

PERSONAL  
INFORMATION

**Janakax Brahmanage**

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RESEARCH  
INTERESTS

Safe Reinforcement Learning, Imitation Learning, Alternative Transformer Architectures, Constraint Satisfaction and Optimization, Functional Programming, Category Theory

EDUCATION

**School of Computing and Information Systems,  
Singapore Management University**, Singapore.

*Aug, 2022 - Present*

*PhD Candidate*

- Supervisor: Prof. Akshat Kumar
- Research Topic: Constrained Reinforcement Learning, Imitation Learning

**University of Moratuwa**, Sri Lanka.

*Jan, 2014 - Jan, 2018*

*B.Sc. Eng (Hons.) in Computer Science & Engineering*

- Class: First Class
- Cumulative GPA: **3.99/4.2**
- Rank: **17<sup>th</sup>** (out of 125 Computer Science & Engineering graduates)
- Electives: Theory of Computing, Programming Languages, Intelligent Systems, Image Processing, Formal Methods in Software Engineering, Digital Photography, Advanced Algorithms, Concurrent Programming, Machine Learning, Data Mining & Information Retrieval, Distributed Systems, Compiler Design, Bioinformatics

**Royal College**, Colombo, Sri Lanka.

*Jun, 2004 - Aug, 2012*

*General Certificate of Education Advanced Level in Physical Science stream (University Entrance)*

- Rank: **42<sup>nd</sup>** (out of ~40,000)
- Rank: **5<sup>th</sup>** in Colombo district

*General Certificate of Education Ordinary Level (Junior High School)*

- Passed with High Distinctions 8 subjects (8 'A' s and 1 'B')

EXPERIENCE

**School of Computing and Information Systems**

**Singapore Management University**, 81 Victoria Street, Singapore.

*Nov, 2020 - July, 2022*

*Research Engineer*

Develop algorithms for bus frequency optimization and perform data mining on Singapore's public transportation system.

**Stack Technologies (Pvt) Ltd.**, 187 Ward Pl, Colombo 01, Sri Lanka.

*Oct, 2019 - Nov, 2020*

*Co-founder / Software Engineer*

Responsible for software design, development, and leading the development team.

**Hybriteq Solutions (Pvt) Ltd.**, 430/5, Thalahena, Malambe, Sri Lanka.

*Aug, 2018 - Oct, 2019*

*Co-founder / Software Engineer*

Responsible for software design, development, and leading the development team.

**WSO2 Inc.**, 20 Palm Grove, Colombo, Sri Lanka.

*Aug-Dec, 2016*

*Engineering Intern*

Successfully completed a software engineering internship of six months.

## PUBLICATIONS

- Full Papers** Pham, Q. A., **Brahmanage, J. C.**, Mai, T. A.,<sup>a</sup> & Kumar, A. (2025, October 29). IOSTOM: Offline Imitation Learning from Observations via State Transition Occupancy Matching. The Thirty-ninth Annual Conference on Neural Information Processing Systems (NeurIPS-2025). (**Accepted**)
- 2025, Pham, A.Q., **Brahmanage, J. C.**, Kumar, A. ShipNaviSim: Data-Driven Simulation for Real-World Maritime Navigation. The Twenty-Forth International Conference on Autonomous Agents and Multiagent Systems (AAMAS-2025). [\[pdf\]](#)
- 2025, **Brahmanage, J. C.**, Ling, J., & Kumar, A. Leveraging Constraint Violation Signals For Action Constrained Reinforcement Learning. The Thirty-ninth Annual AAAI Conference on Artificial Intelligence(AAAI-2025). (**Oral**) [\[link\]](#)
- 2023, **Brahmanage, J. C.**, Ling, J., & Kumar, A. FlowPG: Action-constrained Policy Gradient with Normalizing Flows. Thirty-seventh Conference on Neural Information Processing Systems(NeurIPS-2023). [\[pdf\]](#)
- 2022, **Brahmanage, J.**, Kandappu, T., & Zheng, B. (2022). A data-driven approach for scheduling bus services subject to demand constraints. IEEE Transactions on Knowledge and Data Engineering (TKDE) [\[pdf\]](#)
- 2018, **Brahmanage, J.**, Ediriweera, S., Hasantha, R., Munasinghe, P., & Ranathunga, S. (2018). Annotating opinions and opinion targets in student course feedback. Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC-2018). [\[pdf\]](#)
- 2017, **Brahmanage, J.**, Ediriweera, S., Munasinghe, P., Hasantha, R., & Ranathunga, S. (2017). Opinion target extraction for student course feedback. Proceedings of the 29th Conference on Computational Linguistics and Speech Processing (ROCLING-2017), 295–307. [\[pdf\]](#)

## Demo Papers

- 2023, **Brahmanage, J.**, Kandappu, T., & Zheng, B. (2023). MetroWatch: A predictive system to estimate travel attributes using smart card data. 2023 IEEE 39th International Conference on Data Engineering (ICDE-2023), 3607–3610. [\[link\]](#)

## PROJECTS

- Budget Conditioned Action Pruning** (*Research Project*) 2023/24  
*Singapore Management University*  
 Proposed pruning based on the remaining budget during Q-value learning for safe offline RL tasks.
- GFlow-RL** (*Research Project*) 2023/24  
*Singapore Management University*  
 Proposed the use of Generative Flow Networks to approximate Q-value distributions in high-dimensional action spaces for reinforcement learning.
- Action Constrained RL with Normalizing Flows** (*Research Project*) 2020/21  
*Singapore Management University*  
 Proposed an algorithm that can utilize generative models to safely explore state space in Reinforcement Learning.
- Travel time inference of MRT network** (*Research Project*) 2020/21  
*Singapore Management University*  
 Developed a solution to infer the travel time statistically within the MRT network using Automatic Fare Collection(AFC) data.
- Automatic Summarization of Student Feedback** (*Final Year Thesis Project*) 2017/18

*University of Moratuwa.*

Developed a methodology to summarize general text feedback. We developed a simple annotation scheme, a corpus, and a methodology to perform general feedback summarization.

### **MongoDB Support for Apache Tajo**

*2016*

Google Summer of Code 2016 Contributor The project is to add a MongoDB storage plugin to tajo-storage.

#### **HONORS AND AWARDS**

- Presidential Doctoral Fellowship - AY2025/26
- School of Computing and Information Systems, Singapore Management University.
- Presidential Doctoral Fellowship - AY2024/25
- School of Computing and Information Systems, Singapore Management University.
- NASA International Space Apps 2018
  - World Finalist (best five teams in the world) representing Sri Lanka.
  - Out of 25000+ participants
- Mora Ventures 2.0 (2017)
  - Winner.
  - Our product 'Smart Bat' became 1st out of 50 startups from University of Moratuwa
- Hack The North 2017, Canada
  - World Finalist - Out of 72 countries
- IEEEExtreme Programming Competition 9.0 - Oct 2015
  - National Rank 4    · Global Rank 93
- Sri Lankan Astronomy and Astrophysics Olympiad Competition
  - Silver Medal

#### **FAMILIAR PROGRAMMING LANGUAGES AND FRAMEWORKS**

Python, C++, Type-Script, Java-Script, Haskell, Java, Pandas, NumPy, Scikit-learn, JAX, PyTorch, TensorFlow