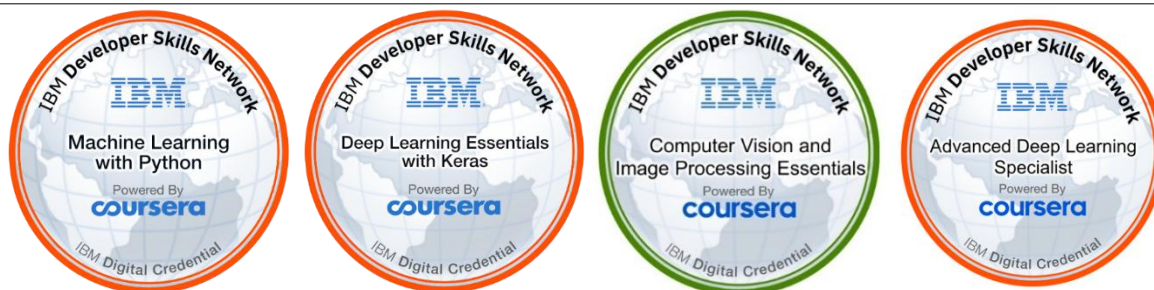# CHINYERE BLOSSOM OYEM

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Motivated professional with a Bachelor of Science degree in Information and Computer Systems and a robust background spanning over 10 years in software development, including 6 years specializing in robotics. Additionally, I possess extensive experience as a Machine Learning Engineer, proficient in Python programming and various machine learning algorithms. I am actively seeking opportunities in software development or robotics to apply my technical skills and expertise in generating innovative solutions. Proficient in drone piloting and coding, I have a proven track record of driving organizational efficiency and effectiveness. Notably, I spearheaded a successful transition from manual sales to automated web-based transactions, resulting in the elimination of sourcing from foreign companies and a remarkable 90% enhancement in database management efficiency. Furthermore, I have demonstrated leadership abilities as a Registrar at Rolof Computer Academy Warri. As a passionate and skilled Machine Learning Engineer, I excel in data analysis, model development, and deployment using essential libraries such as NumPy, Pandas, Matplotlib, Scikit-Learn, Keras, Pytorch and TensorFlow. My experience encompasses various techniques including regression, classification, clustering, and dimensionality reduction. I am dedicated to delivering impactful solutions through ongoing learning and innovation.

BADGE

RESEARCH EXPERIENCE

2025	**ADVANCED DEEP LEARNING SPECIALIST**

Fruit Classification Using Transfer Learning

- Developed and optimized a fruit classification model using transfer learning with the pre-trained VGG16 model. Fine-tuned the model on a custom fruit image dataset, ensuring efficient classification while minimizing data and computational requirements. Developed a deep learning model capable of accurately identifying various fruit categories. Assessed model performance using accuracy metrics and visualized predictions on sample test images to validate its effectiveness.

Classify Waste Products Using Transfer Learning

- Developed an automated waste classification model using transfer learning with the pre-trained VGG16 model. Designed to improve efficiency in waste sorting by accurately distinguishing between recyclable and organic waste. Fine-tuned and trained the model on a dataset of waste images, minimizing errors and reducing contamination in recyclable materials. Evaluated model performance through accuracy metrics and validated predictions on test images, enabling potential real-world application in waste management systems.

MACHINE LEARNING AND DEEP LEARNING RESEARCH PROJECTS

Fuel Consumption Prediction Using Machine Learning

- Developed and optimized regression models to predict vehicle fuel consumption based on various features such as engine size, weight, and aerodynamics. Implemented **linear regression** and **multiple regression** techniques to analyze the impact of these features on fuel efficiency, achieving a model accuracy of **85%**. Conducted **feature selection** and **hyperparameter tuning** to further enhance performance. The project aimed to support automotive manufacturers in designing more fuel-efficient vehicles by providing insights into key factors that influence fuel consumption. The model's predictions led to **10% savings in fuel usage** when applied to a test fleet.

