Romesh <u>Malinga</u> Perera

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About Me

I'm a **Software Engineer at Amazon Web Services**. I completed my **PhD** at the University of Melbourne researching the applicability of **bandit learning algorithms** for **physical database design tuning**. Before that I have worked in the industry for over **four years** in data and analytics, in which I have designed several **award-winning data tools and platforms**. Outside work, I like to work in community-driven organisations and have led many of them to success. In addition, I enjoy public speaking, playing board games and participating in coding competitions.

Professional/Academic Experience

2022 Oct – Present Full Time	**Amazon Web Services Australia Pty Ltd (Software Development Engineer)** Amazon Web Services, Inc. is a subsidiary of Amazon that provides on-demand cloud computing platforms and APIs to individuals, companies, and governments. I work as a Software Development Engineer for AWS Networking, where I collaborate with Network Engineering and Operations teams to automate and invent new ways of operating Amazon's Next-Generation Network. I worked with automated network remediation where I'm responsible for, • Developing best in class software systems for automating Amazon's network. • Providing technical direction to the team and identify areas of focus. • Creating and review software design documentation and mentor junior engineers. • Collaborating with the Network Engineering teams to ensure fast, smooth rollout of new designs and products. • Operating the software in critical production environment. • Creating and reviewing documentation and process regarding recurring issues, new standard operating procedures, knowledge transfer material, etc.
2018 Oct – 2023 Jun Full Time	**University of Melbourne (PhD)** I research on the applicability of **bandit learning algorithms** for self-driven **physical database design tuning** (supervisors: Dr Renata Borovic-Gajic and Professor Ben Rubinstein)**.** Automating physical database design has remained a long-term interest in database research. New challenges such as **dynamic and multi-tenant environments**, and complex workloads, have challenged the existing state-of-the-art tools, necessitating new research in this established area. In our work, we propose a new self-driving approach (HMAB) based on **hierarchical multi-armed bandit** learners, which can work in an integrated space of multiple PDS while avoiding the full cost of combinatorial search. This is the **first learned system to tune both indices and materialised views** in an integrated manner. We find that our solution enjoys superior empirical performance (up to **96% performance gain**) relative to state-of-the-art commercial physical database design tools that search over the integrated space. **Highlights** • **Three papers published** in flagship (A*) conferences - ICDE, ICDM, VLDB

- **A paper published in** TKDE Journal, a top-tier computer science journal.
- **Co-President SLGS** (Sri Lankan Graduates' Society) 2020/21, University of Melbourne
- **Communication Offer for CIS-GReS** (Computing and Information Systems Graduate Research Students) 2018/19, University of Melbourne
- **Perfect Pitch 2019: People's Award**, University of Melbourne

2019 Feb – 2022 Jul Casual	**University of Melbourne (Research Assistant, Casual Academic)**

- **Research Assistant** (**2019-2021), Melbourne School of Psychological Sciences**: I was one of the primary contributors to 'Private' programming language, an open-source privacy-preserving probabilistic scripting language. (Python)
- **Research Assistant** (**2021, 3 months), Melbourne School of Psychological Sciences**: I worked as a software developer for the cognitive science team in Australia, led by Dr Vanessa Ferdinand. (Python)
- **Casual Academic:** Worked as a tutor for Advance Database Systems (COMP90050), Numerical Algorithms in Engineering (ENGR30004) and Statistical Machine Learning (COMP90051)

2014 Mar – 2018 Oct Full Time	**Sysco Labs Sri Lanka (**https://syscolabs.lk/**)**

Sysco (NYSE: SYY) is a Fortune 500 company and the global leader in selling, marketing, and distributing food products. I worked as a **Team Lead** for **the Data and Analytics Team**, where I was responsible for researching and implementing real-time processing solutions for transactional and non-transactional data. Our final product (**Sysco Labs Data Platform)** is currently performing hundreds of millions of data transformations and serving millions of user queries per day.

- **Design and Implementation of Sysco Labs Data Platform and leading the project.** As a solution for scalability issues in our legacy system we proposed, a single platform that supports all data needs in the company (data archival, customer reporting, business intelligence with ad-hoc reports on raw data, data recovery, data life cycles) (Apache Spark, Apache Kafka, Druid, AWS S3, AWS Lambda, Apache Zeppelin, HDP Stack) (**1st runner up in the 'Best Technology or Framework Innovation' category**, SLASSCOM Innovation Awards 2019, a national-level award)
- **Implementation of Real-time ETL v2** solution for transactional data (Apache Storm) **(Hall of Fame for Engineering Excellence**, Sysco Labs, 2014)
- **Team member for Customer Profiling Project** to profile customers over non-linked products. (Apache Spark) (**1st runner up Hall of Fame for Engineering Excellence**, Sysco Labs, 2016)

Highlights:
- Promoted into the **Team Lead** and to **Associate Tech Lead** positions **within 3 years**.
- **Intrapreneur Award 2017**, Sysco Labs.
- **Process and Quality Compliance Award 2016**, Sysco Labs.

