BASIT ABDUL WAHAB

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EDUCATION

University of Mines and Technology **Tarkwa, Ghana**

Computer Science and Engineering November 2023

- Major in Computer Science
- Bachelor of Science in Computer Science and Engineering
- Second Class Upper (Hons)
- Conducted independent research in Faculty Lab, focused on Speech Therapy Web Application for Aphasic People
- Relevant course work: Artificial Intelligence, Programming (C++, C#, Java), Operating Systems, Embedded Systems, Linear Algebra, Calculus, Fundamentals of Computer Science, Web Applications and Databases, Data Structures

S.D.A. Senior High School **Bekwai, Ghana**

General Science September 2014

- WASSCE Certification

RESEARCH INTERESTS

- Machine Learning
- Artificial Intelligence
- Natural Language Processing
- Cryptography
- Quantum Computing

EXPERIENCE

PROCESS AND PLANT AUTOMATION LIMITED **Spintex, Accra, Ghana**

Graduate Trainee November 2023 - Present

- Supervised 1% of the major projects and maintained company policies adhered during the process
- Managed the creation and modification of 25% of the record interface on Oracle NetSuite and other related issues across the company for requests, keeping and saving data
- Collaborated with the Design team to learn to leverage EPlan in designing and reading basic wiring diagrams

FRUITSEGY ENTERPRISE **Bekwai, Ghana**

Team Lead March 2020 - July 2023

- Mentored and trained 5 new team members on business processes; monitored progress through daily and weekly reporting, reduce training and induction time by 5 days
- Undertook a leadership role in facilitating tasks of 20+ members

ANGLOGOLD ASHANTI IDUAPRIEM LIMITED **Tarkwa, Ghana**

System Analyst, Internship April 2022 - May 2022

- Ensured hardware troubleshooting, testing and support; collaborated with 5-member digital technology management team to supervise network systems
- Liaised closely with upper management to resolve network, fibre, internet connections and other related technical issues; moderated on-job training for 15 fellow interns

LEADERSHIP & INVOLVEMENT

CODEHOY **Tarkwa, Ghana**

Founder April 2020 - July 2023

- Coordinated meetings to organize discussions on innovation in technology, assigning tasks to committee members; partnered with moderators to lead a team of 65 students in programming discussions
- Organized Hackathons and code nights in a 65-member team, leveraging Visual Studio Code IDE to write programs

BEKWAI STUDENTS ASSOCIATION **Bekwai, Ghana**

Tutor and Moderator October 2017 - April 2022

- Tracked the academic progress of 7 students, identifying areas of weakness in both Mathematics and Science; planned strategic study schedules, conducting individual remedial lessons and improving academic performance by 45%
- Tutored 10% disabled persons in the town with basic academic needs

RESEARCH EXPERIENCE

COMPUTER SCIENCE & ENGINEERING DEPARTMENT **Tarkwa, Ghana**

Part-time Research Assistant, Dr. Affum's Lab January 2024 - Present

Collaborated with Dr. Affum

- **Blockchain-Enabled Cocoa Supply Chain Management**
  - Contributed to a project exploring the use of blockchain to improve transparency, traceability, and efficiency in Ghana's cocoa supply chain.
  - Designed and implemented a blockchain system that streamlined data flow and ensured secure, decentralized record-keeping for all stakeholders, including farmers
- **Leveraging Blockchain for Sustainable Small-Scale Mining**
  - Collaborated on a project to create a blockchain-based platform aimed at promoting sustainability and transparency in small-scale mining operations in Tarkwa, Ghana.
  - Developed an Ethereum-based prototype to monitor mining activities, track mineral extraction, and ensure equitable benefits for miners while mitigating environmental impacts
- **Advancing Network Intrusion Detection Leveraging Deep Convolutional Neural Network**
  - Worked with the team to design and implement a CNN model that enhanced intrusion detection accuracy while reducing false positives and negatives
  - Preprocessed large datasets, including the CICIDS2017 dataset, by applying techniques such as feature selection, normalization, and addressing class imbalances to improve model performance
  - Participated in the evaluation of CNN, RNN, and LSTM models, demonstrating that CNN achieved superior performance with 96.55% accuracy, 96.96% precision, and 96.65% F1-score
- **Hypothyroid Disease Prediction Using Machine Learning**
  - Collaborated on a project to predict hypothyroid disease using machine learning algorithms based on dataset of 1,000 individuals, 376 positive cases and 624 negative cases of hypothyroidism
  - Developed machine learning models to predict hypothyroidism using classification techniques, including ANN, Random Forest, SVM, and Logistic Regression
  - Evaluated model performance using Precision, Recall and Accuracy score, identifying ANN as most accurate model for hypothyroidism

