Jameel Hassan

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Education

University of Peradeniya, Sri Lanka *Nov 2016 - Jul 2020*
Bachelor of Science in Engineering, Electrical & Electronic Engineering,
CGPA: 3.61/4.0 *(Top 10% of class)*

Summary of modules:
Linear Algebra · Calculus · Probability · Communication Theory
Operations Research - Algorithms · Optimization
Non Linear & Multivariable controls · Discrete Time Control Systems
Signals & Systems · Advanced Signal Processing · Machine Intelligence

Online courses
Coursera - University of Melbourne
- Discrete Optimization *In progress*

Coursera - Stanford University
- Machine Learning

Coursera - University of Toronto
- Introduction to Self Driving Cars
- State estimation and localization for self driving cars *In progress*

Coursera - deeplearning.ai
- First 4/5 courses (Neural networks, CNNs, Structuring Machine Learning projects)

Trinity College Kandy, Sri Lanka
GCE A/L *Physical Sciences*, **4As**

Research Interests

Autonomous Systems: Perception, Planning, Navigation, Localization
Robotics · Optimization · Machine Learning · Computer Vision

Publications

[**J**]: Journal [**C**]: Conference [**NP**]: Non peer reviewed

Umar Marikkar, **A. S. Jameel Hassan**, Mihitha S. Maithripala, Roshan I. Godaliyadda, Parakrama B. Ekanayake and Janaka B. Ekanayake, "Modified Auto Regressive Technique for Univariate Time Series Prediction of Solar Irradiance" [Link],
2020 15th IEEE International Conference on Industrial and Information Systems (ICIIS) [**C**]

A. S. Jameel Hassan*, Umar Marikkar*, G.W. Kasun Prabath, Aranee Balachandran, W.G. Chaminda Bandara, Roshan I. Godaliyadda, Parakrama B. Ekanayake, Janaka B. Ekanayake, "A Sensitivity Matrix approach for Centralized Active Reactive Power Management of PV Systems integrated LV network",
Energies, MDPI
Under Review **2nd Round** [**J**]

Gihan Jayatilaka, **Jameel Hassan**, Suren Sritharan, Roshan Godaliyadda, Parakrama Ekanayake, Vijitha Herath, Janaka Ekanayake, "Utilizing temporal graphs to improve computer vision-based social distance monitoring"
Sustainable Cities Journal, Elsevier.
Submitted to Journal [**J**]

Gihan Jayatilaka*, **Jameel Hassan***, Umar Marikkar, Rumali Perera, Suren Sritharan, Harshana Weligampola, Mevan Ekanayake, Roshan Godaliyadda, Parakrama Ekanayake, Vijitha Herath, G.M. Dilshan Godaliyadda, Anuruddhika Rathnayake, Samath Dharmaratne, Janaka Ekanayake, "Use of Artificial Intelligence on spatio-temporal data to generate insights during COVID-19 pandemic: A Review"
Medrxiv [**NP**]

Jameel Hassan, Suren Sritharan, Gihan Jayatilaka, Roshan Godaliyadda, Parakrama Ekanayake, Vijitha Herath, Janaka Ekanayake, "Hands Off: A Handshake Interaction Detection and Localization Model for COVID-19 Threat Control"
2021 16th IEEE International Conference on Industrial and Information Systems (ICIIS).
Submitted to Conference [**C**]

Research Projects

Computer vision system to create a threat level assessment using CCTV footage for COVID-19 *(Computer Vision, Temporal graphs)*

August 2020 - Present

Designed an end to end deep learning framework using models for object and action detection along with localization tasks to quantify social distancing measure violations. The information is expressed in a temporal graph for analysis and outputs a threat level measure for COVID-19 for the CCTV footage.

Centralized control of PV inverter powers to mitigate voltage violations in the distribution grid *(Smart Grid, Optimization)*

August 2020 - Present

Developed a centralized control of active and reactive powers of PV inverters to mitigate voltage violations in the distribution grid due to excess solar influx. The centralized control is achieved by implementing a novel two stage optimization using particle swarm optimization for power grid applications.

