

OSHAN MUDANNAYAKE

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RESEARCH INTERESTS

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

EDUCATION

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)

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

Maliyadeva College

Jan. 2001 - Dec. 2014

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

- President of Robotics Club
- Team Lead of Hardware and Networking Group

RESEARCH EXPERIENCE

Research Assistant (Part-time)

May. 2021 - Present

University of Colombo School of Computing

Sri Lanka

- Advisor: Dr. Noel Fernando
- Working on modeling and prediction of municipal solid waste generation in Sri Lanka using machine learning techniques.

Researcher (Part-time)

Aug. 2020 - Present

Sustainable Computing Research (SCoRe) Lab

Sri Lanka

- Advisor: Dr. Mohamed Nabeel
- Working on machine learning based internet domain entity matching and its applications.

Research Intern (Full-time)

Jul. 2018 - Jan. 2019

University of Colombo School of Computing - Distributed Computing Group

Sri Lanka

- Advisor: Dr. Nalin Ranasinghe
- Carried out a research study on the topic, Machine Learning Over Encrypted Data.

Software Developer (Contract)

Jan. 2018 - Mar. 2020

Language Matters

Sri Lanka

- Supervisor: Dr. Leonie Solomons
- Working part time on developing an OCR solution for Sinhala language using Tesseract OCR Engine.

Software Developer (Contract)

Mar. 2016 - Jan. 2017

Dreamteam IT Solutions

Sri Lanka

- Supervisor: Dr. Gihan Kuruppu
- Provided R&D solutions to industrial problems such as *Bra Elasticity Analyzing System*, *Yarn Detection System* and *Glove Defect Identification System*.

TEACHING EXPERIENCE**Course Instructor (Contract)**

Jan. 2016 - Jun. 2016

Dreamteam IT Solutions

Sri Lanka

- Conducted sessions for introductory robotics and Java 6.

PROFESSIONAL EXPERIENCE**Senior Data Science Engineer (Full-time)**

Nov. 2021 - Present

WSO2

Sri Lanka

Data Science Engineer (Full-time)

Apr. 2021 - Oct. 2021

WSO2

Sri Lanka

- Improved the HR aspects of the company by introducing a model to predict the workforce requirement in the coming years.

Software Engineer - IAM Team (Full-time)

Mar. 2020 - Mar. 2021

WSO2

Sri Lanka

- Designed and implemented the new CORS architecture for the Identity Server 5.11.
- Worked extensively on customer support in order to give solutions for the product issues.

Student Developer

May. 2018 - Aug. 2018

CERN-HSF - Google Summer of Code

Remote

- Worked as a Google Summer of Code Participant in collaboration with *CERN-HSF*, *ownCloud* and *AARNet* to provide a prototype of a new web UI for CERNBox that will provide an immersive user experience.

PUBLICATIONS

[Conference] **Oshan Mudannayake**, Nalin Ranasinghe, "kMatrix: A Space Efficient Streaming Graph Summarization Technique", in *10th IEEE International Conference on Information and Automation for Sustainability (ICIAfS) 2021*, Colombo, Sri Lanka, Aug. 2021. [DOI: 10.1109/ICIAfS52090.2021.9606137].

