

OSHAN MUDANNAYAKE

22/31, Mahawatta Road, Madiwela, Embuldeniya, Sri Lanka 10230

ivantha.com

osh@ucsc.cmb.ac.lk ◊ (+94) 71 908 4020

RESEARCH INTERESTS

Reinforcement Learning | Machine Learning | Artificial Intelligence
Game Theory | Computer Games
Computer Vision

EDUCATION

[Reading] University of Moratuwa Jan. 2023 - Present
M.Sc in Data Science & AI

University of Colombo School of Computing Feb. 2016 - Feb. 2020

B.Sc (Hons) in Computer Science

First Class Honors with a GPA of 3.61/4.0 (Top 5%)

Ranked 6th over 156 CS students

Thesis: “*Summarization of Large Scale Streaming Graphs*” (Grade A)

Positions: Chair of IEEE Student Branch, Core team member at Mozilla Club, Member at CompSoc, Instructor at Exploration Club, Batch representative at IUD

Maliyadeva College Jan. 2001 - Dec. 2014

G.C.E. Advance Level Examination - Physical Science Stream

Positions: President of Robotics Club, Team Lead of Hardware and Networking Group

PUBLICATIONS

[Journal] O. Mudannayake*, D. Rathnayake*, J. D. Herath, D. K. Fernando and M. Fernando, “Exploring Machine Learning and Deep Learning Approaches for Multi-Step Forecasting in Municipal Solid Waste Generation,” in IEEE Access, vol. 10, pp. 122570-122585, 2022, [doi: [10.1109/ACCESS.2022.3221941](https://doi.org/10.1109/ACCESS.2022.3221941)].

[Conference] O. Mudannayake and N. Ranasinghe, “kMatrix: A Space Efficient Streaming Graph Summarization Technique,” 2021 10th International Conference on Information and Automation for Sustainability (ICIAfS), 2021, pp. 161-166, [doi: [10.1109/ICIAfS52090.2021.9606137](https://doi.org/10.1109/ICIAfS52090.2021.9606137)].

* Equal contribution

EXPERIENCE

Senior Data Science Engineer (Full-time) Nov. 2021 - Present
WSO2 Sri Lanka

- Collaborated with the product team to incorporate insights from machine learning algorithms into WSO2’s core product offerings, resulting in increased customer engagement and sales.
- Developed and maintained custom data visualization dashboards for internal stakeholders, enabling faster and more effective decision-making.

Research Assistant (Part-time) May. 2021 - Present
University of Colombo School of Computing Sri Lanka

- Advised by Dr. Noel Fernando
- Conducted research on solid waste generation patterns in cities using machine learning techniques, which involved collecting and analyzing time series data over a several decades.
- Developed and implemented machine learning models to forecast solid waste generation patterns, which improved the efficiency of waste management planning and resource allocation.

- Contributed to a publication on solid waste management in IEEE Access, which highlighted the research findings and their implications for waste management practices.
- Demonstrated a strong ability to work independently, manage time effectively, and prioritize tasks to meet project deadlines.

Data Science Engineer (Full-time)

Apr. 2021 - Oct. 2021

WSO2

Sri Lanka

- Developed and deployed machine learning models to optimize performance and enhance functionality of software products.
- Conducted exploratory data analysis to identify trends and patterns and made data-driven recommendations to improve business strategies.
- Presented findings and insights from data analyses to both technical and non-technical stakeholders.
- Collaborated with cross-functional teams to identify and define business problems, and developed solutions to meet business objectives.
- Contributed to the development and implementation of best practices for data science, including code documentation, version control, and model evaluation.

Researcher (Part-time)

Aug. 2020 - Dec. 2021

Sustainable Computing Research (SCoRe) Lab

Sri Lanka

- Advised by Dr. Mohamed Nabeel
- Developed and implemented a machine learning-based approach to predict malicious domain URLs.

