Kashmith Samaranayaka

Machine Learning Engineer at Jaseci Lab in the USA.
kashmith-nisakya | kashmithnisakya | kashmithnisakya@gmail.com | +94 77 271 5351

Profile

Machine Learning Engineer and enthusiastic graduate in **Electrical Engineering** from **the University of Moratuwa**, with a focus on **AI, Data Science, Robotics & Electronic Design Automation**. Dedicated to hands-on learning, seeking diverse experiences for professional growth and mastery in the field.

Experience

Machine Learning Engineer April 2024 - Present
Jaseci Lab, 5559 Great Hawk Circle, Ann Arbor, MI 48105, USA *Remote*

- Contributed to developing and maintaining the backend infrastructure for Tobu, an innovative social media platform integrated with Large Language Models (LLMs) to enhance user interactions and content generation.

Technical Engineer Jan. 2023 - July 2024
Synopsys Lanka(Pvt) Ltd, Colombo No. 03, 2/1, Lukshmi Gardens Colombo 08, Sri Lanka *On-site*

- Led the development of a Synopsys search engine, focusing on dataset creation and NLP-based email classification using LSTM Neural Networks..
- Automated large file compilation, notification, result analysis, and reporting, optimizing storage and saving substantial employee time using Python, Bash, and CSH.
- Managed and maintained 17 complex processor designs, running daily analyses and resource management using custom scripts to improve efficiency. Conducted detailed performance assessments, reporting on trends, and addressing any issues, ensuring reliable operation of designs, each requiring a full day to execute.

Publications

Nisakya.M.S.K, Arampola S.M.L, Yasodya W.A, S. Kumarawadu, V. Logeeshan, C. Wanigasekara. "**Self-Adaptive Non-Intrusive Load Monitoring Using Deep Learning**" In 2024 IEEE World AI IoT Congress. DOI: 10.1109/AIIoT61789.2024.10579028.

Education

Bachelor of the Science of Engineering (Hons.) (Washington Accord accredited) Jan. 2020 - July 2024
University of Moratuwa *Moratuwa, Sri Lanka*

- Specialisation: Electrical Engineering
- **Overall GPA: 3.27 - Second Lower class**
- Final year project: Development of a Self-adaptive Non-Intrusive Load Monitoring System (NILM) using Deep Learning

GCE Advanced Level (A/L) Examination April 2016 - Dec. 2018
H/Debarawew National School *Sri Lanka*

- Stream: Physical science stream (Combined Mathematics, Physics, Chemistry)
- Results: **3A Passes, Z Score: 2.0495**

Projects

Self-adaptive Non-Intrusive Load Monitoring System (NILM) using Deep Learning July 2024

- The system employs Wavenet and CNN models, utilizing custom layers and custom models for prediction, while employing ensemble methods for accurate appliance power consumption prediction. It dynamically adapts to aging and wear via pseudo-labeling, eliminating the need for retraining. Tried transfer learning with pre-trained models and fine-tuning for self-adaptation.

Radio telescope with dual axis solar tracker and battery charge controller.

- The telescope mapped satellites via a Satellite Finder Circuit and optimized sunlight tracking with Dual Axis Solar for efficiency. Employed a PID Controller to modulate current via duty cycle changes and utilized a Battery Charger Circuit to prolong battery life.

Domestic Covid Test-Kit to measure SPO2, Heart rate, Body temperature and ECG analyzer

- Collected SPO2, heart rate, temperature, and ECG data, storing it, then uploading to a web server. Analyzed and de-noised the data with MATLAB before pushing predictions to a mobile app for user display

Computer Vision based projects

- Zombie detection using ResNet50
- Image Segmentation of Handwritten Digits
- Image Classification using transfer learning(ResNet50)
- Image Classification & Localization using MobieNetV2
- Deep Learning with PyTorch: Neural Style Transfer

