Happy Monday

ML Researcher & Senior Leacturer

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Summary

Computer vision enthusiast with over 4 years of research experience in machine learning and deep learning, and holds a doctoral degree in computer science and engineering. Module leader and senior lecturer at Oxford Brookes University and Chengdu University of Technology, a Sino-British collaborative education program. Result-oriented and passionate about exploring new insights into data with the ability to learn fast and adapt to new environments. Focus on machine intelligence and vision, wavelet transform, and deep learning applications to medical imaging, image processing, and recognition. Publish over 43 papers within 4 years, including 4 SCI papers as a first author with over 198 citations and 26 verified peer reviews, as reported by ResearchGate and Web of Science, respectively. I received the "Best Paper Award," "Academic Achievement Award," "Excellent Performance Award," etc.

Web of Science Google Scholar orcid Stackoverflow

Education

2022: **PhD, Computer Science & Engineering**, *University of Electronic Science & Technology of China*, China.

Research Area: Medical image processing, Deep learning, Machine learning, Computer vision, Data analysis, Wavelet transform, Data acquisition and analysis, Signal data processing, Machine fault diagnosis, Multi-resolution analysis, ECG biometric identification

Dissertation: Research on Multi-Resolution Wavelet Deep Neural Network and Its Applications

CGPA : 3.41/4.00

2018: **Master of Engineering, Electronic Science and Technology**, *University of Electronic Science & Technology of China*, China.

Research Area: Machine learning, Electromagnetic compatibility (EMC), Supervised and Unsupervised learning, Fault diagnosis, Patch antenna

Modules: Advanced Electromagnetics Field Theory (86%), Co-Design of Hardware and Software (91%), RF IC (94%), Radar Theory (95%), Multimedia Technology and Application (88%), Embedded System and Application (79%), Electronic Packaging Technology (97%)

Thesis: Construction of Equivalent Model of Patch Antenna using Magnetic Dipoles

CGPA : 3.61/4.00

2014: **Bachelor of Engineering**, *Federal University of Technology, Akure*, Nigeria.

Modules: Advanced Hydraulics, Engineering Thermodynamics, Fluid Mechanics, Mathematical Modeling, Electrification & Electronics, Mechanics of Machines, Applied Mechanics, Manufacturing Technology, Power & machinery, Hydrology

Thesis: Biogas Production from Anaerobic Digestion of Cow Dung with Crop Residues

Publications

Journal Articles

2023 Grace Ugochi Nneji, **Monday, Happy Nkanta**, Goodness Temofe Mgbejime, Venkat Subramanyam R. Pathapati, Saifun Nahar, and Chiagoziem Chima Ukwuoma. Lightweight separable convolution network for breast cancer histopathological identification. ***Diagnostics***, volume 13. MDPI, 2023, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Chiagoziem Chima Ukwuoma, Zhi-Quang Qin, Md Belal Bin Heyat, Faijan Akhtar, Abla Smahi, Jehoiada Jackson, Syed Furqan Qadri, Abdullah Yahya Mohammed Muaad, **Monday, Happy Nkanta**, and Grace Ugochi Nneji. Automated lung-related pneumonia and covid-19 detection based on novel feature extraction framework and vision transformer approaches using chest x-ray images. *Bioengineering*, volume 9, 2022, **(Impact Factor:5.046, SCI Index, JCR 3)**.

2022 Chiagoziem Chima Ukwuoma, Md. Altab Hossain, Jehoiada Jackson, Grace Ugochi Nneji, **Monday, Happy Nkanta**, and Zhi-Quang Qin. Multi-classification of breast cancer lesions in histopathological images using deep_pachi: Multiple self-attention head. *Diagnostics*, volume 12, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 **Monday, Happy Nkanta**, Jianping Li, Grace Ugochi Nneji, Saifun Nahar, Md Altab Hossin, Jehoiada Jackson, and Ariyo Oluwasanmi. A wavelet convolutional capsule network with modified super resolution generative adversarial network for fault diagnosis and classification. ***Complex & Intelligent Systems***, pages 1–17. Springer, 2022, **(Impact Factor:6.700, SCI Index, JCR 2)**.