Software Engineer - IAM Team (Full-time)

Mar. 2020 - Mar. 2021

WSO2

Sri Lanka

- Designed and implemented a new CORS architecture for Identity Server 5.11, improving security and enabling cross-origin resource sharing.
- Contributed to customer support efforts by providing timely and effective solutions to product issues, resulting in increased customer satisfaction and retention.
- Investigated the FIDO capabilities of Identity Server and proposed changes necessary for its adoption across the platform, enhancing the product's authentication capabilities.
- Worked on configuring Identity Server and propagating necessary configurations in tenanted URL mode, ensuring seamless and efficient operation across multiple tenants.
- Successfully managed and prioritized multiple projects simultaneously, ensuring on-time delivery.
- Proactively sought out new technologies and approaches to improve product performance and functionality.

Research Intern (Full-time)

Jul. 2018 - Jan. 2019

University of Colombo School of Computing - Distributed Computing Group

Sri Lanka

- Advised by Dr. Nalin Ranasinghe
- Successfully developed and implemented a new layer over Tensorflow to facilitate machine learning on encrypted data over a distributed network of machines, improving data security and privacy.
- Presented research findings at the SLASSCOM conference, demonstrating excellent communication and presentation skills.

Student Developer

May. 2018 - Aug. 2018

CERN-HSF - Google Summer of Code

Remote

Software Developer (Contract)

Jan. 2018 - Mar. 2020

Language Matters

Sri Lanka

- Supervised by Dr. Leonie Solomons

Software Developer (Contract)

Feb. 2016 - Jan. 2017

Dreamteam IT Solutions

Sri Lanka

- Supervised by Dr. Gihaan Kuruppu

Course Instructor (Contract)

Jan. 2016 - Jun. 2016

Dreamteam IT Solutions

Sri Lanka

SCHOLARSHIPS & GRANTS

2021 - AutoML Fall School Scholarship
2021 - Dataquest & AI Inclusive Scholarship
2020 - Tokyo Data Science Full Scholarship
2020 - Commonwealth of Learning Coursera Scholarship by Commonwealth of Learning, Canada
2019 - HackZurich Travel grant
2019 - AI Summer School Singapore Scholarship¹
2018 - ownCloud Conference Travel grant by CERN and ownCloud
2018 - Hack the North Travel grant

HONOURS & AWARDS

2019 - Merit Award at Datathon (SLIIT Codefest) by Sri Lanka Institute of Information Technology
2019 - *IEEE Regional Exemplary Student Branch 2020 under Region 10 and Sri Lanka Section by IEEE
2019 - *Bronze category winner of IEEE Darrel Chong Student Activity Award 2020 by IEEE
2019 - *Best Student Branch Activity Award for GameRush at IEEE SLSYWC 2019 by IEEE
2018 - 1st place at Codezilla by Mozilla Campus Club of Uva Wellassa University
2018 - 1st place at LetMeHack by Sabaragamuwa University
2017 - Award of Appreciation at University of Colombo School of Computing on recognizing the outstanding achievements in hackathons and coding competitions.
2017 - †Best Industry Collaborative Award at IEEE SLSYWC 2017 by IEEE
2017 - ‡Best Student Branch Activity Award at IEEE SLSYWC 2017 by IEEE
2017 - 2nd place at Persistent Hackathon by Persistent Systems Lanka
2017 - 2nd place at HACKiNTRA by University of Jaffna
2017 - Finalist at CodeFest Designathon by Sri Lanka Institute of Information Technology
2017 - Finalist at SS12 Asia by IEEE
2017 - 3rd place at Dialog Game Dev Hackathon by Dialog Axiata
2016 - 1st place at Mozilla Web Maker Party by Mozilla Club of University of Colombo School of Computing
2016 - 2nd place at CodeFest Tertiary Hackathon by Sri Lanka Institute of Information Technology
2016 - 1st place at IEEE preXtreme 1.0 by IEEE Student Branch of University of Colombo School of Computing
2016 - 6th place at ACES Coders by University of Peradeniya
2016 - 5th place at Code Expertz by University of Moratuwa

