

# Sarangan Rajendran

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## EDUCATION

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**B.Sc. Engineering (Hons) Degree in Electrical Engineering** *University of Moratuwa, Sri Lanka*

October 2016 – July 2021

- Second Class Upper
- Overall GPA – 3.61 out of 4.2 (3.58 out of 4.0 in converted scale equivalent to 90%)
- Dean's List – Semester 8 (Awarded for semester GPA above 3.8)
- Minor in Entrepreneurship

**GCE Advanced Levels – 3A**

*S. Thomas' College, Mt Lavinia*

**GCE Ordinary Levels – 9A**

## RESEARCH INTERESTS

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- Robotics, Automation and Control Systems
- Power System Modelling, Simulation and Analysis
- Transmission Line Planning, Modelling and Cost Studies
- Renewable Energy Planning, Design and Cost Studies
- Machine Learning, Predictive Analytics and Computer Vision

## RESEARCH EXPERIENCE

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**Pose Estimation of a Robot Arm from a Single Camera** 2020-21

Final year project supervised by Dr. A.M. Harsha S. Abeykoon

Developed a deep learning-based approach to visually estimate the pose of a robot arm from a single RGB image, that makes use of kinematics of the robot model to reconstruct the given pose in 3D representation and estimate its joint angles.

**Cost based Optimization of Transmission Line design** 2019

Carried out research to find the variables that are needed to estimate the total project cost at the 'transmission line design' stage and use it to compare between the available options of construction, during the internship period at RMA (Pvt) Ltd. Developed an application using ExcelVBA to support the findings of the research.

**Estimation of Network Loss Targets for Sri Lanka national grid** 2019

Carried out research to project the expected transmission and distribution losses of the Sri Lankan national grid for 2025 using past data, simulation results, and mathematical models during the internship period at RMA (Pvt) Ltd.

## **PUBLICATIONS**

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K. Sithamparanathan, S. Rajendran, P. Thavapirakasam, A. M. Harsha and S. Abeykoon, "Pose Estimation of a Robot Arm from a Single Camera," *2021 3rd International Conference on Electrical Engineering (EECon)*, 2021, pp. 131-136, doi: 10.1109/EECon52960.2021.9580957.

## **AREAS OF TEACHING EXPERTISE**

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Automation, Robotics, Control Systems, Power Systems, Electrical Installations

## **TEACHING EXPERIENCE**

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### **Temporary Lecturer**

*University of Moratuwa, Sri Lanka*

November 2021 - Present

- Prepared explanatory videos on lab demonstrations and relevant theory
- Prepared study text for 'Automation and Control Technologies' module
- Prepared weekly assessment quizzes for 'Robotics and Mechatronics' module
- Devised practical schedules and coordinated instructors

### **Temporary Instructor**

*University of Moratuwa, Sri Lanka*

August 2021 – October 2021

- Conducted and recorded laboratory experiments
- Designed new laboratory experiments and prepared lab sheets
- Conducted 'field familiarization' sessions for first year students
- Graded coursework and assignments, and supervised exam candidates

## **PROFESSIONAL/WORK EXPERIENCE**

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### **Trainee Electrical Engineer**

*RMA (Pvt) Ltd*

October 2019 – December 2019

- Designed complete electrical installation for a 3-story domestic house with earthing
- Carried out installation tests at multiple sites
- Modified Dhaka network diagrams in PSS/E software for simplified presentation
- Modelled LV and MV networks to estimate losses in PowerFactory software.

### **Trainee Electrical Engineer**

*Ceylon Electricity Board / LECO*

July 2019 – October 2019

- Familiarized with the operation and maintenance activities at Pannipitiya Grid Substation
- Field visits to Noroichchola Coal Power Plant and Samanawewa Hydro Power Plant
- Closely observed and studied hot line maintenance activities
- Closely observed and studied transformer installation at Colombo D Primary Substation
- Acquired knowledge on Transmission line planning and design
- Analyzed a low voltage problem reported in a LECO customer division

## PROJECT EXPERIENCE

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### **Smart Garbage Disposal System** 2018

Developed an Arduino-based hardware project to automate the function of a garbage bin and coordinate with the local municipality, as a group project during semester 3.

### **Smart Home Lighting Spaces** 2018

Developed an Arduino-based hardware project to control the lighting of a domestic setup using IR controller / smartphone as an individual project during semester 4. Developed an android app as companion for the project.

