Shihab Aaqil Ahamed

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Research Interests

- Computer Vision
- Artifiical Intelligence
- Federated Learning
- Machine Learning
- Deep Learning

Education

University of Moratuwa **June 2021 – Present**

Bachelor of Science (Honours) in Electronic and Telecommunication Engineering *May 2022 – Present*

- CGPA: 3.54/4.0 (Second Class Upper Honours)
- Current Semester: Third Semester

Zahira College, Kalmunai, Sri Lanka **January 2017 – August 2019**

General Certified Examination Advanced Level *August 2019*

- Z-Score: 2.5593 (Top 1% in Island)
- High Distinctions for Combined Mathematics, Chemistry, Physics (Physical Science Stream)
- District Rank: 2, Island Rank: 152 (out of approximately 35,000 candidates)

Zahira College, Kalmunai, Sri Lanka **January 2011 – December 2016**

General Certified Examination Ordinary Level *December 2016*

- Grade: 7A (Distinction Pass), 2B (Very Good Pass)

Relevant Coursework

- EN1020 Signals and Systems (A)
- EN2570 Digital Signal Processing
- EN4553 Machine Vision
- MA2024 Calculus (A-)
- MA2034 Linear Algebra
- MA3014 Applied Statistics
- Data Structures and Algorithms
- Object-Oriented Programming
- Artificial Intelligence
- Probability and Statistics
- Deep Learning
- Multi variate Calculus
- Convolutional Neural Networks
- Sequence Models
- Machine Learning

Courses

- Coursera Machine Learning Specialization (https://coursera.org/share/41ddc1247d0aff628fcc5883cb40b623)
- Coursera Deep Learning Specialization (https://coursera.org/share/41ddc1247d0aff628fcc5883cb40b623)
- Coursera Mathematics for Machine Learning and Data Science Specialization (https://coursera.org/share/41ddc1247d0aff628fcc5883cb40b623)
- Coursera DeepLearning.AI TensorFlow Developer Professional Certificate (https://coursera.org/share/41ddc1247d0aff628fcc5883cb40b623)

Projects

Solar Wifi Router | *Altium Designer, Proteus, Solidworks* **January 2021**

* We built a wifi and LED UPS system to work in power cut/ outage times or an out place that we can't get an A/C current source.
* We designed it in a proper way to handle it easily. We provided a 12V rechargeable battery to charge with an A/C current (converting 230V to 12V) or with a 12V solar grid power.
* We used relay to perform in power cut times that convert the power line to direct battery line. From this process, we can work with Wifi and LED continuously. When we get a direct current line from any sources (A/C or solar) relay automatically convert battery line to power line.
* Real time we can charge the battery also is one of the benefit from this device. We can manage this process with the switches according to our required function.
* PCB design with the simple electronic components and enclosure is very user-friendly to handle.
* GitHub Link: GitHub

Linear Power Supply | *Altium Designer, NI Multisim, Solidworks* **November 2020**

* We were tasked with designing a 10V linear power supply with a maximum current rating of 10A. The linear power supply is used to drive a load under constant voltage/current conditions.
* To begin the design process, we used a step-down transformer to reduce the 230V input line voltage to a 15V(rms) AC voltage. After that, a GBPC3506W Bridge rectifier was used to rectify the voltage, and a 10mF capacitor was used to smooth the output.

* After the smoothing stage, we used two transistors (MJ4502 and BC547A as Sziklai pair), a 10V Zener diode, 150Ω resistor, and a diode to regulate the voltage. We also included a circuit to limit the current to a maximum of 10A and provide short circuit protection.
* To ensure proper heat dissipation, we used a heat sink with the MJ4502 transistor and the bridge rectifier. The final design consists of a single-layer PCB covered by a 3D printed enclosure with a 12V DC fan.
* GitHub Link: GitHub

Solar Battery Charger | *Altium Designer, NI Multisim, Solidworks* **October 2020**

* GitHub Link: GitHub

Trigger word detection using RNN | *Python, Numpy, Tensorflow Keras,Jupyter Notebook* **October 2020**

* Implemented a bidirectional recurrent neural network using keras to detect trigger words in an audio file as part of the Sequence Models course on Coursera.
* Codes not available on github due to coursera's honour code.
* GitHub Link: GitHub

Applied Convolutional Neural Networks as part of a Coursera course | *Python, Jupyter Notebook* **October 2020**

* Built a model to detect cars in an image using YOLO(You Only Look Once) algorithm.
* Implemented Neural Style Transfer using Deep Convolutional Networks to generate artwork given style and content images.
* Codes not available on github due to coursera's honour code.
* GitHub Link: GitHub

Cat Image Classifier | *Python, Numpy, Jupyter Notebook* **October 2020**

* Built and Trained a deep L-layer Neural Network and used it to classify cat images.
* GitHub Link: GitHub

Honours And Awards

Jinnah Scholarship **October 2020**

The High Commission of Pakistan *Colombo, Sri Lanka*

* The scholarships are awarded on a merit basis. Under this program, each successful student receives a stipend of SL Rs. 50,000 as assistance for one year to pursue their studies.

IEEExtreme Programming Competition 17.0 **November 2023**

Institute of Electrical and Electronics Engineers (IEEE) *City, State*

Technical Skills

Languages: C, C++, Matlab, Overleaf LaTeX, Python
Developer Tools: Google Colab, Jupyter Notebook, PyCharm, VS Code
Version Control: Git, GitHub
Technologies/Frameworks: PyTorch, Tensorflow, Keras