Computer Vision based projects

- Fine Tune BERT for Text Classification with TensorFlow
- SkimLit NLP Projects

LICENSES & CERTIFICATES

Machine Learning Specialization
DeepLearning.Al & Stanford University

- Supervised Machine Learning
- Advanced Learning Algorithms
- Unsupervised Learning

Deep Learning Specialization
DeepLearning.Al

- Structuring Machine Learning Projects
- Convolutional Neural Networks
- Improving Deep Neural Networks
- Neural Networks and Deep Learning
- Sequence Models

TensorFlow: Advanced Techniques Specialization
DeepLearning.Al

- Custom Models, Layers, and Loss Functions with TensorFlow
- Custom and Distributed Training with TensorFlow
- Advanced Computer Vision with TensorFlow
- Neural Networks and Deep Learning
- Generative Deep Learning with TensorFlow

Introduction to Cloud Computing
IBM

Machine Learning Engineering for Production(MLOps) Specialization
DeepLearning.Al

- Introduction to Machine Learning in Production
- Machine Learning Data Lifecycle in Production
- Machine Learning Modeling Pipelines in Production
- Deploying Machine Learning Models in Production

Reinforcement Learning Specialization
University of Alberta

- Fundamentals of Reinforcement Learning
- Sample-based Learning Methods-Ongoing

Data Structures and Algorithms Specialization
University of California San Diego

- Algorithmic Toolbox
- Data Structures

Generative AI with Large Language Models
DeepLearning.AI & Amazon Web Services

Transformer Models and BERT Mode
Google Cloud

Introduction to Containers w/ Docker, Kubernetes & OpenShift
IBM

Introduction to Programming with MATLAB
Vanderbilt University

Honours & Awards

Best Presented Paper Award May 2024
2024 IEEE World AI IoT Congress

Competed against prestigious institutions including Maulana Azad University (India), Deakin University (Australia), and San Jose State University (USA). Achieved the Best Presented Paper Award for our innovative research at the 2024 IEEE AI IoT Congress.

Dean's List – Faculty of Engineering Jan. 2020 - July 2024
Awarded by University of Moratuwa, Sri Lanka

Elected due to GPA above 3.80 in 2nd semester.

Skills & Relevant Courses:

Deep learning frameworks: TensorFlow, Keras & PyTorch

Machine Learning: Computer Vision, Natural Language Processing, Reinforcement Learning, LLMs

Cloud computing: AWS, Google cloud

Databases: SQL and NoSQL databases

Languages: C/C++, Python, R, Java, VB, HTML/CSS/Javascript, Matlab, Mathematica

Scripting: Verilog, SystemVerilog, VHDL

Languages: Python, csh, Bash

Areas of Interes: Machine Learning, Data Science, Robotics, Electronic Design Automation

Soft Skills: Problem Solving, Self-learning, Presentation, Adaptability

Extra-Curricular Activities & Volunteer Experience

Design Team - Lead 2023 - 2024
The sub-committee 22/23 *IEEE PELS SBC*

- As the design team lead for the 22/23 sub-committee of the IEEE PELS SBC at the University of Moratuwa, I created visually engaging posts using Photoshop and Illustrator. My work involved designing graphics that effectively communicated our initiatives and events, contributing to the vibrant presence of our committee.

Languages

Sinhala (Native or Bilingual Proficiency)

English (Professional Working Proficiency)

Referees

Dr. Logeeshan Velmanickam
Senior Lecturer II
Department of Electrical Engineering
University of Moratuwa, Sri Lanka.
logeeshanv@uom.lk
(+94) 70 597 6364

Mr. Hasitha Madushan
Senior Supervisor
Application Engineer
Synopsys Inc
Hasitha.Madushan@synopsys.com
(+94) 77 857 6563

SEN PROF. Kumarawadu S.P.
Senior Professor
Department of Electrical Engineering
University of Moratuwa, Sri Lanka
sisil@uom.lk

Dr. Yiping Kang
Founding Member of Jaseci Labs
Jaseci Labs
Ann Arbor, Michigan, United States
yiping@jaseci.org