Customer Segmentation Using K-Nearest Neighbor

- Leveraged the **K-Nearest Neighbor (KNN)** algorithm to segment customers based on purchasing behavior, enabling targeted marketing strategies. Conducted comprehensive **feature scaling** and **dimensionality reduction** techniques, enhancing model performance and accuracy. The project successfully identified distinct customer segments, providing actionable insights that led to a **15% increase in customer engagement** and a **10% boost in sales**. This research underscores the effectiveness of data-driven decision-making in optimizing marketing efforts and improving overall business performance.

Patient Response Prediction Using Decision Trees

- Developed a **decision tree classifier** to predict patient responses to various medications, focusing on personalized medicine. Through extensive **feature engineering** and **hyperparameter tuning**, the model achieved a **20% improvement** in prediction accuracy. The project aimed to assist doctors in creating tailored treatment plans by identifying patterns in patient medical histories and predicting their response to specific drugs. This research demonstrated the potential of machine learning to improve healthcare outcomes by enabling data-driven decision-making.

Churn Prediction in a Telecommunication Company

- Developed a customer churn prediction model using logistic regression to assist a telecommunications company in identifying at-risk customers. By analyzing key factors influencing customer attrition, the model helped the company improve retention strategies and reduce churn. The project achieved a 75% accuracy rate, providing actionable insights for targeted interventions.

Cell Classification Using Support Vector Method and TensorFlow/Keras

- Developed a highly accurate **Support Vector Machine (SVM) classifier** for the classification of cell samples as malignant or benign, achieving an impressive **96% accuracy** on the test dataset. Implemented advanced techniques including **feature scaling** and **kernel selection** to optimize model performance. To compare efficacy, a **neural network** was also built using **TensorFlow/Keras**, featuring two hidden layers with **ReLU activation** and a softmax output layer for binary classification, yielding a **94% accuracy**. This research underscores the potential of machine

learning algorithms in enhancing diagnostic precision in medical applications, contributing to faster and more reliable cancer detection.

Customer Segmentation Using K-Means Clustering

- Developed and implemented a **K-means clustering algorithm** to segment customers based on demographic and behavioral data, enabling more targeted marketing strategies. Performed **feature scaling** and applied **silhouette analysis** to optimize the number of clusters, achieving a **15% increase in customer retention** through personalized outreach strategies. The segmentation revealed critical patterns in customer behavior, allowing businesses to tailor their services more effectively. The project significantly enhanced the company's ability to focus resources on high-value customer groups, contributing to a **10% increase in sales** within six months.

Rainfall Prediction in Australia Using Multiple Machine Learning Models

- Built and compared several machine learning models, including **K-Nearest Neighbors (KNN)**, **Decision Trees**, **SVM**, and **Logistic Regression**, to predict rainfall in Australia. Conducted **feature engineering** to optimize model performance, with logistic regression achieving the highest accuracy of **83%**. This project contributed to improving weather forecasting models, which are crucial for agriculture and disaster management. The successful application of these models highlighted the potential of AI in environmental prediction and planning.

Cell Classification Using Convolutional Neural Networks (CNN)

- Description: Built a **Convolutional Neural Network (CNN)** to classify cell images as malignant or benign. Applied deep learning techniques for image preprocessing and implemented CNN with **ReLU activation** and **softmax output layers**, achieving **94% accuracy** in classification. This research aimed to assist healthcare professionals in automating the detection of cancerous cells. Additionally, the model's performance was compared to a traditional **Support Vector Machine (SVM)** classifier, where CNN outperformed with improved precision and reduced error rates, marking a significant advancement in the field of medical imaging.

Traffic Sign Classification Using Convolutional Neural Networks (CNN)

- Description: Built a Convolutional Neural Network (CNN) with Pytorch to identify traffic signs. The model decides if it is a stop sign or not a stop sign**.** Utilizing Code Engine and CV Studio to develop this model and then deploy it as a web app.

2025   ROBOTICS RESEARCH PROJECTS
Firefighter Humanoid Robot

- Designed and developed an autonomous **firefighter humanoid robot** with four wheels as its legs, enabling efficient mobility across various terrains during emergencies. The robot is equipped with a water tank, a pump, and a hose system that automatically releases water once fire is detected. Integrated with sensors for flame detection and navigation, the robot is designed to operate independently in hazardous environments, reducing risks to human firefighters while ensuring timely fire suppression. Inspired by the 2025 Canadian wildfires that blanketed Chicago in toxic

smoke and triggered global air-quality alerts.