2022 **Happy Nkanta Monday**, Jianping Li, Grace Ugochi Nneji, Saifun Nahar, Md Altab Hossin, Jehoiada Jackson, and Chukwuebuka Joseph Ejiyi. Covid-19 diagnosis from chest x-ray images using a robust multi-resolution analysis siamese neural network with super-resolution convolutional neural network. ***Diagnostics***, volume 12, pages 741–766. MDPI, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 **Happy Nkanta Monday**, Jianping Li, Grace Ugochi Nneji, Saifun Nahar, Md Altab Hossin, and Jehoiada Jackson. Covid-19 pneumonia classification based on neurowavelet capsule network. ***Healthcare***, volume 10, pages 422–441. MDPI, 2022, **(Impact Factor:3.160, SCI Index, JCR 4)**.

2022 **Happy Nkanta Monday**, Jianping Li, Grace Ugochi Nneji, Md Altab Hossin, Saifun Nahar, Jehoiada Jackson, and Ijeoma Amuche Chikwendu. Wmr-depthwisenet: A wavelet multi-resolution depthwise separable convolutional neural network for covid-19 diagnosis. ***Diagnostics***, volume 12, pages 765–788. MDPI, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Md Altab Hossin, Sandra Obiora, Saifun Nahar, and Jingye Cai. Covid-19 identification from low-quality computed tomography using a modified enhanced super-resolution generative adversarial network plus and siamese capsule network. ***Healthcare***, volume 10, pages 403–423. MDPI, 2022, **(Impact Factor:3.160, SCI Index, JCR 4)**.

2022 Grace Ugochi Nneji, Jingye Cai, **Monday, Happy Nkanta**, Md Altab Hossin, Saifun Nahar, Goodness Temofe Mgbejime, and Jianhua Deng. Fine-tuned siamese network with modified enhanced super-resolution gan plus based on low-quality chest x-ray images for covid-19 identification. ***Diagnostics***, volume 12, pages 717–743. MDPI, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Grace Ugochi Nneji, Jingye Cai, Jianhua Deng, **Monday, Happy Nkanta**, Edidiong Christopher James, and Chiagoziem Chima Ukwuoma. Multi-channel based image processing scheme for pneumonia identification. *Diagnostics*, volume 12, pages 325–351. MDPI, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Grace Ugochi Nneji, Jingye Cai, Jianhua Deng, **Monday, Happy Nkanta**, Md Altab Hossin, and Saifun Nahar. Identification of diabetic retinopathy using weighted fusion deep learning based on dual-channel fundus scans. ***Diagnostics***, volume 12, pages 540–559. MDPI, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Goodness Temofe Mgbejime, Md Altab Hossin, Grace Ugochi Nneji, **Monday, Happy Nkanta**, and Favour Ekong. Parallelistic convolution neural network approach for brain tumor diagnosis. *Diagnostics*, volume 12, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Chukwuebuka Joseph Ejiyi, Zhen Qin, Abdulhaq Adetunji Salako, **Happy Nkanta Monday**, Grace Ugochi Nneji, Chiagoziem Chima Ukwuoma, Ijeoma Amuche Chikwendu, and Ji Gen. Comparative analysis of building insurance prediction using some machine learning algorithms. *International Journal of Interactive Multimedia & Artificial Intelligence*, volume 7. Universidad Internacional de La Rioja (UNIR), 2022, **(Impact Factor:4.936, SCI Index, JCR 3)**.

2022 Bless Lord Y. Agbley, Jianping Li, Md Altab Hossin, Grace Ugochi Nneji, Jehoiada Jackson, **Monday, Happy Nkanta**, and Edidiong Christopher James. Federated learning-based detection of invasive carcinoma of no special type with histopathological images. *Diagnostics*, volume 12, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

2022 Daniel Addo, Shijie Zhou, Jehoiada Jackson, Grace Ugochi Nneji, **Monday, Happy Nkanta**, Kwabena Sarpong, Rutherford Agbeshi Patamia, Favour Ekong, and Christyn Akosua Owusu-Agyei. Evae-net: An ensemble variational autoencoder deep learning network for covid-19 classification based on chest x-ray images. *Diagnostics*, volume 12, 2022, **(Impact Factor:3.992, SCI Index, JCR 3)**.

In Conference Proceedings

2021 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Abel Zenebe Yutra, Bona Debela Lemessa, Saifun Nahar, Edidiong Christopher James, and Amin Ul Haq. The capability of wavelet convolutional neural network for detecting cyber attack of distributed denial of service in smart grid. In *2021 18th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP)*, pages 413–418. IEEE, 2021.