SELECTED PROJECTS

Realtime Property Evaluation of Large Streaming Graphs <i>Graphs, Graph Summarization, Python</i> Final year research project carried on the area of massive streaming graph summarization.	Jan. 2019 - Jan. 2020
TessTA <i>ML, OCR, React, Java, Spring Boot, Hibernate, Tesseract, AWS</i> OCR Solution for Sinhala language using Tesseract OCR Engine.	Jan. 2018 - Mar. 2020
Machine Learning over Encrypted Data <i>ML, Encryption, Tensorflow, Python, Google Cloud Platform</i> I worked on adding a layer over Tensorflow to facilitate machine learning on encrypted data over a distributed network of machines.	Jul. 2018 - Jan. 2019
Intelligent Traffic Light System <i>Tensorflow, Python, Angular, NodeJS, Raspberry Pi, Arduino, Ionic Framework, GCP</i> Traditional time interval based traffic light system was automated to remove the involvement of traffic officers.	Feb. 2017 - Nov. 2017
Bra Elasticity Analyzing System <i>Image processing, OpenCV, Java, Swing</i> Implemented a way to compare the elasticity of sports bras using image processing.	Mar. 2016 - Jan. 2017
Yarn Detection System <i>Image processing, OpenCV, Python, Raspberry Pi</i> Solution to detect the knots of yarn threads in glove weaving machines.	Mar. 2016 - Jan. 2017
Glove Defect Identification System <i>Image processing, OpenCV, Python</i> Identified the common defect of gloves using image processing as they are being passed through a conveyor belt.	Jan. 2016 - Jun. 2016
Smart Glove <i>Java, JavaFX, FSR 400, Arduino</i> A glove prototype that can measure the pressure distribution and the acceleration of hand in order to derive the best patterns of movements for Cricket players in relation with the hand pressure.	Jan. 2016 - Jun. 2016

MOOC CERTIFICATIONS

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

PROFESSIONAL CERTIFICATIONS

- 2015 - Oracle Certified Professional Java SE 6 Programmer - Oracle
- 2015 - Robotics & Automation - Dreamteam IT Solutions

- 2015 - Professional Certified Java Developer - Dreamteam IT Solutions
- 2013 - Diploma in Software Engineering - Esoft
- 2010 - Diploma in PC Hardware and Network Administration - Esoft

ACHIEVEMENTS

- 2019 - Merit Award - Datathon (SLIIT Codefest) by Sri Lanka Institute of Information Technology
- 2018 - 1st place - Codezilla by Mozilla Campus Club of Uva Wellassa University
- 2018 - 1st place - LetMeHack by Sabaragamuwa University
- 2019 - Participant - HackZurich by Digital Festival
- 2018 - Participant - Hack The North by University of Waterloo
- 2017 - 2nd place - Persistent Hackathon by Persistent Systems Lanka
- 2017 - 2nd place - HACKiNTRA by University of Jaffna
- 2017 - Finalist - CodeFest Designathon by Sri Lanka Institute of Information Technology
- 2017 - Finalist - SS12 Asia by IEEE
- 2017 - 3rd place - Dialog Game Dev Hackathon by Dialog Axiata
- 2016 - 1st place - Mozilla Web Maker Party by Mozilla Club of University of Colombo School of Computing
- 2016 - 2nd place - CodeFest Tertiary Hackathon by Sri Lanka Institute of Information Technology
- 2016 - 1st place - IEEE preXtreme 1.0 by IEEE Student Branch of University of Colombo School of Computing
- 2016 - 6th place - ACES Coders by University of Peradeniya
- 2016 - 5th place - Code Expertz by University of Moratuwa

SCHOLARSHIPS & GRANTS

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

HONOURS & AWARDS

- 2017 - Award of Appreciation - University of Colombo School of Computing - Special award on recognizing the outstanding achievements in hackathons and coding competitions.

WORKSHOPS / TRAINING PROGRAMS ATTENDED

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

- Nov. 2021 - Online Asian Machine Learning School (OAMLS) - The 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 - Barcelona Supercomputing Center and Universitat Politècnica de Catalunya
- Aug. 2021 - AI Summer School Singapore 2021 - AI Singapore
- Jul. 2021 - Qiskit Global Summer School 2021: Quantum Machine Learning - Qiskit
- Aug. 2020 - AI Summer School Singapore 2020 - AI Singapore

PRESENTATIONS

- Jul. 2021 - [Conference] kMatrix: A Space Efficient Streaming Graph Summarization Technique - IEEE International Conference on Information and Automation for Sustainability 2021
- Dec. 2018 - [Poster] Machine Learning over Encrypted Data - Sri Lanka Association for the Advancement of Science (SLAAS) Exhibition 2018

