BONIFACE **UWIZEYIMANA**

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ABOUT Me

Passionate about contributing to science and solving real problems facing humanity by being creative, innovative, and always thinking outside the box. I am enthusiastic about computer programming and computer-oriented solutions to problems. I am a believer in hard work in the words of **Vince Lombardi** *" The man on the top of the mountain didn't fall there".*

EDUCATION

OCT. 2021 – FEB. 2024

MASTER OF SCIENCE IN ELECTRONICS AND COMMUNICAION ENGINEERING (ECE), EGYPT-JAPAN UNIVERSITY OF SCIENCE AND TECHOLOGY (E-JUST)

Final Grade: CGPA: 3.71 / 4.0
M.Sc. Thesis: MULTI-ARMED BANDIT BASED RESOURCE ALLOCATION IN 6G NETWORKS.
Summary of the Thesis:
- Studying the potential of Reinforcement learning to resource allocation in 6G networks aiming to improve spectral efficiency.
- Developing algorithms for resource allocations in the aerial and terrestrial networks including user association, power, and channel allocations.

Main coursework:
- Deep Learning for Digital Signal Processing and Wireless Communication
- Advanced Intelligent Systems
- Digital Communication
- Advanced digital and Data wireless communication
- Information Theory
- Advanced Analog Integrated Circuits
- Digital Signal Processing

SEPT. 2015 – NOV. 2019

BACHELOR OF SCIENCE IN ELECTRONICS AND TELECOMMUNICAION ENGINEERING (ETE), UNIVERSITY OF RWANDA

Final grade: Second Class Upper Division: 77.03%
Final year Project: GPS-BASED VEHICLE ACCIDENT ALERTING SYSTEM
Summary of the project:
- This project aimed to minimize the risk of death in case a vehicle accident happens with no fast support. By using GPS, GSM, Accelerometer modules and Arduino, we designed a system to automatically send an alerting SMS to the nearest hospitals and police stations.

Main coursework:
- Mathematics for engineers (I, II, III, IV)
- Digital communication
- Mobile communication
- Digital signal processing
- Computer networking
- Cryptography and network security

- Telecommunication network
- Digital Image processing
- Analog electronics circuit
- Electrical circuit analysis
- Computer networking
- Fiber Optic Communication
- Analog and digital electronics, etc.

PUBLICATIONS

[1] **Boniface Uwizeyimana**, Osamu Muta, Ahmed H. Abd El-Malek, Mohammed Abo-Zahhad, and Maha Elsabrouty, "***Joint User Association and Pairing in Multi-UAVs assisted NOMA Networks: A Decaying Epsilon Thompson Sampling Framework"***, 2024. (*Submitted in IEEE Access, 2024*)

[2] **Boniface Uwizeyimana**, Osamu Muta, Ahmed H. Abd El-Malek, Mohammed Abo-Zahhad, and Maha Elsabrouty, "***A Multi-Agent Multi-Armed Bandit Approach for User Pairing in UAV-Assisted NOMA-Networks"***, October 2023.
Published in IEEE and presented in 2023 ISNCC conference: The 10th International Symposium on Networks, Computers and Communications (ISNCC), Doha, Qatar. Link:
https://ieeexplore.ieee.org/document/10323784

[3] **Boniface Uwizeyimana**, Ahmed H. Abd El-Malek, Osamu Muta, Mohammed Abo-Zahhad, and Maha Elsabrouty, "***Multi-Armed Bandit and Repeated Auction Approaches for User Admission and Channel Allocation in 5G HetNets"***, December 2022.
Published in IEEE and presented at JAC-ECC 2022 conference, The 10th International Japan-Africa Conference on Electronics, Communications, and Computations (JAC-ECC), Alexandira, Egypt. Link:
https://ieeexplore.ieee.org/abstract/document/10043930

MACHINE LEANING AND TECHNICAL SKILLS

ADVANCED INTELLIGENT SYSTEMS, EGYPT JAPAN UNIVERSITY OF SCIENCE AND TECHNOLOGY(E-JUST)

Main Skills
- Fundamental of artificial neural networks.
- Perceptron and Adaline networks.
- Multi-linear Perceptron (MLP).
- Feed forward and back propagation learning.
- Principal component analysis (PCA) and Auto Encoders.
- Fuzzy logic and Fuzzy Inference system (Mandani and Sugino inference system).

Projects
- Implementation of PCA and Auto Encoders on IRIS dataset in Matlab.
- Implementation of Mandani and Sugino inference system in Matlab.

SOFTWARE APPLICATION FOR DSP AND COMMUNICATION, EGYPT JAPAN UNIVERSITY OF SCIENCE AND TECHNOLOGY(E-JUST)

Main Skills
- Fundamental of Artificial Neural Networks, Machine Learning, and Deep Learning.
- Category of machine leaning: Supervised, unsupervised, and reinforcement learning.
- MATLAB Machine Learning and Deep Learning Toolboxes.
- Algorithmic in Deep Learning and activation functions.

- Applications for Deep Learning in Digital Signal Processing: Data acquisition, regression and Image classification.
- Applications of Deep Learning in wireless communications: Deep Learning, and 5G Toolboxes, channel modeling and estimation; wireless communication security in the context of adversarial machine learning.
- Useful machine learning libraries and models in python: Tensor Flow, Keras, Pytoch, Numpy, Pandas, etc.
- Pre-trained CNN Models: VGG16, VGG19, AlexNet, ResNet, etc.