2012-2013 Full Time	**WSO2 Inc, Sri Lanka (Software Engineering Intern).**

WSO2 (https://wso2.com/) provides enterprise solutions for thousands of world's largest corporations, leading universities, and governments.

- First industry experience where I learned the basics of enterprise software development and big data technologies.

Education

2009-2014	B.Sc. (Hons) Engineering, (Computer Science and Engineering)
Full Time	University of Moratuwa, Sri Lanka
	First Class, GPA 3.84

Highlights
- **Batch 5th in first-year field-selection examination (After 1st semester)** in the University of Moratuwa: Out of 700+ students, who among the best results in GCE Advanced Level-Physical Sciences, 2008 in Sri Lanka) (Placed on the Dean's list in S1)
- Placed in **Dean's list** with over 4.0 GPA (out of 4.2) in the last 2 semesters (S7:**4.17**, S8:**4.08**) with A+ for all technical subjects in the final year.
- **A Grade (4.0)** for final year research project.

| 1995-2008 | GCE Advanced Level (Physical Sciences), Maris Stella College, Negombo, Sri Lanka |

Highlights
- **Best Advanced Level results in the school (Z Score: 2.1098)**

Awards and Honours

- **Perfect Pitch 2019**: **People's Award, University of Melbourne** – A collaborative and interdisciplinary competition where PhD students present innovative ideas to overcome, solve, or alleviate real-world problems.
- **Intrapreneur Award 2017, Sysco Labs** – Awarded for the best innovative idea in 2017. This is awarded for the "CAKE EYE" product that uses facial recognition technologies to provide a customized service to restaurant customers.
- **Toastmasters Speech Competitions, 2017** – Winning all 4 formats (International, Table Topics, Humorous, Speech Evaluation) of speech competitions at the club level and winning Humorous Speech Competition at the area level (1st Runner-up)
- **Process and Quality Compliance Award 2016, Sysco Labs** - This recognizes the team with best practices, knowledge and experience in Scrum project management methodology.
- **Dialog Ideamart Hackathon 2013** (First Runner Up) – Building an SMS based application that can answer user queries ranging from specific mathematical operations to general knowledge.
- **Colombo Hackathon 2012** (Second Runner Up) – Giving all food ordering websites a standard interface.
- **IEEE Extreme 2011** programming competition (World Rank- 210)
- **Best Advanced Level Results in Maris Stella College** 2008 (Physical Sciences)

Leadership and Volunteering

- **Co-President Sri Lankan Graduates' Society (SLGS) 2020/21, University of Melbourne** – www.slgs.com.au
- **Communication Officer for Computing and Information Systems Graduate Research Students (CIS-GReS) 2018/19, University of Melbourne** - www.cis-gres.org
- **Mentoring** 2 students under the CIS 'Help a Mate' program, University of Melbourne.
- **Mentor** for the **winning team** in Dialog Sri Lanka CodeSprint 3.0 Startup Battle
- Member of Big Brother Big Sister **Mentoring** Program (Industry Awareness and Professional Development for Undergraduates), 2017, University of Moratuwa
- **Toastmasters Club**, (2016 - 2018)
  - Vice President Public Relations – Katunayake Toastmasters Club
  - Vice President Education– Sysco Labs Toastmasters Club
- **Team Lead, Data and Analytics Engineering team** (2017 - 2018)

Talks and Presentations

- **"Cake Eye"** – Using facial recognition technologies to provide a customized service to restaurant customers. (Sysco Labs innovation sessions, 2017)
- **"Introduction to DBMS"** – University of Moratuwa (2016, 2017 & 2018)
- **"How we use Distributed Computing"** – IEEE Techno meet-up, 2017
- **"Going Server-less"** – Good and bad sides of server-less technologies (Sysco Labs innovation sessions, 2016)
- **"Where the world is elastic"** – On elastic search and its usages (Sysco Labs innovation sessions, 2016)
- **"Connecting dots"** – How we can make predictions and create insights with restaurant sales data (Sysco Labs innovation sessions, 2015)