2021 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Ariyo Oluwasanmi, Goodness Temofe Mgbejime, Chukwuebuka Joseph Ejiyi, Ijeoma Amuche Chikwendu, and Edidiong Christopher James. Improved convolutional neural multi-resolution wavelet network for covid-19 pneumonia classification. In *2021 4th International Conference on Pattern Recognition and Artificial Intelligence (PRAI)*, pages 267–273. IEEE, 2021.

2021 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Edidiong Christopher James, Yobsan Bayisa Leta, Saifun Nahar, and Amin Ul Haq. Shared weighted continuous wavelet capsule network for electrocardiogram biometric identification. In *2021 18th International Computer Conference on Wavelet Active Media Technology and Information Processing (ICCWAMTIP)*, pages 419–425. IEEE, 2021.

2021 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Edidiong Christopher James, Ijeoma Amuche Chikwendu, Chukwuebuka Joseph Ejiyi, Ariyo Oluwasanmi, and Goodness Temofe Mgbejime. The capability of multi resolution analysis: A case study of covid-19 diagnosis. In *2021 4th International Conference on Pattern Recognition and Artificial Intelligence (PRAI)*, pages 236–242. IEEE, 2021.

2021 Grace U. Nneji, Jingye Cai, Jianhua Deng, **Monday, Happy N.**, Edidiong C. James, Bona D. Lemessa, Abel Z. Yutra, Yobsan B. Leta, and Saifun Nahar. Covid-19 identification using deep capsule network: A perspective of super-resolution cnn on low-quality cxr images. In *2021 the 7th International Conference on Communication and Information Processing (ICCIP)*, page 96–102. Association for Computing Machinery (ACM), 2021.

2021 Nneji Grace Ugochi, Jingye Cai, Deng Jianhua, **Happy Nkanta Monday**, Chukwuebuka Joseph Ejiyi, Edidiong Christopher James, Goodness Temofe Mgbejime, and Ariyo Oluwasanmi. A super-resolution generative adversarial network with siamese cnn based on low quality for breast cancer identification. In *2021 4th International Conference on Pattern Recognition and Artificial Intelligence (PRAI)*, pages 218–223. IEEE, 2021.

2021 Nneji Grace Ugochi, Jingye Cai, Deng Jianhua, **Happy Nkanta Monday**, Ijeoma Amuche Chikwendu, Ariyo Oluwasanmi, Edidiong Christopher James, and Goodness Temofe Mgbejime. Enhancing low quality in radiograph datasets using wavelet transform convolutional neural network and generative adversarial network for covid-19 identification. In *2021 4th International Conference on Pattern Recognition and Artificial Intelligence (PRAI)*, pages 146–151. IEEE, 2021.

2021 Nneji Grace Ugochi, Jingye Cai, Jianhua Deng, **Happy Nkanta Monday**, Saifun Nahar, Goodness Temofe Mgbejime, Edidiong Christopher James, and Surafel Kifetew Woldeyes. A dual weighted shared capsule network for diabetic retinopathy fundus classification. In *2021 International Conference on High Performance Big Data and Intelligent Systems (HPBD&IS)*, pages 297–302. IEEE, 2021.

2019 Saifun Nahar, Ting Zhong, **Happy Nkanta Monday**, Grace Ugochi Nneji, Michael O Mills, and Hassan S Abubakar. Analyzing data mining and its application to smart business. In *2019 4th Technology Innovation Management and Engineering Science International Conference (TIMES-iCON)*, pages 1–5. IEEE, 2019.

2019 Saifun Nahar, Ting Zhong, **Happy Nkanta Monday**, Michael O Mills, Grace Ugochi Nneji, and Hassan S Abubakar. A survey on data stream mining towards the internet of things application. In *2019 4th Technology Innovation Management and Engineering Science International Conference (TIMES-iCON)*, pages 1–5. IEEE, 2019.

2018 **Monday, Happy N**, Jian P. Li, Mordecai F. Raji, Grace U. Nneji, Abel Ogunzbile, and Richard I. Nneji. Construction of equivalent model of patch antenna using magnetic dipole. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 645–649, 2018.

2018 **Monday, Happy N**, Jian P. Li, Mordecai F. Raji, Grace U. Nneji, Ifeanyi D. Dike, and Richard I. Nneji. Fast prediction of equivalent model of installed patch antenna radiation pattern. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 286–291, 2018.

