Jerry John Kponyo

Research Centre
Kwame Nkrumah University of Science and Technology

ORCID 0000-0003-0584-6673 · Google Scholar scholar.google.com/citations?user=feQo2zYAAAAJ&hl=en · Profile knust.peerford.com/staff/8f684d78-dcc7-4804-b8e7-d2f5694314a6

PROFILE

Prof. Jerry John Kponyo is the Dean of the Quality Assurance and Planning Office of the Kwame Nkrumah University of Science and Technology (KNUST) under the Vice-Chancellor's Office. He is the former Dean of the Faculty of Electrical and Computer Engineering, KNUST. Prior to becoming Dean of the Faculty of Electrical and Computer Engineering he was Head of Electrical Engineering Department. He is currently the Project Lead of the KNUST Engineering Education Project (KEEP), a 5.5 Million Dollar Africa Center of Excellence (ACE) Impact project sponsored by the World Bank with a focus on Digital Development and Energy. He is Co-Founder of the Responsible AI Network (RAIN) Africa, which is a collaborative effort between KNUST and TUM Germany. Between 2016 and 2019 he was a visiting Professor at ESIGELEC, France on a staff mobility programme where he taught postgraduate courses in Business Intelligence and conducted research with staff of ESIGELEC. He has done extensive research in IoT, intelligent systems and AI and currently leads the Emerging Networks and Technologies Research Laboratory at the Faculty of Electrical and Computer Engineering, KNUST which focuses on digital development technologies research. Prof Kponyo's Ph.D. research focused on applying AI to solving a traffic problem in Vehicular Ad hoc Networks (VANETs). He has published over 50 articles in refereed Journals and Conference proceedings. He is a member of the Ghana Institution of Engineers. Prof. Jerry John Kponyo is currently the coordinator of the West Africa Sustainable Engineering Network for Development (WASEND). Prof Kponyo is the PI and Scientific Director of the Responsible Artificial Intelligence Lab which is a 1 Million Canadian Dollar grant sponsored by IDRC and GIZ. He is also PI for the Partner-Afrika project which is sponsored by BMZ.

RESEARCH

Interests	Artificial Intelligence · VANETS · Wireless Communications · Massive MIMO · IoT
Areas	Electrical and Electronic Engineering · Computer Networks and Communications · Aerospace Engineering · Artificial Intelligence · Information Systems · Signal Processing

RESEARCH SUMMARY

100	857	18	30	3.56	31%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 100 publications listed below, 2012–2026. Field-weighted impact is the mean over the 80 works scored for it; 1.00 is the world average for works of the same field, type and year. 25 of the 80 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Associate Professor and Dean 2008–present
Electrical/Electronic Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

Associate Professor and Dean 2008–2023
Telecommunication Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

PhD 2011–2015
Information and Communication Engineering, University of Electronic Science and Technology of China, Chengdu, China

MSc 2003–2006
Electrical/Electronic Engineering, Kwame Nkrumah University of Science and Technology College of Engineering, Kumasi, Ghana

BSc 1998–2002
Electrical/Electronic Engineering, Kwame Nkrumah University of Science and Technology College of Engineering, Kumasi, Ghana