Projects
- Implementation of CNN Models (VGG 16, VGG19, Alex Net, ResNet 50) on MNIST and CIFAR10 datasets in Python.
- Training of dry beans datasets for multi-class classification using various CNN models.

INTERMEDIATE PYTHON PROGRAMMING, DATACAMP

Main Skills
- Python syntax, lists, functions, and packages
- Numpy package
- Matplotlib Python package
- Object oriented programing.
- Data manipulation with Pandas.

PROGRAMMING LANGUAGES AND SOFTWARE
- C and C++ | MATLAB & MATLAB SIMULINK | Python | Web Development HTML 5 CSS | PHP | JavaScript.

PROFESSIONAL SKILLS
- Artificial İntelligence | Machine learning | Deep Learning | Solid understanding of Neural Network, Machine Learning and Deep learning | Reinforcement learning.

ARTIFICIAL INTELLIGENCE TOOLS
- MATLAB Deep Learning Toolbox | Python TensorFlow | Keras library.

WORK EXPERIENCE

FEB. 2019 – NOV. 2020

IT ENGINEER, BRAIN WORKS AFRICA

Main Duties
- Website development using advanced programing languages: PHP, Laravel framework, JavaScript, and My SQL database.
- Mobile app development using Android studio and MySQL database.
- Virtual reality projects using Unity software and C# language specifically for developing games.
- IT related projects and Media projects.

JUL. 2018 – JAN. 2019

ELECTRONIC AND PRODUCTION ENGINEER, SAHASRA ELECTRONICS RWANDA PVT. LTD

Main Duties
- Assembling, repairing, maintaining, and installing LED lights.
- Supervising manufacturing processes in the production department.
- Testing the manufactured LED lights for quality check.

PROFESSIONAL TRAINING AND WORKSHOPS

SEP. 2022 – DEC. 2022

AWS CLOUD PRACTITIONER, AZUBI AFRICA AND AMAZON WEB SERVICES

Skills covered:
- Introduction to cloud computing.
- Amazon web services (Storage services, Networking services, Database services, Security services).
- Linux operating system, database management, and Python programming language.
- **Link:** https://www.credly.com/badges/9386ccab-caec-4a91-b9fb-917a4825c42b/linked_in?t=rmvyhh

11TH -14TH MAY. 2022

NI MMWAVE AND MIMO SYSTEMS TRAINING, EJUST AND NATIONAL INSTRUMENT(NI)

Skills covered:
- Implementation of mmWave for 5G and B5G communication system.
- Overview of the MTS system and assembling.
- Implementation of Massive MIMO system, assembling the hardware equipment.
- Overview of LABVIEW COMMUNICATION SUITE to run mmWave experiment and massive MIMO.

8TH - 10TH FEB. 2023

KEY PERFORMANCE INDICATORS FOR GOVERNEMENT EFFECTIVENESS IN AFRICA,

- **Offered by National Institute for Governance and Sustainable Development, Egypt.**

SEP. 2015 – JUL 2019

EMBEDDED SYSTEM WORKSHOP, UNIVERSITY OF RWANDA AND THE GIANTS ELECTRONCS

Skills covered and sample projects:
- Microcontroller programming in Arduino and related projects.
- Implementing electronics and embedded system projects.
- Projects on real-time monitoring for Aquaculture. Development of IOT solution.
- Remote controlling and automatic irrigation system.
- Implementation of automatic street light lamps, etc.

23RD - 24TH JUL. 2019

FIBER OPTIC COMMUNICATION WOPRKSHOP, UNIVERSITY OF RWANDA, KT RWANDA NETWORKS AND LIQUID TELECOM

Skills covered:
- Practical implementation of power budget design for optical communication.
- Designing and implementing fiber optic links, splicing, testing, and measuring power and losses of the link.

1ST JAN. 2019 – 11TH JUL. 2019

IT ENGINEER DEVELOPMENT COURSE, JICA AND KOBE INSTITUTE OF COMPUTING (KIC) AND RWANDA ICT CHAMBER

Skills covered:
- Internet of Things (IoT) practical skills and projects

- Leadership skills
- TankYu practice for Business model.

ATTENDED CONFERENCES

23RD -26TH OCT. 2023

ISNCC 2023, THE 10TH INTERNATIONAL CONFERENCE ON NETWORKS, COMPUTER AND COMMUNICATION, DOHA, QATAR.

Presented a paper entitled: " *A Multi-Agent Multi-Armed Bandit Approach for User Pairing in UAV-Assisted NOMA-Networks.*

19TH -20TH DEC. 2022

JAC-ECC 2022, JAPAN-AFRICA INTERNATIONAL CONFERENCE ON ELECTRONICS, COMMUNICATION AND COMPUTATION, ALEXANDRIA, EGYPT.

Presented a paper entitled: " *Multi-Armed Bandit and Repeated Auction Approaches for User Admission and Channel Allocation in 5G HetNets."*

LANGUAGE SKILLS

ENGLISH

Listening	**Reading**	**Writing**	**Speaking**
C2	*C2*	*C2*	*C2*

FRENCH

Listening	**Reading**	**Writing**	**Speaking**
A2	*A2*	*A2*	*A2*

ARABIC

Listening	**Reading**	**Writing**	**Speaking**
A2	*A1*	*A1*	*A2*

CHINESE

Listening	**Reading**	**Writing**	**Speaking**
A1	*A1*	*A1*	*A1*

Levels: *A1* and *A2*: Basic user; *B1* and *B2*: Independent user; *C1* and *C2*: Proficient user

REFEREES

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