honors - GPA 4.08/4.2

In Dean's Honors List in all eight consecutive semesters

### Chartered Institute of Management Accountants (CIMA)

*August 2013 - June 2014*

CIMA Dip. MA

### Royal College Colombo 07, Sri Lanka

*August 2012*

G.C.E. Advance Level Examination

Physical Science Stream - 3 Distinctions

## PUBLICATIONS

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### Journal Articles

- V. Jayawardana, D. Lakmal, N. de Silva, A. S. Perera, K. Sugathadasa, B. Ayesha, and M. Perera, "Word vector embeddings and domain specific semantic based semi-supervised ontology instance population," *The International Journal on Advances in ICT for Emerging Regions (ICTer)*, vol. 11, no. 1, 2018

### Conference Papers

- M. Mounesan, V. Jayawardana, Y. Wu, S. Samaranayake, and H. T. Vo, *Fleet management for ride-pooling with meeting points at scale: A case study in the five boroughs of new york city*, 2021. arXiv: 2105.00994 [eess.SY]
- V. Jayawardana, D. Lakmal, N. de Silva, A. S. Perera, K. Sugathadasa, and B. Ayesha, "Deriving a representative vector for ontology classes with instance word vector embeddings," in *2017 Seventh International Conference on Innovative Computing Technology (INTECH)*, Aug. 2017, pp. 79–84. DOI: 10.1109/INTECH.2017.8102426
- K. Sugathadasa, B. Ayesha, N. de Silva, A. S. Perera, V. Jayawardana, D. Lakmal, and M. Perera, "Synergistic union of word2vec and lexicon for domain specific semantic similarity," in *2017 IEEE International Conference on Industrial and Information Systems (ICIIS)*, Dec. 2017, pp. 1–6. DOI: 10.1109/ICIINFS.2017.8300343
- V. Jayawardana, D. Lakmal, N. de Silva, A. S. Perera, K. Sugathadasa, B. Ayesha, and M. Perera, "Semi-supervised instance population of an ontology using word vector embedding," in *2017 Seventeenth International Conference on Advances in ICT for Emerging Regions (ICTer)*, Sep. 2017, pp. 1–7. DOI: 10.1109/ICTER.2017.8257822

- K. Sugathadasa, B. Ayesha, N. de Silva, A. S. Perera, V. Jayawardana, D. Lakmal, and M. Perera, “Legal document retrieval using document vector embeddings and deep learning,” in *Proceedings of the 2018 Computing Conference*, vol. 2, 2019, pp. 160–175. DOI: 10.1007/978-3-030-01177-2\_12
- K. Sugathadasa, V. Jayawardana, B. Ayesha, N. de Silva, A. S. Perera, D. Lakmal, and M. Perera, “Machine learning based domain specific information retrieval accuracy measuring system for legal domain,” in *2019 IEEE International Conference on Industrial and Information Systems (ICIIS)*, 2019, to appear.

## Articles

- V. Jayawardana, “System For Cross Domain Identity Management (SCIM),” *WSO2 Digital Library*, Oct. 2017. [Online]. Available: <http://bit.ly/wso2scim>

## RESEARCH EXPERIENCE

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**Massachusetts Institute of Technology** September 2019 - Present  
*Laboratory for Information and Decision Systems* *PhD Student*

- Advisors : Prof. Cathy Wu
- Pursuing a Ph.D. focusing on Explainable Reinforcement Learning (XRL) and Deployable Reinforcement Learning with applications into Intelligent Transportation Systems.

**University of Moratuwa, Sri Lanka** January 2018 - July 2019  
*Data Science, Engineering and Analytics Research Hub(DataSEARCH)* *Research Assistant*

- Advisors : Prof. Samitha Samaranyake, Dr. Shehan Perera and Dr. Uthayasanker Thayasivam
- Conducted experiments to evaluate the impact and effectiveness of on-demand high capacity ride sharing in Sri Lanka.

**Cornell University, USA** June 2018 - August 2018  
*Mobility, Algorithms, and Society Lab (MAASLab)* *Summer Intern*

- Advisor : Prof. Samitha Samaranyake
- Designed and developed a novel and tractable integer programming-based algorithm for ride-pooling with meeting points (RPMP) problem.
- Quantified the gains of anytime optimal algorithms for RPMP in comparison to the state of the art heuristic algorithms.

