# GYAMFI BRIGHT OKYERE

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## EDUCATION

**Bachelor of Mathematics**, Kwame Nkrumah University of Science and Technology 2019 - 2023
Thesis: Physiologically Based Pharmacokinetic Modeling with Machine learning methods.

## CAREER STATEMENT

I am a graduate student applicant with a BS in Mathematics, bringing a robust analytical background to my pursuit of research in data science and machine learning. My background and expertise encompasses core mathematical concepts, including calculus, statistics, linear algebra, and probability theory, which are fundamental to understanding and developing advanced ML algorithms. I am particularly interested in computer vision and reinforcement learning. I'm eager to develop my research skills and contribute to the advancement of these fields.

## EXPERIENCE

**Teaching Assistant.** Nov 2023 - Nov 2024
Kwame Nkrumah University of Science and Technology. *Kumasi, Ashanti*
Conducting tutorial sessions, grading assignments, and offering office hours to address student queries.
Assisted in the instruction of the following courses:

- MATH 157: Algebra.
- MATH 252: Multivariate Calculus.
- MATH 266: Mathematical Methods II.
- MATH 351: Numerical Analysis.
- MATH 365: Differential Equations II.
- MATH 366: Partial Differential Equations.

## PROJECTS

**Sales Analytics Dashboard**
• Created a sales dashboard in Google Looker Studio, offering at a glance insights on orders.
• Created tabs to track key metrics associated with orders such as highest inventories ordered, growing trends in orders, volume of orders per city, number of orders per region

**Car Insurance cross selling.**
• Created a binary classification model to predict the cross selling of insurance on cars based on metrics such as vehicle insurance, damage, age and annual premium.
• The model was evaluated using the receiver operating characteristic metrics achieving a score of 0.98, falling in top 0.1% of submissions.

**Rwanda CO2 Emissions prediction.**
• Predicted the amount of C02 emitted in certain parts of Rwanda based on emissions data of nearby places and geolocation data.
• Submission ranked in the top 1% of competition participants.

**Brain Tumor Classification.**
• Trained a model to classify MRI images of the brain as having a glioma, meningioma or pituitary tumor, or not having a tumor at all.
• Correctly predicted the labels for 835 of 854 test images, 97.8% accuracy.

**Neural Machine Translation.**
• Created a custom encoder-decoder model to translate English phrases to French and German.
• Obtaining validation losses of 1.724 and 1.765, respectively.

**Neural Style Transfer.**
• Implemented the Neural Style Transfer architecture from scratch.
• Generated a styled image based on details extracted from a style image onto a content image.

**OpenAI Clip Implementation.**
• Implemented the CLIP(Contrastive Language-Image Pre-training) model to learn similarities between images and text.
• The model is trained on the Flickr-Image-Dataset comprising of images and up to 5 text description for each. The trained model is capable of Image Retrieval based on text prompts.

**Movie Recommendation System.**
• Generated movies using Content-based filtering, based on user ratings and watch history.

**Sentiment Classification on chatroom comments.**
• Created a model capable of classifying texts and comments as either toxic, severely toxic, obscene, threat, insult and identity hate.

## SKILLS

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| **Technical Skills** | Python, HTML, CSS, SQL, LaTeX. |
| **Frameworks and Libraries** | Pandas, Numpy, Plotly, ScikitLearn, Keras, PyTorch, TensorFlow, OpenCV. |
| **Software** | Jupyter Notebook, Git, Tableau, Google Looker Studio, PowerBI, FastAPI, Postman, Microsoft Excel. |
| **Languages** | English, Spanish (Basic). |

## CERTIFICATIONS

**Machine Learning Specialization.** DeepLearning AI

- Supervised Learning.
- Unsupervised Learning.
- Reinforcement Learning.

**Deep Learning Specialization.** DeepLearning AI

- Deep Neural Networks.
- Convolution Neural Networks.
- Sequence Models.

## PUBLICATIONS

**Investigation of Fractional Compartmental Models in Pharmacokinetics with Application to Amiodarone Drug Diffusion**

- Examined the use of Fractional Calculus to examine the kinetics of drugs with anomalous behaviour. Amiodarone, a drug used in the treatment of arrhythmia, as the case drug.
- Abstract presented and accepted into the 2024 Faculty of Physical and Computational Sciences Poster Events'(PosterFes Book of Abstracts.