DISTINCTIONS, MEMBERSHIPS AND SERVICE

Visiting Professor 2022
IEAI, Technical University of Munich, Munich, Germany

Visiting Lecturer 2022
Georgia Tech Partnership, Atlanta, United States

Visiting Professor 2016–2019
ESIGELEC, Rouen, France

Ghana Institution of Engineering 2015–2023
Accra, Ghana

PUBLICATIONS

Journal articles 78

1. Rectta Adetor, Emmanuel Ahene, Christian Idan Frowne, Nana Amissah Amoah, Richard Adade, Kwabena Owusu-Agyemang, Rose-Mary Owusuaa Mensah Gyening, Justice Owusu Agyemang, Betty Agyei Kponyo, Enoch Acheampong, **Jerry John Kponyo** (2026). A Domain-Specific Ghanaian Sign Language Dataset for Healthcare Communication With Baseline Benchmarks. *IEEE Access*. https://doi.org/10.1109/access.2026.3732480
2. Emmanuel Ahene, Christian Idan Frowne, Rectta Adetor, Nana Amissah Amoah, Richard Adade, Kwabena Owusu-Agyemang, Rose-Mary Owusuaa Mensah Gyening, Justice Owusu Agyemang, Betty Agyei Kponyo, Enoch Acheampong, **Jerry John Kponyo** (2026). A large scale multimodal dataset for healthcare domain Ghanaian sign language translation and retrieval based synthesis. *Scientific Reports*. https://doi.org/10.1038/s41598-026-43478-9
3. Juliet Arthur, Rose-Mary Owusuaa Mensah Gyening, Emmanuel Ahene, Prince Dawson Tetteh, Betty Agyei Kponyo, Justice Agyemang Owusu, Kate Takyi, **Jerry John Kponyo** (2026). A systematic review of machine learning techniques for real-time speech and noise classification in hearing aids. *Disability and Rehabilitation Assistive Technology*. https://doi.org/10.1080/17483107.2026.2671834
4. Jeffrey Kwame Owusu Ansah, Enoch Acheampong, Ros Yaw Owusu-Ansah, Grace Kisiwaa Agyei, Vida Kasore, Justice Owusu Agyemang, Betty Agyei Kponyo, **Jerry John Kponyo**, Elizabeth Owusu Ansah (2026). Barriers and Coping Strategies to Assistive Device Use Among Individuals With Physical and Hearing Disabilities in the Ashanti Region of Ghana: A Qualitative Study. *Health Science Reports*. https://doi.org/10.1002/hsr2.73039
5. Amina Salifu, Henry Nunoo-Mensah, Eric Tutu Tchao, Albert Dede, Francisca Adoma Acheampong, Matthew Cobbinah, Julius Adinkrah, Andrew Selasi Agbemenu, **Jerry John Kponyo** (2026). CNN -Based Accent Similarity Detection Using Masked Spectrogram Reconstruction. *Engineering Reports*. https://doi.org/10.1002/eng2.70665
6. Matthew Cobbinah, Henry Nunoo-Mensah, Francisca Adoma Acheampong, Isaac Acquah, Eric Tutu Tchao,

Andrew Selasi Agbemenu, Julius Adinkrah, **Jerry John Kponyo**, Emmanuel Abaidoo, Ike Asamoah-Ansah, Obed Kojo Otoo (2026). DeCGAN: a diversity-enhanced CycleGAN for unpaired image-to-image translation. *Scientific Reports*. https://doi.org/10.1038/s41598-026-55042-6