2018 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Chiagoziem C. Ukwuoma, Ifeanyi D. Dike, and Richard I. Nneii. Design of an improved cost effective electronic locking system. *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 493–499. IEEE, 2018.

2018 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Chiagoziem C. Ukwuoma, David Agomuo, and Richard I. Nneji. Ensuring data governace and enhancing data security in a private cloud environment. *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 1018–1024. IEEE, 2018.

2018 **Happy Nkanta Monday**, Jian Ping Li, Grace Ugochi Nneji, Ifeanyi D. Dike, David Agomuo, and Abel Ogungbile. Enhanced attendance management system: A biometrics system of identification based on fingerprint. *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 500–505. IEEE, 2018.

2018 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Sarder S Shakher, Basil C Mbonu, and Abel Ogungbile. A collaborative learning approach for integrated time based online environment. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 1138–1144. IEEE, 2018.

2018 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Sarder S Shakher, Basil C Mbonu, and Mercy C Nneji. Online collaborative approach of interactive antenatal lectures for expectant mothers. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 1047–1053. IEEE, 2018.

2018 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Sarder S Shakher, David Agomuo, and Chiagoziem C Ukwuoma. A multimedia computer aided learning software. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 807–813. IEEE, 2018.

2018 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Sarder S Shakher, David Agomuo, and Ifeanyi D Dike. An improved e-clearance management system for graduating students in a university environment. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 74–80. IEEE, 2018.

2018 Grace Ugochi Nneji, Jianhua Deng, **Happy Nkanta Monday**, Basil C Mbonu, Mercy C Nneji, and Eziefuna E Onyinye. Android-based information system for marriage counseling. In *2018 IEEE 9th Annual Information Technology, Electronics and Mobile Communication Conference (IEMCON)*, pages 978–984. IEEE, 2018.

Project

2019–2021 ***Machine Learning & Deep learning***.

- Applied deep learning to medical images for disease diagnosis
- Implemented CNN for vehicle type recognition
- Implemented CNN for biometric identification using Electrocardiogram (ECG)
- Applied CNN for detecting distributed denial of service (DDoS) attacks in smart grid

Research Experience

University of Electronic Science and Technology of China

Sept.2018–June 2022 ***Machine Learning & Deep Learning | Research Assistant: International Centre for Wavelet Analysis and Its applications***, *UESTC*.

- Developed a Depthwise Separable Convolutional Network with Wavelet Multi-Resolution Analysis module to automatically learn details both spatial-wise and channel-wise for COVID-19 identification with limited Chest X-ray and CT scans which is critical due to the rapid growth of COVID-19.
- Developed a Super Resolution based Siamese Wavelet Multi-Resolution Convolutional Neural Network for pneumonia classification using chest x-ray images.
- Developed a novel Neuro-Wavelet Capsule framework for classifying pneumonia.
- Developed a novel Continuous Wavelet Convolutional Capsule Network with Super-Resolution Generative Adversarial Network for machine fault diagnosis and classification.
- Developed a Shared Weighted Continuous Wavelet Capsule Network with Siamese Capsule Network framework for Electrocardiogram (ECG) biometric identification.
- Developed a novel end-to-end Continuous Wavelet Transform with Convolutional Neural Network for the detection of distributed denial of service (DDoS) attacks on smart grid infrastructure.
- Developed an enhanced Convolutional Neural Multi-Resolution Analysis algorithm for COVID-19 pneumonia diagnosis capable of handling few datasets which is very paramount due to the fast emergence of COVID-19.
- Investigated the application of Wavelet Transform and developed Wavelet-based Convolutional Neural Network for the classification of COVID-19 patients using chest radiography.
- Organized deep learning workshop for undergraduate students
- Supervised and mentored graduate students in paper publication and thesis formatting using LaTex software

Advisor : **Prof. Jianping Li**, *Professor, School of Computer Science & Engineering*, University of Electronic Science and Technology of China (*UESTC website*), (*ICCWAMTIP Website*)

Teaching Experience

Oxford Brookes University-Chengdu University of Technology (OBU-CDUT)

Module ***Machine Vision*** | ***Computer Science Department***, *September 2022–Till date*.

- Design and deliver machine vision course content to final-year undergraduate students with a class size of 116.
- Conduct weekly practicals to demonstrate state-of-the-art computer vision tasks and implementation using Matlab, Keras, and TensorFlow.
- Prepare mark sheets and rubrics for machine vision coursework.
- Administered and marked all assessments including exams, resits, and re-submissions.

