

# Prince Mensah

M.S STUDENT IN MACHINE LEARNING · AIMS - AMMI

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## Education

### African Institute for Mathematical Sciences (AIMS)

M.S IN MACHINE LEARNING

Mbour, Senegal

Feb. 2024 - Present

### African Institute for Mathematical Sciences (AIMS)

M.S IN MATHEMATICAL SCIENCES

Accra, Ghana

Nov. 2022 - Aug. 2023

### Kwame Nkrumah University of Science and Technology (KNUST)

B.S IN MATHEMATICS

Kumasi, Ghana

Oct. 2017 - Nov. 2021

## Skills

<b>Languages</b>	Python, C/C++, LaTeX, R, SQL.
<b>Technologies</b>	Git, Docker, GitHub, Streamlit
<b>Libraries</b>	Pytorch, TensorFlow, Scikit-Learn, Numpy, Scipy
<b>Others</b>	End-to-end deployment, Innovation and Leadership

## Experience

### Industry Immersion Africa

TUTOR, DATA ANALYTICS

Accra, Ghana

Sep. 2023 - Nov. 2023

- Tutored students interested in pursuing careers in industry.
- Covered topics such as Advanced Data Analytics, Power BI, General Management, Data & Decisions, and Agile Leadership.

### iAnalyze Mentorship Program

DATA SCIENCE INSTRUCTOR

Accra, Ghana

Feb. 2023 - Aug. 2023

- Taught data science concepts including; predictive analytics, basic machine learning concepts, and programming in Python and R.
- Collaborated on curriculum design and addressed student concerns to ensure the program's success.

### Kwame Nkrumah University of Science and Technology

TEACHING ASSISTANT

Accra, Ghana

Oct. 2021 - Nov. 2022

- Tutored undergraduates in Differential Equations, Numerical Methods, Linear Algebra, and helped with grading.
- Collaborated with faculty in research activities.

## Research Projects

### MS Thesis

DARK-SOLITON QUANTUM BITS FROM THE COHERENT DYNAMICS OF BOSE-EINSTEIN CONDENSATES WITH SELF-DEFOCUSING

AIMS Ghana

NONLINEARITY

June, 2023

- Studied how Bose-Einstein condensates (BECs) with self-defocusing effects can create quantum bits using dark solitons in a dilute gas.
- Developed a mathematical model for BECs and examined the quantum states they produce.
- This research helps explore new ways to encode and control quantum information with BECs.

### B.S Thesis

PREDICTING THE SEVERITY OF ROAD TRAFFIC ACCIDENTS IN GHANA USING MACHINE LEARNING ALGORITHMS

Kumasi, KNUST

May, 2012

- Used machine learning models such as Random Forest, Logistic Regression, and Neural Networks to predict crash injury severity.
- Compared their performance based on accuracy and other metrics, and used feature selection to find important factors.

### Updates on Meningitis Surveillance in the Upper West region of Ghana (2012-2020)

COLLABORATIVE PROJECT

Kumasi, KNUST

July, 2021

- Analyzed Meningitis data from the Upper West region in Ghana, focusing on cases from 2012 to 2020.
- Using QGIS software, we studied the spread of cases and deaths across the 11 districts in the region.

## Selected ML Competitions and Projects

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### Cassava Leaf Disease Classification (1st Place)

[Kaggle Link](#)

MODEL ACC: 91.7% - IDENTIFIED CASSAVA LEAF DISEASES USING DEEP LEARNING (RESNET 50)

[Web App](#)

- Utilised the ResNet50 model for cassava leaf disease classification
- Built a web app using the model to classify cassava leaf images into one of several categories to help identify common diseases.

### Image Classification with the AlexNet architecture

[GitHub](#)

MODEL ACC: 84.85% - IMPLEMENTED THE ALEXNET ARCHITECTURE FROM SCRATCH AND TRAINED IT ON CIFAR10 AND CIFAR100

- Trained an AlexNet-based Convolutional Neural Network on the CIFAR-10 and CIFAR-100 dataset using PyTorch
- Applied several augmentation techniques including; mixup, cutout and cutmix to avoid overfitting

### Object Detection using FasterRCNN

[GitHub](#)

BACKBONE NETWORK: RESNET50

[Web App](#)

- Built a real-time object detection model using FasterRCNN.
- Deployed the model on streamlit where users can upload images or use their webcam to detect and visualize objects live.

### Question Answering System using Transformer

[GitHub](#)

UTILIZED SENTENCE TRANSFORMERS FOR GENERATING EMBEDDINGS

- Developed a QA system that answers user questions by finding relevant text from a database.
- It uses advanced machine learning and data retrieval for accuracy.

## Awards & Achievements

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2024 **Master's in Machine Intelligence Scholarship;** For M.S in Machine Learning

[AMMI, Senegal](#)

2022 **Master's in Mathematical Sciences Scholarship;** For M.S in Mathematical Sciences

[AIMS, Ghana](#)

2017 **Ghana National Petroleum Corporation (GNPC) Scholarship Award;** For B.S in Mathematics

[KNUST, Ghana](#)