7. Jeffrey Kwame Owusu Ansah, Enoch Acheampong, Ros Yaw Owusu-Ansah, Grace Kisiwaa Agyei, Vida Kasore, Justice Owusu Agyemang, Betty Agyei Kponyo, **Jerry John Kponyo**, Precious Awuah Pomaa (2026). Exploring factors influencing assistive device uptake among persons with physical and hearing impairments in the Ashanti region of Ghana. *Disability and Rehabilitation Assistive Technology*. https://doi.org/10.1080/17483107.2026.2721891
8. Rose-Mary Owusuaa Mensah Gyening, Juliet Arthur, Prince Dawson Tetteh, Felix Adu Mensah Amofah, Kelvin Ackah, Enoch Acheampong, Betty Agyei Kponyo, Justice Owusu Agyemang, Emmanuel Ahene, Vida Kasore, **Jerry John Kponyo** (2026). GESMA: A dataset of Ghanaian environmental soundscapes for machine learning applications. *Data in Brief*. https://doi.org/10.1016/j.dib.2026.112732
9. Enoch Acheampong, Vida Kasore, Betty Kponyo Agyei, Ros Yaw Owusu-Ansah, Jeffrey Kwame Owusu Ansah, Elizabeth Owusu-Ansah, Justice Owusu Agyemang, Rose-Mary Owusuaa Mensah Gyening, Emmanuel Ahene, Juliet Arthur, **Jerry John Kponyo** (2026). Integrating artificial intelligence into design and development of assistive technologies: user needs and preferences in Ghana. *Journal of Enabling Technologies*. https://doi.org/10.1108/jet-10-2025-0081
10. Elvis Tamakloe, Benjamin Kommey, **Jerry John Kponyo**, Daniel Opoku, Francis Boafo Effah (2026). Remaining Useful Lifetime Prediction of Distribution Transformer Using Dynamic Multi-Scale Attention-based CNN-LSTM. *Andalas Journal of Electrical and Electronic Engineering Technology*. https://doi.org/10.25077/ajeeet.v6i1.210
11. Elvis Tamakloe, Benjamin Kommey, **Jerry John Kponyo**, Eric Tutu Tchao, Andrew Selasi Agbemenu (2026). Residential Energy Demand-Side Management Using Deep Learning Models: A Steady State Energy Disaggregation and Forecasting of Appliance Consumptions. *The Journal of Engineering*. https://doi.org/10.1049/tje2.70192
12. Prince Dawson Tetteh, Rose-Mary Owusuaa Mensah Gyening, Juliet Arthur, Justice Agyemang Owusu, Betty Agyei Kponyo, Emmanuel Ahene, **Jerry John Kponyo** (2026). Speech enhancement techniques for hearing aids: a systematic review. *Universal Access in the Information Society*. https://doi.org/10.1007/s10209-026-01342-7
13. Julius Adinkrah, Griffith Selorm Klogo, Francis Kemausuor, Eliel Keelson, Eric Tutu Tchao, Henry Nunoo-Mensah, Andrew Selasi Agbemenu, Akwasi Adu-Poku, Albert Dede, Amina Salifu, Matthew Cobbinah, Frank Kofi Owusu, **Jerry John Kponyo** (2026). Transfer learning framework for rural electrification: A GRU-based approach with custom loss for demand prediction. *Results in Engineering*. https://doi.org/10.1016/j.rineng.2026.109421
14. Mubarak S. Ellis, David Amoako, Elijah Atiigah, Derrick Dompreh, Christian Agyekum, George A. Prah, Kwame O. Gyasi, Kingsford S.O. Kwakye, Abdul R. Ahmed, **Jerry J. Kponyo** (2025). A Miniaturized Shorted Radiator-Ground Monopole Antenna with High Gain End-Fire Radiation Pattern. *IEICE Communications Express*. https://doi.org/10.23919/comex.2025xbl0074
15. Eric Nsarkoh, Ama Branoa Banful, Juliet Arthur, Dickson Marfo Fosu, Prince Dawson Tetteh, **Jerry John Kponyo** (2025). A foundational architecture for engineering an Afrocentric AI training and renewal platform. *Discover Artificial Intelligence*. https://doi.org/10.1007/s44163-025-00571-8
16. Amina Salifu, Henry Nunoo Mensah, Eric Tutu Tchao, Ali Musah Ibrahim, Francisca Adoma Acheampong, **Jerry John Kponyo**, Andrew Selasi Agbemenu (2025). A systematic review of accent classification techniques and datasets for inclusive speech recognition. *International Journal of Data Science and Analytics*. https://doi.org/10.1007/s41060-025-00954-1
17. Simon Atuah Asakipaam, **Jerry John Kponyo**, Kwame Oteng Gyasi, Justice Owusu Agyemang, Kingsford Sarkodie Obeng Kwakye, Kwame Opuni-Boachie Obour Agyekum (2025). Adaptive Resource Management Framework for Profit Optimisation in 5G Network Slicing. *IET Networks*. https://doi.org/10.1049/ntw2.70018
18. Matthew Cobbinah, Henry Nunoo-Mensah, Prince Ebenezer Adjei, Francisca Adoma Acheampong, Isaac