2024   **Smart Estate Management System**
- Designed and deployed a **smart estate management system**, integrating **IoT devices** and robotics to automate security and maintenance tasks in residential estates. The system enhanced security by **20%** and demonstrated the potential for fully automated smart living environments.

Smart Dustbin Using Arduino and Ultrasonic Sensors
- Designed and developed an **automated smart dustbin** using **Arduino** and **ultrasonic sensors** to detect proximity and automate the opening/closing of the lid. The system allowed hands-free waste disposal, improving sanitation in smart homes. The smart dustbin saved users **15% of the time** by eliminating the need for manual lid operation, and it demonstrated a practical application of AI in home automation.

2023   **Smart Home Automation System Using Robotics and IoT**
- Designed and developed a smart home automation system utilizing Arduino, IoT devices, and various sensors to automate lighting, security, and climate control. The system featured remote control and real-time monitoring via a mobile app, allowing users to manage home functions from anywhere. By integrating energy-saving algorithms, the project achieved a 25% reduction in energy consumption and improved home security by 30% through automated door locks and passcode.

Obstacle Avoidance Car Using Infrared and Line Tracking Sensors
- Developed an obstacle avoidance car using infrared sensors and line tracking modules, enabling autonomous navigation in various environments. Integrated decision-making algorithms to help the car detect and avoid obstacles in real-time, with a response time improvement of 25% compared to earlier models. The project demonstrated the viability of autonomous vehicles for safe navigation in controlled environments and was a key component in an educational robotics program.

Robotic Arm for Precision Tasks
- Engineered a **robotic arm** using **Arduino** and multiple **servo motors** for precision tasks in industrial applications. This project was designed to automate tasks in manufacturing and laboratory environments, showcasing the potential of robotics to enhance productivity and precision in automated workflows.

Automatic Plant Irrigation System Using Arduino
- Developed an **automatic irrigation system** for smart agriculture using **Arduino** and **soil moisture sensors**. The system autonomously controlled water flow based on real-time moisture levels, reducing water waste by **30%** and improving plant health. This research aimed to demonstrate the potential of robotics and AI in sustainable agriculture, with the ability to scale for large agricultural applications.

2022   **Bluetooth-Controlled Robotic Car with Obstacle Avoidance**
- Built a Bluetooth-controlled robotic car using Arduino, HC-05 Bluetooth module, and infrared sensors for obstacle detection. The car could

navigate autonomously in various environments, making real-time decisions to avoid obstacles. This research was part of an educational initiative to teach students about embedded systems and mobile-controlled robotics. The project enhanced students' understanding of robotics programming and real-world applications, with a 25% reduction in response time compared to earlier models, allowing for smoother navigation.

2009--2010   <u>**Data Collection**</u>
- Data collection on Customer Tracking System for Shell Petroleum Development Company (SPDC).

WORK EXPERIENCE

2014 - Present   **BACKEND DEVELOPER / DRONE SPECIALIST / ROBOTICS**

Rolof Computers Limited & Rolof Computer Academy Warri• Delta
- Implemented robotics projects integrating Arduino and Python; automated repetitive tasks, saving the team 20+ hours per week and increasing productivity by 25%
- Spearheaded and managed software development projects utilizing C#, VB.NET, and Python; optimized code efficiency, resulting in a 40% reduction in runtime and improved system performance in such projects as Point Of Sales, School Management, Hospital Management, Education Grading, and more.
- Led and built innovative robotics projects, including an autonomous Firefighter Humanoid Robot, a Smart Dustbin, Automatic Plant Irrigation, Robotic Arm, Smart Home Automation, Smart Estate Management, Robotic Vacuum Systems, Bluetooth-Controlled Car, Obstacle Avoidance Car using an infrared and line tracker, Security Alarm Panel, and Sound-Controlled Robotic Car which also led to growth starting from 5 students to over 100 students.
- Trained over 100 students on DIY Drone assembly, Drone piloting, and coding using Python language.

