

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 believe in hard work in the words of Vince Lombardi *"The man on the top of the mountain didn't fall there"*.

Education

01/2025 ~ 12/2028 **University of Calgary, Canada**

- **PhD** in Electrical and Computer Engineering

10/2021 ~ 02/2024 **Egypt-Japan University of Science and Technology (E-JUST), Egypt**

- **M.Sc.** in Electronics and Communication Engineering granted on 17/03/2024
- **Thesis:** Multi-armed Bandit Based Resource allocation in 6G networks
- **Main coursework:** Software application for Digital signal processing and communication | Advanced intelligent systems | Digital communication | Advanced digital and data wireless communication | Information theory | Advanced analog integrated circuits | Introduction Digital signal processing.

09/2015 ~ 11/2019 **University of Rwanda, Rwanda**

- **B.Sc.** in Electronics and Telecommunication Engineering granted on 08/11/2019
- **Final Year Project:** GPS-based Vehicle Accident Alerting System
- **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.

Research and Work Experience

10/2021 ~ 03/2024 **Wireless Communication and IoT lab, E-JUST, Egypt**

- **Researcher:** Wireless communication | Machine learning | 5G | 6G | Non-Terrestrial Networks

02/2019 ~ 11/2020 **BRAIN WORKS AFRICA, Kigali, Rwanda**

- **IT Engineer:** Website development using PHP, Laravel framework, JavaScript, and My SQL database | Mobile app development with Android studio and MySQL database | Virtual reality game projects using Unity and C# | Media projects.

07/2018 ~ 01/2019 **SAHASRA ELECTRONICS RWANDA PVT LTD, Kigali, Rwanda**

- **Electronic and Production Engineer:** Assembling, repairing, maintaining, and installing LED lights | Supervising manufacturing processes in the production department | Testing the manufactured LED lights for quality check.

Publications

2024 **Joint User Association and Pairing in Multi-UAVs assisted NOMA Networks: A Decaying Epsilon Thompson Sampling**
<https://doi.org/10.1109/ACCESS.2024.3417320>

2023 **A Multi-Agent Multi-Armed Bandit Approach for User Pairing in UAV-Assisted NOMA-Networks, 2023:**
<https://ieeexplore.ieee.org/document/10323784>

2022 **Multi-Armed Bandit and Repeated Auction Approaches for User Admission and Channel Allocation in 5G HetNets,**
2022: <https://ieeexplore.ieee.org/abstract/document/10043930>

Machine Learning and Technical Skills

2023 **Advanced Intelligent Systems, E-JUST, Egypt**

- **Main Skills:** Fundamental of artificial neural networks | Perceptron and Adaline networks | Multi-linear perceptron (MLP) | Feedforward and backpropagation learning | Principal component analysis (PCA) and Auto Encoders | Fuzzy logic and Fuzzy inference systems (Mandani and Sugino inference system)
- **Projects:** PCA and Auto Encoders on IRIS dataset in Matlab | Mandani and Sugino inference system in Matlab

2023 **Software Application for DSP and Communication, E-JUST, Egypt**

- **Main Skills:** Supervised Learning | Unsupervised Learning | Reinforcement Learning | MATLAB Machine Learning and Deep Learning Toolboxes | Algorithmic in Deep Learning and activation functions | Applications for Deep Learning in DSP: Data acquisition, regression, and Image classification | Applications of Deep Learning in wireless communications: Channel modeling and estimation; wireless communication security in the context of adversarial machine learning | Machine learning libraries in python: Tensor Flow, Keras, PyTorch, Numpy, Pandas | Pre-trained CNN Models: VGG16, VGG19, AlexNet, ResNet, etc.

- **Projects:** 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.

2023 Intermediate Python Language, Datacamp

- **Main Skills:** Python syntax, lists, functions, and packages | Python OOP | NumPy package | Matplotlib package | Data manipulation with Pandas

2023 Programming Languages and Software

- MATLAB & SIMULINK | Python | C and C++ | HTML 5 | CSS | PHP | JavaScript

2023 Professional Skills

- Artificial Intelligence | Neural networks | Machine Learning | Deep Learning | Reinforcement learning

2023 Artificial Intelligence and Communication Tools

- MATLAB Deep Learning Toolbox | Python TensorFlow | Keras library | Matlab 5G Toolbox | Wireless Insite | LABVIEW Communication Suite

Professional Training and Workshops

09/2022 ~ 12/2022 Amazon Web Services and Azubi Africa (Online course)

- **Cloud Practitioner:** Cloud computing | AWS (Storage services, Networking services, Database services, Security services) | Linux OS | Database management | Python | [Link](#)

11 – 14 /05/2022 National Instruments & EJUST, Egypt

- **NI mmWave and MIMO System:** Overview of the MTS system and assembling | Implementation of mmWave for 5G and B5G communication system | Implementation of Massive MIMO system | Overview of LABVIEW Communication Suite for mmWave and massive MIMO.

08 – 10 /02/2023 National Institute for Governance and Sustainable Development, Egypt

- Key performance indicators for government effectiveness in Africa

01 /01/2019 ~ 07/2019 JICA & Kobe Institute of Computing & ICT Chamber, Kigali, Rwanda

- **ICT Engineer Development Course:** IoT projects | Leadership skills | TankYu practice for Business model.

Conferences and Workshops

23-26/10/2023 ISNCC 2023, Doha, Qatar

- **Author/presenter:** A Multi-Agent Multi-Armed Bandit Approach for User Pairing in UAV-Assisted NOMA-Networks

19-20/12/2022 JAC-ECC 2022, Alexandria, Egypt

- **Author/presenter:** Multi-Armed Bandit and Repeated Auction Approaches for User Admission and Channel Allocation in 5G HetNets

23 – 24 /07/2019 University of Rwanda KT Rwanda Networks | Liquid Telecom, Kigali, Rwanda

- **Fiber Optics Communication:** Power budget design for optical communication | Implementing fiber optic links | Splicing, testing, and measuring power and losses of the link

09/2015 ~ 07/2019 University of Rwanda & The Giants Electronics, Kigali, Rwanda

- **Embedded System:** Microcontroller Programming | Arduino | Electronics and embedded system projects | Projects on real-time monitoring for Aquaculture | Remote controlling and automatic irrigation system | Automatic street light lamps

Awards

10/2021 ~ 02/2024 TICAD 7 African Scholarship for Science and Technology (STI) to support master studies

Language skills

- **English:** Proficient user | **French:** Basic user | **Arabic:** Basic user | **Chinese:** Basic user

Other skills

- Team working skills | Problem-solving skills | Managerial and organization skills | Interpersonal communications skills | time management skills | Skills to handle pressures

Referees

- **Prof. Abraham Fapojuwo:** Professor, ECE Depart., University of Calgary | fapojuwo@ucalgary.ca
- **Prof. Ahmed Allam:** Lecturer at E-JUST, ECE depart. | ahmed.allam@ejust.edu.eg | (+20) 122 674 2086
- **Prof. Ahmed Abd-El Malek:** Lecturer at E-JUST, ECE depart. | ahmed.abdelmalek@ejust.edu.eg | (+20) 122 225 3522