Acquah, Eric Tutu Tchao, Andrew Selasi Agbemenu, Emmanuel Abaidoo, Ike Asamoah-Ansah, Obed Kojo Otoo, Amina Salifu, Albert Dede, Julius Adinkrah, **Jerry John Kponyo** (2025). Attn-DeCGAN: A Diversity-Enhanced CycleGAN With Attention for High-Fidelity Medical Image Translation. *Engineering Reports*. https://doi.org/10.1002/eng2.70320

19. Enoch Acheampong, Vida Kasore, Betty Agyei Kponyo, Ros Yaw Owusu-Ansah, Jeffrey Kwame Owusu-Ansah, Owusu Ansah, Elizabeth Owusu Ansah, Justice Owusu Agyemang, Rose-Mary Owusuaa Mensah Gyening, Mensah Gyening, Emmanuel Ahene, **Jerry John Kponyo** (2025). Barriers to assistive technology uptake among persons with disabilities in selected urban districts in Ghana. *Scientific Reports*. https://doi.org/10.1038/s41598-025-31466-4
20. Albert Dede, Henry Nunoo-Mensah, Eric Tutu Tchao, Andrew Selasi Agbemenu, Prince Ebenezer Adjei, Francisca Adoma Acheampong, **Jerry John Kponyo** (2025). Deep learning for efficient high-resolution image processing: A systematic review. *Intelligent Systems with Applications*. https://doi.org/10.1016/j.iswa.2025.200505
21. Matthew Cobbinah, Henry Nunoo-Mensah, Prince Ebenezer Adjei, Francisca Adoma Acheampong, Isaac Acquah, Eric Tutu Tchao, Andrew Selasi Agbemenu, **Jerry John Kponyo**, Emmanuel Abaidoo (2025). Diversity in Stable GANs: A Systematic Review of Mode Collapse Mitigation Strategies. *Engineering Reports*. https://doi.org/10.1002/eng2.70209
22. Mubarak S. Ellis, Christian Agyekum, George A. Prah II, Derrick Dompreh, Elijah Atiigah, David Amoako, Kwame O. Gyasi, Kingsford S.O. Kwakye, Abdul R. Ahmed, **Jerry J. Kponyo** (2025). End-fire radiation characteristics and high gain performance of a miniaturized printed monopole antenna based on theory of characteristic modes. *IEICE Electronics Express*. https://doi.org/10.1587/elex.22.20250355
23. Amina Salifu, Henry Nunoo Mensah, Eric Tutu Tchao, Francisca Adoma Acheampong, Andrew Selasi Agbemenu, **Jerry John Kponyo** (2025). Enhancing speech recognition through diverse shared features accent classification. *International Journal of Speech Technology*. https://doi.org/10.1007/s10772-025-10198-w
24. Prince Odame, Maxwell Mawube Ahiamadzor, Nana Kwaku Baah Derkyi, Kofi Agyekum Boateng, Kelvin Sarfo-Acheampong, Eric Tutu Tchao, Andrew Selasi Agbemenu, Henry Nunoo-Mensah, Dorothy Araba Yakoba Agyapong, **Jerry John Kponyo** (2025). Multi-Wound Classification: Exploring Image Enhancement and Deep Learning Techniques. *Engineering Reports*. https://doi.org/10.1002/eng2.70001
25. Elvis Tamakloe, Benjamin Kommey, **Jerry John Kponyo**, Eric Tutu Tchao, Andrew Selasi Agbemenu, Griffith Selorm Klogo (2025). Predictive AI Maintenance of Distribution Oil-Immersed Transformer via Multimodal Data Fusion: A New Dynamic Multiscale Attention CNN-LSTM Anomaly Detection Model for Industrial Energy Management. *IET Electric Power Applications*. https://doi.org/10.1049/elp2.70011
26. Albert Dede, Henry Nunoo-Mensah, Emmanuel Kofi Akowuah, Kwame Osei Boateng, Prince Ebenezer Adjei, Francisca Adoma Acheampong, Isaac Acquah, **Jerry John Kponyo** (2025). Wavelet-Based Feature Extraction for Efficient High-Resolution Image Classification. *Engineering Reports*. https://doi.org/10.1002/eng2.70027
27. Albert Dede, Henry Nunoo-Mensah, Emmanuel Kofi Akowuah, Kwame Osei Boateng, Iddrisu Danlard, Prince Ebenezer Adjei, Francisca Adoma Acheampong, **Jerry John Kponyo** (2025). Wavelet-Enhanced Deformable Convolutional Network for Breast Cancer Classification in High-Resolution Histopathology Images. *Applied Research*. https://doi.org/10.1002/appl.70021
28. **Jerry John Kponyo**, Francis Kemausuor, Eric Tutu Tchao, Henry Nunoo-Mensah, Rachel Yayra Adjoe (2025). We need Afrocentric datasets for inclusive AI growth. *Nature Human Behaviour*. https://doi.org/10.1038/s41562-025-02140-6
29. Andrew Selasi Agbemenu, Andrews Tang, Elton Modestus Gyabeng, Prince Odame, Eric Tutu Tchao, Eliel Keelson, John-Lewis Zinia Zaukuu, **Jerry John Kponyo** (2024). AfroPALM - Afrocentric palm oil adulteration learning models: An end-to-end deep learning approach for detection of palm oil adulteration. *LWT*. https://doi.org/10.1016/j.lwt.2024.116904
30. Benjamin Kommey, Elvis Tamakloe, **Jerry John Kponyo**, Eric Tutu Tchao, Andrew Selasi Agbemenu, Henry Nunoo-Mensah (2024). An artificial intelligence-based non-intrusive load monitoring of energy