## VOLUNTEERING EXPERIENCE

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**Founding Member and Director of Media at Kavigai Foundation**, A non-profit entity that focuses on improving the education opportunities for underprivileged children (2017-Present)

- Conducted competitions on drawing, speech and skills
- Conducted workshops on debate skills
- Participated in renovation works

**Volunteered with ChildLockSL**, a non-profit organization that focuses on create safe spaces for young children in Sri Lanka. (2020)

**Volunteered with Youth Outreach Union**, a non-profit organization that focuses on creating cleaner environment in urban and populated sites (2012)

## SERVICE EXPERIENCE

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### **Batch Representative - Department of Electrical Engineering** 2020/21

- Coordinated batch events (field visits, trips, annual events, personal development sessions)
- Maintained effective communication between staff and students
- Conveyed student issues to management and worked out on solutions

### **Lead Coordinator - Media Team, TLA, University of Moratuwa** 2020/21

- Organized many annual competitions and cultural events between 2016-2021
- Led the team responsible for media production and event photography during 2020-2021
- Trained nearly 30 students in graphic designing and multimedia software

### **Organizing Committee - Electrical Engineering Society, University of Moratuwa** 2021

- Organized the Career Fair (2021) and Annual Get-Together (2020) events.
- Compered the Career Fair event and preceding Workshop

### **Editor - Tamil Drama Society, S Thomas' College, Mt. Lavinia** 2014

- Organized annual Tamil Drama Day (2014)
- Prepared and published 'Kalai Aaram' annual magazine
- Participated in 'Quadronz 2013' drama competition and came as 2nd runners up

**Assistant Treasurer - Hindu Union, S Thomas' College, Mt. Lavinia**

2014

- Organized annual Vaani Vizha event (2014)
- Prepared and published 'Chezhungkalanjali' annual magazine

**Organizing Committee - ICT Society, S Thomas' College, Mt. Lavinia**

2011-13

- Organized annual ICT Day (2013)

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**ACADEMIC / PROFESSIONAL QUALIFICATIONS**

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**CISCO Certified Network Associate 200-120 (Routing and Switching)***CISCO*

- Final Exam Score – 1000/1000

**Deep Learning Specialization***deeplearning.ai***Object Oriented Programming in Java Specialization***Duke University and UC San Diego*

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**AWARDS**

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- Runner Up – Best Paper under 'Robotics and Intelligent Systems' category, EECON (2021)
- Best All-round student for academic excellence, S. Thomas' College, Mt. Lavinia (2011)
- Awarded 26 times in annual prize giving ceremonies held between 2006-2011

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**PROFESSIONAL MEMBERSHIPS**

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**Institute of Engineers Sri Lanka (IESL) – Student Member**

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**LANGUAGE PROFICIENCY**

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**IELTS – 8.0 overall**

Listening – 9.0, Reading – 8.5, Writing -7.0, Speaking – 7.5

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**SKILLS**

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**Programming Languages** – Python, Java, C, MATLAB, Visual Basic, HTML**Software (electrical)** – AutoCAD, PSS/E, PSCAD, PowerFactory, MATLAB Simulink, PSpice, Ansys Maxwell, Plexim PLECS, Proteus Design Suit, LOGO! Soft Comfort, MikroC**Software (other)** – Solidworks, MySQL, Adobe Design Suite (Photoshop, Illustrator, Premiere Pro, After Effects, Dreamweaver)**Personal Skills** – Creative problem solving, Effective communication, Organization & coordination skills, Strategic planning, Visual aesthetics, Excellent video/media production ability, Engaging presentation skills

## DECLARATION

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I hereby declare that all the details mentioned above are true and correct to the best of my knowledge.



30/11/2021

## REFERENCES

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**Dr. A.M. Harsha S. Abeykoon**, *PhD (Keio University)*

Senior Lecturer

Department of Electrical Engineering, University of Moratuwa

[harsha@uom.lk](mailto:harsha@uom.lk)

**Prof. K.T.M. Udayanga Hemapala**, *PhD (University of Genoa)*

Professor

Head of the Department of Electrical Engineering, University of Moratuwa

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**Dr. Logeeshan Velmanickam**, *PhD (North Dakota State University)*

Senior Lecturer

Department of Electrical Engineering, University of Moratuwa

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**Dr. Rasara Samarasinghe**, *PhD (RMIT University)*

Senior Lecturer

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