Module ***Computer Networking*** | ***Computer Science Department***, *September 2022–Till date*.

- Design and deliver basic communication and PC networking course content to second-year undergraduate students with a class size of 112.
- Conduct weekly practicals to demonstrate the live simulation of network configurations and subnetting using Cisco Packet Tracer.
- Conduct weekly practicals to capture and analyze network data traffic using Wireshark software.
- Prepare weekly quizzes and seminar tasks for the computer networking course.
- Administered and marked all assessments including weekly quizzes, practical reports, resits, and re-submissions.

Module ***Circuit and Digital Logic*** | ***Computer Science Department***, *February 2023–Till date*.

- Design and deliver circuit and digital logic course content to second-year undergraduate students with a class size of 112.
- Conduct weekly practicals to demonstrate the practical programming of the electronic circuits using Arduino IDE and Arduino Uno hardware.
- Conduct weekly practicals to demonstrate the circuit connections using a solderless breadboard and electronic components.
- Prepare weekly quizzes and seminar tasks for the circuit and digital logic.
- Administered and marked all assessments including weekly quizzes, practical reports, resits, and re-submissions.

Supervision ***16 Project Students*** | ***OBU Computing***, *September 2022 – Till data*.

- Direct project supervision and mentoring of 16 final-year undergraduate students.
- organizing weekly meetings to assess the progress of the student's work.
- Conducting weekly presentations for the student to display their progress report.
- Providing valuable suggestions to students on how to overcome bottlenecks in their projects.
- Vetting students' reports includes opening, mid-term, and final reports.
- coaching the students on implementing up-to-date deep learning algorithms for accomplishing their tasks.

University of Electronic Science and Technology of China

Module ***Machine Learning & Deep Learning***, *September 2018–June 2022*.

- Instruct graduate students and assist them with laboratory implementation of deep learning model and drafting technical manuscripts
- Perform practical coding sessions for students in the machine learning course
- Help undergraduate students employ what they learn in deep learning courses in collecting and preprocessing datasets for model training
- Demonstrate how some of the most important concepts in machine learning are used in real-world applications
- Work intensively with graduate and undergraduate students throughout the semester, from implementing deep learning models to writing academic papers to assist them in developing research skills.

Academic Achievements & Recognitions

2021 **Best paper Award**, 2021 the 4^{th} International Conference on Pattern Recognition and Artificial Intelligence (PRAI), Yibin, Sichuan, China, August 20–22, 2021

2019–2020 1^{st} Prize, Academic Achievement Award, Doctoral category

2019–2020 2^{nd} Prize, Excellence Performance Award, Doctoral category

2017–2018 1^{st} Prize, Excellence Performance Award, Masters' Category

2017–2018 2^{nd} Prize, Academic Achievement Award, Masters' Category

2017–2018 2^{nd} Best student, School of Electronic Science and Engineering, Masters' Category

Scholarship

2018–2022 Recipient of the ***University Full Scholarship*** for Doctoral Research Program, awarded by the University of Electronic Science and Technology of China (UESTC).

2016–2018 Recipient of the ***University Partial Scholarship*** for Masters' Research Program, awarded by the University of Electronic Science and Technology of China (UESTC).

skills

Machine Learning: Deep learning, Computer vision, Machine learning, Image processing

Tools & Libraries: OpenCV, Matplotlib, Keras, Numpy, Scikit-learn, Pandas

Programming: Python, LaTex

Journal Peer-Review

2019–present JMIR Medical Informatics

2019–present Scientific Reports

2020–present JMIR Research Protocol

2019–present Expert Systems with Applications

2021–present Journal of Medical Internet Research

2019–present Mathematics

2022–present Open Science Journal

2022–present Imaging Science Journal

2022–present Peer J

2022–present IJIMAI

Leadership & Voluntary

2021–2022 **Team member**, *Tianjiao Community Service and Development*, Chengdu, Sichuan.

2019-2020 **Team lead**, *Academic Research Mentoring*, University of Electronic Science and Technology of China, UESTC.

2018-2019 **Team lead** , *AI project Camp*, University of Electronic Science and Technology of China, UESTC.

2017-2018 **Student Union Electoral Chairman**, University of Electronic Science and Technology of China, UESTC.

Referees

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