PRINCE MENSAH

Kigali, Kigali city, Rwanda

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PROFESSIONAL SUMMARY

I have experience in developing end-to-end AI solutions—from fine-tuning models to deploying web interfaces using FastAPI, Streamlit, and Docker. Passionate about solving real-world problems through intelligent automation and scalable software architecture.

TECHNICAL SKILLS

Languages	Python, JavaScript, C/C++, MATLAB, R
AI & ML	PyTorch, Hugging Face Transformers, OpenAI API, BERT, GPT-2
Backend & APIs	FastAPI, Flask, Streamlit, Docker, RESTful APIs
DevOps & Deployment	Git, MLflow, Apache Airflow, DVC, Docker, AWS (basic)
Other Tools	Pandas, NumPy, SQL, LaTeX, Power BI, Tableau

WORK EXPERIENCE

InstaDeep Ltd ⟶ Dec 2024 – April 2025
AI Research Fellow ⟶ *Kigali, Rwanda*

· Researched on physics-informed deep learning approaches for remote sensing applications, focusing on vegetation parameter estimation from satellite imagery.
· Collaborated with research teams to develop a novel transformer-prosailvae architectures for environmental monitoring.

Industry Immersion Africa ⟶ Sep 2023 – Nov 2023
Course Tutor ⟶ *Accra, Ghana*

· Facilitated hands-on supplementary curriculum for industry-focused students.
· Tutored courses including Introduction to Power BI, Advanced Microsoft Excel for Data Analytics, Introduction to General Management, Data & Decisions, and Agile Leadership.

Galois Analytics Limited ⟶ Feb 2023 – Aug 2023
Data Science Instructor ⟶ *Accra, Ghana*

· Delivered lectures and conducted workshops on predictive analytics, machine learning, data visualization, and programming in Python and R.
· Engaged in collaborative curriculum design and strategic planning with program coordinators.
· Provided comprehensive guidance through hands-on practical sessions to enhance student understanding of data science concepts.

KNUST ⟶ Oct 2021 – Nov 2022
Research & Teaching Assistant ⟶ *Kumasi, Ghana*

· Tutored undergraduate students in course including Differential equations, Numerical methods, and Linear algebra.
· Collaborated with faculty on research projects involving numerical methods, differential equations, and advanced linear algebra.

- Designed tutorial materials and mid-semester exams while maintaining regular office hours for student support.

PROJECTS

Physics Informed Transformer-VAE for Biophysical Parameter Estimation | *Transformer, PROSAIL*
ML/CV   *Personal Project*

- Developed a novel architecture combining transformer networks with physics-based radiative transfer modeling for accurate biophysical parameter retrieval from Sentinel-2 satellite imagery.
- Implemented self-attention mechanisms to capture complex spectral relationships while maintaining physical consistency through the PROSAIL model, significantly improving feature extraction and parameter estimation.
- Project link: [GitHub]

Text Summarization System | *LLM-based, FastAPI, Streamlit, Transformers*
NLP   *Team Project*

- Developed a full-stack text summarization system with FastAPI backend for authentication and transformer-based summarization.
- Implemented user-friendly Streamlit frontend for text input and summary visualization, with comprehensive API documentation.
- Project link: [GitHub]

Sentiment Analysis on Movie Reviews | *BERT, Apache Airflow, MLflow*
NLP   *Team Project*

- Developed an end-to-end ML pipeline for sentiment analysis using BERT, orchestrated with Apache Airflow for automated workflow management.
- Implemented MLflow for experiment tracking and DVC for data versioning, with FastAPI for model deployment.
- Project link: [GitHub]

Question-Answering System | *Flask, Streamlit, Docker, SentenceTransformers*
NLP   *Personal Project*

- Developed a Question-Answering (QA) system capable of processing user queries and returning relevant passages from a given corpus as answers. The system leverages advanced machine-learning techniques and efficient data retrieval mechanisms.
- Implemented Generative AI (GPT 2) model to provide direct, concise answers based on retrieved passages, and utilized Streamlit to create a UI to interact with the ML system.
- Project link: [GitHub]

EDUCATION

African Master's in Machine Intelligence (AMMI)   *Feb 2024 – April 2025*
Master of Science in Machine Intelligence

African Institute for Mathematical Sciences (AIMS)   *Nov 2022 – Aug 2023*
Master of Science in Mathematical Sciences

Kwame Nkrumah University of Science and Technology (KNUST) *Oct 2017– Nov 2021*
Bachelor of Science in Mathematics

AWARDS & CERTIFICATION

Young African AI Research Fellowship (YAAR)
Research Award

2023
Ascend 360

· Prestigious award initiated at Deep Learning Indaba Conference 2023, sponsored by Jeff Dean, Chief Scientist at Google DeepMind and Google Research.
· Selected to nurture and develop emerging AI talent across the African continent.

Master's in Mathematical Sciences Scholarship
Academic Award

2022
AIMS

· Full scholarship awarded by African Institute for Mathematical Science in collaboration with Ghana Government.
· Awarded to talented postgraduate students from the African continent for studies at AIMS-Ghana.

GNPC Scholarship Award
Academic Award

2017
Ghana National Petroleum Corporation

· Competitive scholarship awarded to Bachelor's students demonstrating excellent academic performance.
· Supported my entire undergraduate education at KNUST.

AWS Certification
Professional Certification

2023
Amazon Web Services

· Completed Python for Machine Learning and Deep Learning Program.
· Gained proficiency in building ML and DL algorithms on AWS platform.