

SHIHAB AAQIL AHAMED

Curriculum Vitae

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Homepage

RESEARCH INTERESTS

- Optimization
- Machine Learning
- Computer Vision
- Deep Learning

EDUCATION

University of Moratuwa

June 2021 – Present

Bachelor of Science (Hons) in *Electronic and Telecommunication Engineering & Minor in Mathematics*

May 2022 – Present

- Pathway: *Computer Vision and Pattern Recognition*
- CGPA: 3.5/4.0 (Second Class Upper Division - Honours)
- Current Semester: Fifth 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 Physics, Chemistry, Combined Mathematics (Physical Science Stream)
- District Rank: 2, Island Rank: 152 (out of ~ 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)

MOOCs

- EPFL Optimization: Principles and Algorithms - edX *Linear Optimization*[†] *Network and Discrete Optimization*[†] *Unconstrained Nonlinear Optimization*[†]
- Machine Learning Specialization - Coursera 1[†] 2[†] 3[†]
- *Data Science and Machine Learning Bootcamp* - Udemy
- Deep Learning Specialization - Coursera 1[†] 2[†] 3[†] 4[†] 5[†]
- Mathematics for Machine Learning and Data Science Specialization - Coursera 1[†] 2[†] 3[†]
- DeepLearning.AI TensorFlow Developer Professional Certificate - Coursera 1[†] 2[†] 3[†] 4[†]

PROJECTS

Machine Learning Projects

ML Parameters Optimization: | *Grid Search, Randomized Search & Bayesian Search Optimization Techniques*

June 2023

- Implemented GridSearch, Randomized Search, and Bayesian Optimization to enhance model performance.
- Evaluated regression models using diverse Key Performance Indicators (KPIs) for accurate assessment.
- Demonstrated expertise in Scikit-Learn, showcasing understanding of hyperparameter optimization strategies.

NLP: Twitter Sentiment Analysis | *Python, NLTK, TextBlob, Naive Bayes Classifier & Jupyter Notebook*

June 2023

- Developed a supervised learning model to predict sentiment from thousands of user tweets.
- NLP libraries - NLTK and TextBlob used for text preprocessing and scikit-learn for ML modelling.
- Accuracy of 94% was obtained using naive bayes classifier model.

Telecom Customer Churn Prediction | *Scikit-Learn, Logistic Regression, SVM, KNN, Random Forest Classifier*

May 2023

- Trained classifiers to predict telecom customer churn using Logistic Regression, SVM, K-NNs and Random Forest Classifier algorithms.
- Evaluated models with AUC score and ROC curve analysis, Amongst all the trained models, Random Forest Classifier achieving the highest performance.
- Random Forest Classifier model: Achieved -96% accuracy, -96% precision for retained customers, and -94% precision for churned customers; recall rate of -99% for retained customers and 76% for churned customers.

University Admission Classification | *Scikit-Learn, NN, Regression Models - Multiple LR & Jupyter Notebook*

July 2023

- Built regression models for university admission predictions from student profiles, Utilized Linear Regression, ANN, and Decision Trees for accurate predictions.
- Achieved highest performance through Artificial Neural Networks, Random Forest, and Decision Trees.

NLP: Resume Selector | *Python, Scikit-Learn, NLP - NLTK, TextBlob - Tokenization*

August 2023

- Developed Naïve Bayes model for model to predict flagged resumes from a dataset of 125 (33 - flagged, 92 - not flagged); using Python, Scikit-Learn, and NLP - NLTK.
- Cleaned and preprocessed resume text by removing punctuation and stop words.

Applied Convolutional Neural Networks | *Python, Jupyter Notebook*

May 2023

- 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.

Selected Undergraduate - Electronic Projects

Solar Wifi Router | Altium Designer, Proteus, Solidworks May 2022 - October 2022

- Developed WiFi and LED UPS with 12V rechargeable battery for reliable power during outages, supporting AC and solar charging.
- Integrated smart relay technology for transitions between power sources (AC, solar), ensuring uninterrupted WiFi and LED performance, facilitating real-time battery charging.
- Created a user-friendly PCB design and enclosure, enhancing usability through intuitive switches, resulting in a dependable solution for power backup requirements.

Analog Linear Power Supply | Altium Designer, NI Multisim, Solidworks October 2022 - February 2023

- Designed a 10V linear power supply with 10A max current, incorporating step-down transformer, bridge rectifier, and Sziklai pair regulation, featuring current limit and short circuit protection.
- Implemented efficient thermal management using heat sinks, finalized in a single-layer PCB enclosed with a 3D-printed case and 12V DC fan for optimal heat dissipation.
- Developed a robust power supply system, utilizing Zener diode, smoothing capacitor, and advanced transistor configuration to achieve stable performance under varying load conditions.

Solar Battery Charger | Altium Designer, NI Multisim, Solidworks March 2023 - June 2023

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RELEVANT COURSEWORK

Computer Vision and Pattern Recognition: EN3160 Image Processing and Machine Vision*, EN3150 Pattern Recognition*
Mathematics: MA1014 Mathematics(A), MA2024 Methods of Mathematics(A+), MA2014 Differential Equations(A), MA2024 Calculus (A-), MA2034 Linear Algebra*, MA3014 Applied Statistics*, MA3024 Numerical Methods*
Miscellaneous: EN1020 Signals and Systems (A), EN2063 Signals and Systems, CS2024 Data Structures and Algorithms(A)

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
Mathematics: Optimization, Calculus, Linear Algebra, Probability and Statistics, Principal Component Analysis(PCA)

EXPERIENCE

ScholarX 2023 Mentee Remote
Sustainabe Education Foundation June 2023 - Present

- Mentored by Ms. Theshani Nuradha, PhD Student at Cornell University, USA.
- Explored Optimization and algorithms, Machine Learning and Privacy and Secure AI (Federated Learning)
- Contributed to creating a sustainable education structure in Sri Lanka.

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.

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