CEDRIC P.-E. MANOUAN

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SUMMARY

Software/Machine learning engineer with a focus on deep learning for over 3 years.
Experience in deep learning projects for Natural Language Processing and Computer Vision: end-to-end development from data preparation/exploration to model definition and optimization.
Ability to evolve and work efficiently in a collaborative environment.

EDUCATION

Master of Science | ***Information Technology - Applied Machine Learning*** August 2021 – May 2023
Carnegie Mellon University Kigali, Rwanda

Master of Science (Semester 7) | ***Information Systems and Software engineering*** October 2019 – March 2020
Ecole Supérieure Africaine des TIC (ESATIC) Abidjan, Côte d'Ivoire

Bachelor of Science | ***Systems, Computer Networks and Telecommunications*** October 2016 – September 2019
Ecole Supérieure Africaine des TIC (ESATIC) - See degree certificate here Abidjan, Côte d'Ivoire

WORK EXPERIENCE

Research Associate Summer 2023
Carnegie Mellon University Kigali, Rwanda

- Assisting Prof. David Vernon with the realization of the Situation Model Framework in the CRAM Cognitive Architecture using a Joint Episodic-Procedural-Semantic (JEPS) Associative Memory.

Graduate Research and Teaching Assistant Fall 2022 - Spring 2023
Carnegie Mellon University Kigali, Rwanda

- Assisting Prof. Bhiksha Raj in 11785 - Introduction to Deep Learning: Natural Language & Audio Processing
  - Prepared and Co-Lead the *Language Modeling* homework assignment in Fall 2022
- Assisting Prof. Moise Busogi in Machine Learning for Earth Observation (ML4EO)
- Research in Machine Learning for Earth Observation supervised by Dr. Moise Busogi

Software engineering/Data science Intern May 2021 – July 2021
Zindi Remote

- Data science competitions preparation

Developer Intern (BSc. end project) April 2019 – June 2019
Project of Digital Solutions for the opening up of Rural Areas and E-Agriculture (PSNDEA) Abidjan, Côte d'Ivoire

- Built an Internet of Things (IoT) system for data acquisition in a cassava field
- Developed a REST CRUD API based on NodeJs and MySQL to store data from both sensors and farmers inputs
- Developed a regression model to predict the yield of a given cassava field based on real-time and stored data
- Deployed the machine learning model to an edge device (Raspbery Pi 3) using tensorflowJS

SKILLS

Languages: French (Native), English (Bilingual, Professional)
Programming:

- Python
  - Data manipulation and visualization: Pandas, Plotly, Matplotlib, Seaborn
  - Machine: NumPy, Scikit-learn, Lightgbm, Xgboost, Streamlit

    - Deep learning: PyTorch, Transformers, Tensorflow/Keras
    - API development: Flask, FastAPI
- C++
    - Data structures and Algorithms

PROJECTS AND RESEARCH

Course project - Recommender Systems | ***CMU-Africa*** Fall 2022
Developed a Content-Based Recommender system for scientific papers as part of my mini project in 04800-B Intro to Recommender Systems at Carnegie Mellon university-Africa.
Project link : CBRS for scientific papers

Data science competition - Image classification | ***ZINDI*** Fall 2020
Developed a machine learning model to classify Tuberculosis and Normal X-Ray images for an educational purpose.
Ranking : 7^{th}/104, **Click and look for team DataLabCI on the leaderboard**
Project link : Tuberculosis X-Rays classification

Data science competition - Audio classification | ***ZINDI*** Fall 2020
Contributed to the development of a machine learning model to classify audio utterances in Luganda and English from Uganda.
Ranking : 7^{th}/255, **Click and look for team wakanda on the leaderboard**
Project link : GIZ-NLP-Agricultural-Keyword-Spotter

Data science hackathon - Image classification | ***ZINDI*** Fall 2020
Contribued to the development of a machine learning model to identify whether a person in an image is wearing a face mask or not.
Ranking : 3^{rd}, **Click and look for team TheCIA on the leadernoard**
Project link : Face mask classification

1^{st} prize Hackathon Level 2 (48h) - Image recognition | ***ESATIC*** May 2018
Contributed to the development of a deep learning model to recognize West African bank notes and coins.

1^{st} prize Hackathon Level 1 (24h) - Cryptography | ***ESATIC*** May 2017
Contributed to research and writing (in C++) the encryption algorithm behind an executable program.

INTERESTS & COMMUNITY INVOLVEMENT

NLP and Robotics Spring 2023
Joint Episodic-Procedural-Semantic Associative Memory (JEPSAM) Rwanda, Kigali, CMU-Africa
- Since Spring 2023, I have been contributing to the JEPSAM project. This project aims to provide an implementation of the Situation Model Framework in the Cognitive Robot Abstract Machine (CRAM) cognitive architecture.

Data Science Club December 2021 – November 2022
Lead and coordinator Rwanda, Kigali, CMU-Africa
- Participants recruitment for Zindi UMOJAHACK 2022 (enrolled 30+ new users)

Data Science Côte D'Ivoire 2020 – Present
Free tutoring for local students/AI enthusiasts Côte d'Ivoire, remote

Zindi University ambassador June 2020 – July 2021
Côte d'Ivoire, remote
- Participating in competitions and hackathons on the platform (username : _**MUFASA**_)
- Co-lead of the platform development group (improvements and new ideas)
- Participants recruitment for UMOJAHACK 2021 (enrolled 15+ new users)

Co-founder of the Internet of Things and Artificial Intelligence club 2019
ESATIC Abidjan, Côte d'Ivoire