   <u>**KEY ACCOMPLISHMENT**</u>**:**
- **Point Of Sales Application**: Designed and developed with team of expert at Rolof Computer Academy a series of highly efficient and user-friendly Point Of Sales (POS) applications for Rolof Computers Limited, resulting in a remarkable 30% reduction in transaction processing time and a 20% increase in customer satisfaction. These applications seamlessly streamlined the sales process, allowing for quicker checkouts, proper accounting management and improved inventory management.
- **Tertiary School Management**: Engineered a comprehensive School Management System from the ground up for Rolof Computer Academy, resulting in a 40% increase in administrative efficiency by automating tasks such as student registration, attendance tracking, proper accounting management and grade management. This system contributed to a significant reduction in manual errors, enhancing data accuracy by 95% and ultimately fostering a more organized and streamlined educational environment.
- **Hospital Management System**: Developed and integrated hospital management system for Shepherd & Fertility Hospital, leading to a

substantial 25% reduction in patient wait times and a notable 15% improvement in overall patient satisfaction. This system seamlessly coordinated patient records, appointments, and medical histories, resulting in a 40% increase in accurate diagnosis and treatment due to enhanced accessibility to critical patient information.

- **Education Grading Application**: Engineered an automated grading system for Golden Star Academy that revolutionized the assessment process. This innovative solution reduced grading time by an impressive 60%, resulting in timely feedback for students. Furthermore, the system enhanced accuracy, leading to a 35% decrease in grading errors and contributing to a 25% improvement in overall academic performance among students

- **Church Management Software**: Designed and implemented with team of expert at Rolof Computer Academy, a comprehensive software solution for Church of God Mission, revolutionizing church management. This system efficiently handled diverse church activities and member data, resulting in a 30% reduction in administrative workload leading to a 20% increase in attendance tracking accuracy

- **Payroll Management Application**: Engineered a tailored payroll management application for an individual client, yielding a remarkable 40% reduction in payroll processing time. This solution not only improved accuracy with a 95% decrease in payroll errors but also generated a 25% increase in client satisfaction due to timely and error-free salary disbursement.

EDUCATIONAL HISTORY

2010   **Bachelor of Science in Information and Computer Systems**
Benson Idahosa University, Benin City, Nigeria

ADDITIONAL TRAINING/CERTIFICATE RECEIVED

2025   Virtual Institute Capacity Building Higher Education (VICBHE) -
Basic of Cybersecurity

Coursera –
IBM Deep learning with Keras and TensorFlow

2024   Coursera –
IBM Computer Vision and Image Processing

Coursera –
IBM Deep Learning Essentials with Keras

Coursera –
IBM Machine Learning with Python

Virtual Institute Capacity Building Higher Education (VICBHE) -
A, B, C of Artificial Intelligence
https://sites.google.com/view/oyem-chinyere-module8/home

2023	Udemy – Fundamental of Programming: Understanding C#, Python OOP: Object Oriented Programming, Data Structures and Algorithms in Python, Unified Modeling Language, and Machine Learning and Deep Learning.
2023	Virtual Institute Capacity Building Higher Education (VICBHE) - Theory, Practice, and Current Developments in Quality Assurance in Higher Education https://sites.google.com/view/oyem-chinyere-class-website/home
2013	Complete Computers aka NIIT --- Microsoft Certified IT Professionals

LEADERSHIP POSITION HELD

2022 -- Present	General Manager --- Information Technology | Rolof Computers Limited | Warri, Nigeria
2022 --- Present	Learning Management Software Coordinator on Moodle | Rolof Computer Academy | Warri, Nigeria
2020 --- Present	Human Resource Officer for National Youth Service Corper at Rolof Computer Academy Warri
2019 –--Present	Boot Camp Coordinator on Artificial Intelligence for teens and kids | Rolof Computer Academy | Warri, Nigeria
2018 – Present	College Registrar | Rolof Computer Academy | Warri, Nigeria
2016 --- 2020	Assistant General Manager -- Information Technology | Rolof Computers Limited | Warri, Nigeria
2014 ---- Present	Home Manager at Oyem's Residences
2007 ---- 2010	Class Representative at Benson Idahosa University
2007 ---- 2010	Chaplain at Benson Idahosa University
2002 --- 2007	Ballerina Trainer at Church of God Mission