**University of Moratuwa, Sri Lanka** January 2017 - December 2017  
*Department of Computer Science and Engineering* *Undergraduate*

- Advisors : Dr. Shehan Perera and Mr. Nisansa de Silva
- Developed an ontology-based information extraction framework for legal professionals.

## PROFESSIONAL EXPERIENCE

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**Digital Mobility Solutions Lanka Pvt Ltd** January 2018 - July 2019  
*PickMe Engineering* *Consultant Research Engineer*

- Optimized the routing and booking engine by passenger and taxi pooling.
- Developed routing algorithms which can accommodate multiple delivery requests per delivery person in PickMe Food delivery.

**Trancite24 Pvt Ltd** January 2016 - July 2019  
*University of Moratuwa affiliated private company* *Co-founder and CTO*

- Designed location-based sensing and navigation solutions to improve the standards of the transportation industry in Sri Lanka.

- Designed software systems for monitoring and management of environmental quality both indoor and outdoor.

**WSO2 Lanka Pvt Ltd**  
*Identity Server Team*

July 2016 - December 2016  
*Software Engineering Intern*

- Mentor : Mr. Prabath Siriwardena
- Implemented SCIM 2.0 Support for WSO2 Identity Server.
- Implemented WSO2 Charon - SCIM 2.0 open source library of WSO2.

## TEACHING

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### Instructor

CS2022 - Data Structures and Algorithms *UoM Spring 2019*

### Teaching Assistant

1.200 - Transport Systems Analysis *MIT Fall 2020*  
 1.041 - Transportation Systems Modeling *MIT Fall 2019*  
 CS3042 - Database Systems *UoM Fall 2018*  
 CS2052 - Computer Architecture *UoM Fall 2018*  
 CS4052 - Professional Practice *UoM Fall 2018*  
 CS2062 - Object Oriented Software Development *UoM Spring 2018*  
 CS3962 - Research and Report Writing *UoM Spring 2018*  
 CS2963 - Presentation Skills *UoM Fall 2017*

## AWARDS AND HONORS

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**Migara Ranathunga Trust Award** *2017/2018*

- For Industrial Training for University Undergraduates

**Gold Award** at National Best Quality ICT Awards *2017*

- Best ICT student technology project of the year in Sri Lanka

**Academic Excellence Award 2017** *2017*

- Department of Computer Science & Engineering, University of Moratuwa

**Academic Excellence Award 2016** *2016*

- Department of Computer Science & Engineering, University of Moratuwa

**World Finalist** in NASA International Space Apps *June 2017*

- Within best 5 products in the world with the most potential to improve life on earth or in the universe out of 25,140 participants in 69 countries.

**World Finalist** in Air Asia Airvolutaion *March 2017*

- Within top 20 products in the world. Organized by Air Asia in Malaysia.

**Google Summer of Code** *2017*

- Designed and implemented a SCIM 2.0 Compliance Test Suite according to IETF specifications as a Google Summer of Code 2017 participant.

**University Awards** *2017*

- Earned a special recognition for outstanding non-academic performance.

**University Awards** *2016*

- Earned a special recognition for outstanding non-academic performance.

**Winner** in Google, I/O Extended Sri Lanka

*2016*

**Silver Medalist** in Junior Science Olympiad Competition, Sri Lanka

*2010*

## ACTIVITIES AND SKILLS

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**Sri Lankan Students' Association at MIT**

*October 2019 - Present*

– President 2019/2021

**Rotaract Club of Alumni of University of Moratuwa**

*March 2017 - July 2019*

– Director Professional Development 2018/2019

– Director Information Technology 2017/2018

**Old Royalists Engineering Professionals' Association Student Chapter** *April 2015 - April 2018*

– Assistant Secretary 2017/2018

– Director School Projects 2016/2017

– Mentoring Program 2015 - Project Chairperson

**Rotaract Club of University of Moratuwa**

*March 2014 - December 2016*

– Project Chairperson and Event Coordinator

## PERSONAL INFORMATION

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**Full Name** : Vindula Muthushan Jayawardana

**Citizenship** : Sri Lankan