Collaborated with Dr. Emmanuel Danooba Sunkari

- **Application of machine learning algorithms to predict rock types using geochemical data: A case study from the Obuasi Gold District mining district, Ghana**
  - Collaborated on a project to predict rock types using machine learning algorithms based on geochemical data from the Obuasi Gold District in Ghana
  - Implemented supervised classification algorithms, including Random Forest, Gradient Boosting, AdaBoost, and Support Vector Machine to analyze rock samples
- **Hydrogeochemical Appraisal Of The Co-Occurrence Of Fluoride And Nitrate In Groundwater Of Gushegu Municipality In The Northen Region, Ghana**
  - Developed machine learning models to predict fluoride and nitrate concentrations in groundwater, using multiple regression techniques including XGBoost, SVM, and Stochastic Gradient Descent (SGD)
  - Conducted extensive data preprocessing, feature engineering and dimensionality reduction using Principal Component Analysis (PCA)
  - Evaluated model performance using Mean Squared Error (MSE) and Root Mean Square Error (RMSE), identifying XGBoost as the most accurate model for predicting water quality

Collaborated with Mr. George Essah Yaw Okai

- **Design and development of vehicle logging and access control system with ANPR integration**
  - Developed an advanced Vehicle Logging and Access Control System integrated with Automatic Number Plate Recognition (ANPR) to enhance security
  - Conducted in-depth research on the effectiveness of ANPR technology in improving security and operational efficiency

- ❖ **Machine learning-based sentiment analysis in combating misinformation: techniques, challenges, and applications**
  - Implemented algorithms like Support Vector Machines (SVM), Naive Bayes, and Neural Networks to classify sentiment in text data related to misinformation on social media platforms.
  - Analyzed sentiment trends using hybrid models, improving the detection of misinformation by enhancing accuracy and reducing false positives

PROJECTS

ROCK CLASSIFICATION

Data Analysis and Model Creation for Publication

- Analyzed 10,000 rock data and implemented classification models, Support Vector Machine, Random Forest, Gradient boost and Adaboost to predict the classification of rocks leveraging pandas, sklearn, matplotlib and seaborn;
- Support Vector Machine gave the best model with a Test Set Accuracy score of 0.865

PREDICTION OF FLUORIDE CONCENTRATION IN GROUNDWATER

Model development

- Analyzed 2013 groundwater samples with hydrogeochemical compositions and implemented regression models, SVM, XGBoost, and Stochastic Gradient Descent
- XGBoost ranked as the best model with a mean squared error of 6.556056 and accuracy score 0.076923 ahead of SVM and Stochastic Gradient Descent

SPEECH THERAPY APPLICATION

Final Project Work

- Designed a seamless web application for training 5 aphasic people to memorize, pronounce words and facilitate improved phonetics
- Developed REST API with NodeJS to handle client requests; employed reactJS to optimize application, increasing loading speed by 30%

VEHICLE CONTROL AND ACCESS CONTROL

Final Graduate Trainee Project

- Coded a program to read car number plates; opened and closed 5 company gates; demonstrated program to CEO and 50+ key members of $10M automation and engineering firm
- Adopted methods to evaluate functioning of database management system; analyzed existing problems in system and recommended strategies to reduce data entry time by 10%, increasing productivity

CAR PRICE PREDICTOR

Model Creation in RESTful API for Web Application

- Deployed Linear Regression model to predict car price using pandas, sklearn and seaborn; the Linear Regressor gave an R-squared score of 0.845

INCOME PREDICTOR

Model Creation in RESTful API for Web Application

- Built Random Forest Classifier to predict income using pandas, sklearn and seaborn; Hyperparameter tuning with GridSearchCV gave a score of 0.859

TECHNICAL SKILLS

- Programming Languages: Python | JavaScript | NodeJS | C++ | SQL | ReactJs | Flask
- Technical: Microsoft Office Suite (Word, PowerPoint, and Excel), Google Colab, Visual Studio Code, Tableau, Power BI, EPlan, Oracle NetSuite

CERTIFICATIONS

Diploma in Using Python For Data Science (Alison)
Deep Learning and Reinforcement Learning (Coursera)
Unsupervised Machine Learning (Coursera)
Supervised Machine Learning: Classification (Coursera)
Supervised Machine Learning: Regression (Coursera)
Exploratory Data Analysis for Machine Learning (Coursera)
Certificate in Data Analysis: Data, Data, Everywhere (Coursera)
Data Science and Analytics (HP LIFE)
Introduction to Machine Learning (Kaggle)