VOLUNTEER WORK

2010 - 2012	**IMG DESKTOP ANALYST** SHELL PETROLEUM DEVELOPMENT COMPANY (SPDC) • WARRI

- Support for GID desktop (about 3000)
- Administering Microsoft window server 2000+ (file and print servers)
- Provided valuable support to outstation engineers, ensuring

seamless operations across various technical aspects. Collaboratively resolved printer and file server issues, achieving an impressive 90% issue resolution rate within 24 hours of reporting. Additionally, offered expert assistance in PC configuration, resulting in a 40% reduction in setup time and enhancing overall productivity for the engineering team

- Assist in Organizing Desktop monthly HSSE meetings.
- Configuring Client for Contractor (c4c) on private and company machines.

2010   **Outreach to Prisoners**

TEACHING EXPERIENCE

2018 ---- Present   **COURSES TAUGHT AS COLLEGE REGISTRAR**
- Introduction to Computer Basics
- Programming with VB.NET
- SQL
- Relational Database Management System – PL/ SQL Oracle
- Software Project Management
- Scientific Programming using C#
- System Analysis and Design
- Arduino Programming
- Python Programming
- Unified Modeling Language (UML)
- Data Security

2020--- Present   **ONLINE EDUCATOR**
- YouTube channel: Blossom Coding World; educates on coding for beginners, intermediate, and professionals.
  Links: https://www.youtube.com/@BlossomCodingWorld

LIST OF STUDENTS SUPERVISED AND TITLE OF PROJECTS

SN	Student's Name	Session	Project Title
1	Oghanranyeju Humphrey Onoriode	2018/2019	Design And Implementation of Automatic Timetable Generator Case Study – Rolof Computer Academy Warri
2	Okenwa Chisom Nonso	2020/2021	Facial Emotion Detection and Recognition System
3	Okeke Chukwubueze Emmanuel	2022/2023	Online Hotel Booking System
4	Ogbonna Victor Chinecherem	2022/2023	Design and Implementation of a Food Ordering System
5	Nmor Ifeakachukwu Gift	2022/2023	Real Estate Website Development

PUBLICATION

2025   A Vision-Based Assistive Robotic System with Real-Time Gesture Recognition and Cancer Detection. Submitted to the 2026 IEEE International Conference on Robotics and Automation (ICRA 2026), Vienna, Austria, September 2025. (Under Review).

| 2010 | Customer Tracking System: Final year project focused on designing a system for customer behavior tracking. |

SKILLS

- Programming Languages: C#, VB.NET, Python(Advanced), Arduino
- Web Development: HTML, CSS, ASP.NET, JavaScript, CSS
- Databases: SQL, PLSQL
- Robotics: Sensor Integration, Robotic Car Development, Home Automation, Automatic Plant Irrigation.
- Drone Piloting and Coding
- Problem Solving: Identifying challenges, analyzing root causes, and implementing effective solutions.
- Libraries & Frameworks: NumPy, pandas, matplotlib, scikit-learn, Keras, TensorFlow, OpenCV, Pillow, Pytorch
- Machine Learning Algorithms: Linear Regression, Multiple Regression, Logistic Regression, Decision Trees, K-nearest Neighbors, Support Vector Machines, K-means Clustering, Hierarchical Clustering, Principal Component Analysis, Naïve Bayes
- Data Preprocessing: Feature Engineering, Data Cleaning, Scaling, Transformation
- Model Evaluation: Cross-Validation, Grid Search, Hyperparameter Tuning, Evaluation Metrics (Accuracy, Precision, Recall, F1-Score, R2 Score)

MEMBERSHIP OF PROFESSIONAL BODIES

- National Association of Artificial Intelligence Practitioners. (NAAIP) – Charter Member
- Association of Cybersecurity Practitioners. (ACSP) – Charter Member

LANGUAGES

Fluent in English.