* President of the IEEE Student Branch of UCSC
† Finance Team Lead of IEEE TAP project
‡ Program Team Lead of CloudHack 17 hackathon

INVITED TALKS

Jul. 2021 - *kMatrix: A Space Efficient Streaming Graph Summarization Technique - IEEE ICIAfS 2021
May. 2021 - Career guidance for undergraduates - UCSC ACM Student Chapter
Dec. 2020 - A new CORS Valve for the WSO2 Identity Server - IAM Community Call by WSO2
Oct. 2019 - Rust 101 - Hacktoberfest 2019 by Mozilla Club of UCSC
Dec. 2018 - †Machine Learning over Encrypted Data - Sri Lanka Association for the Advancement of Science (SLAAS) Exhibition 2018
Sep. 2018 - Lightning talk on Phoenix - ownCloud Conference 2018

* Research conference presentation
† Poster presentation

WORKSHOPS ATTENDED

¹I did not accept this scholarship as I could not attend the event due to university examinations.

Nov. 2021 - Online Asian Machine Learning School (OAMLS) at 13th Asian Conference on Machine Learning
Nov. 2021 - AutoML Fall School
Aug. 2021 - ACM Europe Summer School on HPC Computer Architectures for AI and Dedicated Applications by Barcelona Supercomputing Center and Universitat Politècnica de Catalunya
Aug. 2021 - AI Summer School Singapore 2021
Jul. 2021 - Qiskit Global Summer School 2021: Quantum Machine Learning
Aug. 2020 - AI Summer School Singapore 2020

SELECTED PROJECTS

Realtime Property Evaluation of Large Streaming Graphs Jan. 2019 - Jan. 2020
Graphs, Graph Summarization, Python

Developed a system for summarizing graph streams, addressing a significant problem in the field of large-scale graph analysis and demonstrating the potential of realtime property evaluation for large-scale graphs.

TessTA Jan. 2018 - Mar. 2020
ML, OCR, React, Java, Spring Boot, Hibernate, Tesseract, AWS
Created an OCR solution for the Sinhala language utilizing the Tesseract OCR Engine.

Machine Learning over Encrypted Data Jul. 2018 - Jan. 2019
ML, Encryption, Tensorflow, Python, Google Cloud Platform
Worked on developing a layer over Tensorflow that enabled machine learning on encrypted data across a distributed network of machines.

Intelligent Traffic Light System Feb. 2017 - Nov. 2017
Tensorflow, Python, Angular, NodeJS, Raspberry Pi, Arduino, Ionic Framework, GCP
Automated a traditional time interval based traffic light system to improve traffic management by removing the need for traffic officers and replacing the round robin light schedule with an adaptive system.

Bra Elasticity Analyzing System Mar. 2016 - Jan. 2017
Image processing, OpenCV, Java, Swing
Developed a method for comparing the elasticity of sports bras using image processing.

Yarn Detection System Mar. 2016 - Jan. 2017
Image processing, OpenCV, Python, Raspberry Pi
Developed a solution to detect the knots in yarn threads used in glove weaving machines, resulting in significant savings of hundreds of needles wasted per day and reduced hours of manpower.

Glove Defect Identification System Jan. 2016 - Jun. 2016
Image processing, OpenCV, Python
Utilized image processing to identify common defects in gloves as they were being conveyed on a conveyor belt, enabling the automatic rejection of defective gloves without human intervention, and automating the entire pipeline.

Smart Glove Jan. 2016 - Jun. 2016
Java, JavaFX, FSR 400, Arduino
Designed a glove prototype that measures the pressure distribution and acceleration of the hand to derive optimal patterns of movement for cricket players, taking into account the hand pressure.