Optimized economic dispatch for Micro Grid using solar prediction
(Smart Grid, Machine Learning, Signal Processing)

June 2019 - June 2020

Designed an optimised scheduling and control algorithm to predict the power outputs of the stochastic renewable systems such as solar and wind plants. The net output power is aggregated to supply a load demand from a specific energy market.

Course Projects

Smart haptic headphone
Course: Engineering Product Design *November 2018*

Designed a smart headphone that automatically responds to haptic sensor feedback. An Attiny13 microcontroller was used, which was programmed using Arduino Uno.

Eagle, ArduinoC, ATTiny13

Automatic light controller
Course: Embedded Systmes Design | *June 2018*

Designed an automatic light controller which keeps count of people within a room to switch ON/OFF the lights. A PIC16f84A programmed using assembly language was used to control the lights.

Assembly language, PIC

Colour sensing robot arm (Video)
Course: Electronic Instrumentation *June 2017*

Designed a color sensing robotic arm that picks and places the object in predefined locations based on the color of the object.

Arduino Uno, Arduino C

Experience

Research Associate
Faculty of Engineering, University of Peradeniya *August 2020 - September 2021*

· Research focusing on computer vision techniques to mitigate COVID-19, and voltage violation problem due to solar PV penetration in smart girds. Research projects 1 and 2 listed above.

Volunteer Teaching Assistant
Course: Introduction to Electrical Engineering *Feb 2020 - July 2020*

· Conducted lab tutorials for course material on statistics and probability.

Electronic Engineering Intern
Vega Innovations, Sri Lanka | Eagle, PowerSim *Feb 2019 - May 2019*

· Tested and troubleshooted the electric vehicle fast charging power module.
· Completed the wiring design for the hydroponics rack used for smart plant growth.

Undergraduate Project Mentor
Forecasting of dengue epidemic using deep learning *July 2020 - July 2021*

· Mentored a group of 3 final year students on the research project based on epidemic forecasting.

Awards & Achievements

· **GCE A/L Best results** Trinity College Kandy, Sri Lanka 2014 - 4As.
· Finalist of Eng. EW Karunarathne Award for the Best Undergraduate Project in Electrical Engineering. Organised by Institute of Engineers, Sri Lanka (IESL).
· Finalist of IntelliHack 2019 - Machine Learning Hackathon organised by IEEECS University of Colombo School of Computing (UCSC).
· Finalist of "International Energy and Electricity Market Business Decision Simulation Competition 2019" organised by Shanghai University of Electric Power. One of the three teams representing Sri Lanka.

Skills

Languages: Python, MATLAB, LaTeX, C, Assembly
Technical: OpenCV, Tensorflow, Git, Algothims & Data structures, PCB design, OpenDSS
Soft skills: Writing (Medium), Event Moderation, Public speaking

Extra Curricular

Global Shaper- Kandy Hub, Under World Economic Forum. *(Mar 2020 - Sep 2020)*
Project Nenathambara: Course developer Link.
Basketball, University of Peradeniya, Sri Lanka. *2017/2018*
Drama Society, University of Peradeniya, Sri Lanka. *2016-2018*
Football - 1st XI, Trinity College Kandy. Sri Lanka. *2012-2014*
School Officer(Prefect), Trinity College Kandy, Sri Lanka *2013/2014*

Referees

Professor Janaka Ekanayake (Thesis Supervisor)
BSc Eng, PhD(UMIST), CEng, FIEEE, FIET, FIESL
Chair Professor, Department of Electrical & Electronic Engineering,
Faculty of Engineering, University of Peradeniya.
Email: ekanayakej@eng.pdn.ac.lk

Dr Roshan Godaliyadda (Thesis Supervisor)
BSc Eng, PhD(NUS), MIEEE, MIESL
Senior Lecturer, Department of Electrical & Electronic Engineering,
Faculty of Engineering, University of Peradeniya.
Email: roshangodd@ee.pdn.ac.lk