SEMINARS

- May. 2021 - Career guidance for undergraduates - UCSC ACM Student Chapter - Colombo, Sri Lanka
- Dec. 2020 - A new CORS Valve for the WSO2 Identity Server - IAM Community Call by WSO2 - Colombo, Sri Lanka
- Oct. 2019 - Rust 101 - Hacktoberfest 2019 by Mozilla Club of UCSC - Colombo, Sri Lanka
- Sep. 2018 - Lightning talk on Phoenix - ownCloud Conference 2018 - Nuremberg, Germany

TECHNICAL SKILLS

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

MENTORING

- 2021 - Mentor - ReidCon by UCSC
- 2021 - Mentor at SCoRe Lab - Google Summer of Code 2021
- 2020 - Mentor at SCoRe Lab - Google Summer of Code 2020
- 2019 - Mentor at SCoRe Lab - Google Summer of Code 2019
- 2018 - Mentor at SCoRe Lab - Google Code-In 2018
- 2018 - Mentor - 2nd Year Group Project Mentoring by IEEE Student Branch of UCSC
- 2017 - Mentor at SCoRe Lab - Google Code-In 2017

- 2017 - Question Panel Member - preXtreme 2.0 - IEEE Student Branch of UCSC
- 2017 - Mentor - International School Software Competition (ISSC) by Computer Society of Sri Lanka
- 2017 - Mentor - Help to Code by Information and Communication Technology Agency of Sri Lanka
- 2016 - Mentor at SCoRe Lab - Google Code-In 2016
- 2016 - Mentor - National School Software Competition (NSSC) by Computer Society of Sri Lanka

COMMITTEE POSITIONS

- 2021 - Judge panel member - IEEE YESIST12 2021 Junior Einstein Track by IEEE
- 2021 - Judge panel member (Machine Learning) - MadHack by IEEE Student Branch of UCSC
- 2019 - Present - Core Team Member - Google Developer Group (GDG) Sri Lanka
- 2019 - President - IEEE Student Branch of UCSC
 - **[Award]** IEEE Regional Exemplary Student Branch 2020 under Region 10 and Sri Lanka Section
 - **[Award]** Bronze category winner of IEEE Darrel Chong Student Activity Award 2020
 - **[Award]** Best Student Branch Activity Award for GameRush at IEEE SLSYWC 2019
- 2019 - Team Lead - Mozilla activate Sri Lanka - Rust Team
- 2018 - Web Master - IEEE Sri Lanka Section - Student activity Committee (SAC)
- 2018 - Secretary - IEEE Student branch of UCSC
- 2018 - Operational Committee Member - Mozilla Activate Sri Lanka
- 2018 - Android Developer - Global Geek Sustainable Learning Kingdom (GGSLK) Sri Lanka
- 2017 - Operational Committee Member - Program Team - IEEE Student/YP/WIE Congress
- 2017 - Finance Team Lead - Technological Awareness Project by IEEE Sri Lanka Section
 - **[Award]** Best Industry Collaborative Award at IEEE SLSYWC 2017
- 2017 - Program Team Lead - CloudHack 17 by IEEE Student Branch of UCSC
 - **[Award]** Best Student Branch Activity Award at IEEE SLSYWC 2017
- 2017 - Core Team Member - Mozilla Club UCSC
- 2017 - Coordinator - IEEE Student Branch of UCSC
- 2016 - Operational Committee Member - Finance Team - Innover (IEEE IAS IOT Workshop)
- 2016 - Operational Committee Member - Program Team - IEEE Day UCSC
- 2016 - Instructor - UCSC Exploration Club
- 2013 - President - Robotics Club - Maliyadeva College
- 2012, 2013 - Team Lead - Hardware and Networking Team - Maliyadeva College

REFERENCES

Nalin Ranasinghe

Ph.D (Cardiff)

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M.Phil. (Cardiff)

Senior Lecturer at UCSC

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