CERTIFICATIONS

2021 - Advanced Machine Learning on Google Cloud Specialization by Coursera
2021 - Data Engineering, Big Data, and Machine Learning on GCP Specialization by Coursera
2021 - Machine Learning on Google Cloud Specialization by Coursera
2020 - Deep Learning Specialization by Coursera
2020 - Natural Language Processing Specialization by Coursera
2020 - DeepLearning.AI TensorFlow Developer Specialization by Coursera
2020 - Generative Adversarial Networks (GANs) Specialization by Coursera

2020 - Qwicklabs quests on ML and Data Science -by Qwicklabs
2015 - Oracle Certified Professional Java SE 6 Programmer by Oracle
2015 - Robotics & Automation by Dreamteam IT Solutions
2015 - Professional Certified Java Developer by Dreamteam IT Solutions
2013 - Diploma in Software Engineering by Esoft
2010 - Diploma in PC Hardware and Network Administration by Esoft

TECHNICAL SKILLS

Computer Languages	Python, Java, C
Numerical Computing	MATLAB, Octave, Numpy
ML	Scikit, Tensorflow
ML Packages	Darts
Image Processing	OpenCV
Databases	MySQL, MongoDB, Redis
Cloud Platforms	GCP, AWS
Other	Linux, Git, Jupyter Notebook

MENTORING

2021 - Mentor at ReidCon by UCSC
2021 - Mentor at SCoRe Lab in Google Summer of Code 2021
2020 - Mentor at SCoRe Lab in Google Summer of Code 2020
2019 - Mentor at SCoRe Lab in Google Summer of Code 2019
2018 - Mentor at SCoRe Lab in Google Code-In 2018
2018 - Mentor at 2nd Year Group Project Mentoring by IEEE Student Branch of UCSC
2017 - Mentor at SCoRe Lab in Google Code-In 2017
2017 - Question Panel Member - preXtreme 2.0 - IEEE Student Branch of UCSC
2017 - Mentor at International School Software Competition (ISSC) by Computer Society of Sri Lanka
2017 - Mentor at Help to Code by Information and Communication Technology Agency of Sri Lanka
2016 - Mentor at SCoRe Lab in Google Code-In 2016
2016 - Mentor at National School Software Competition (NSSC) by Computer Society of Sri Lanka

COMMITTEE POSITIONS

2021 - Judge panel member at IEEE YESIST12 2021 Junior Einstein Track by IEEE
2021 - Judge panel member (Machine Learning) at MadHack by IEEE Student Branch of UCSC
2019 - Core Team Member at Google Developer Group (GDG) Sri Lanka
2019 - President of IEEE Student Branch of UCSC 2019 - Team Lead at Mozilla activate Sri Lanka - Rust Team
2018 - Web Master of IEEE Sri Lanka Section - Student activity Committee (SAC)
2018 - Secretary of IEEE Student branch of UCSC
2018 - Operational Committee Member at Mozilla Activate Sri Lanka
2018 - Android Developer at Global Geek Sustainable Learning Kingdom (GGSLK) Sri Lanka
2017 - Operational Committee Member at Program Team - IEEE Student/YP/WIE Congress
2017 - Finance Team Lead at Technological Awareness Project by IEEE Sri Lanka Section 2017 - Program Team Lead at CloudHack 17 by IEEE Student Branch of UCSC 2017 - Core Team Member at Mozilla Club UCSC
2017 - Coordinator at IEEE Student Branch of UCSC
2016 - Operational Committee Member at Finance Team - Innover (IEEE IAS IOT Workshop)
2016 - Operational Committee Member at Program Team - IEEE Day UCSC
2016 - Instructor at UCSC Exploration Club
2013 - President of Robotics Club at Maliyadeva College
2012, 2013 - Team Lead at Hardware and Networking Team at Maliyadeva College

REFERENCES

Prof. MGNAS Fernando

Ph.D

Senior Lecturer at UCSC

(+94) 71 810 8247 · nas@ucsc.cmb.ac.lk

Dr. Nalin Ranasinghe

Ph.D (Cardiff)

Senior Lecturer at UCSC

(+94) 11 258 9123 · dnr@ucsc.cmb.ac.lk

Gihan Seneviratne

M.Phil. (Cardiff)

Senior Lecturer at UCSC

(+94) 77 383 2935 · gps@ucsc.cmb.ac.lk