consumption in an electrical energy system using a modified K-Nearest Neighbour algorithm. *IET Smart Cities*. https://doi.org/10.1049/smc2.12075

31. C. V. Ikpo, E. K. Akowuah, K. O. Boateng, **J. J. Kponyo**, H. Nunoo-Mensah, Y. S. Appiah (2024). Ancient Cultural Models from Informal Learning Structures That Can Transform Developments in Africa: This Ndịgbo Discuss. *Journal of Entrepreneurship and Innovation in Emerging Economies*. https://doi.org/10.1177/23939575241277709
32. Julius Adinkrah, Francis Kemausuor, Eric Tutu Tchao, Henry Nunoo-Mensah, Andrew Selasi Agbemenu, Akwasi Adu-Poku, **Jerry John Kponyo** (2024). Artificial intelligence-based strategies for sustainable energy planning and electricity demand estimation: A systematic review. *Renewable and Sustainable Energy Reviews*. https://doi.org/10.1016/j.rser.2024.115161
33. Andrews Tang, Eric Tutu Tchao, Andrew Selasi Agbemenu, Eliel Keelson, Griffith Selorm Klogo, **Jerry John Kponyo** (2024). Assessing blockchain and IoT technologies for agricultural food supply chains in Africa: A feasibility analysis. *Heliyon*. https://doi.org/10.1016/j.heliyon.2024.e34584
34. **Jerry John KPONYO**, Dickson Marfo FOSU, Frederica Efia Birago OWUSU, Musah Ibrahim ALI, Maxwell Mawube AHIAMADZOR (2024). Techno-neocolonialism: an emerging risk in the artificial intelligence revolution. *Trayectorias Humanas Trascontinentales*. https://doi.org/10.25965/trahs.6382
35. Rachel Adams, Ayantola Alayande, Zameer Brey, Brantley Browning, Michael Gastrow, **Jerry John Kponyo**, Dona Mathew, Moremi Nkosi, Henry Nunoo-Mensah, Diana Nyakundi and 15 others (2023). A new research agenda for African generative AI. *Nature Human Behaviour*. https://doi.org/10.1038/s41562-023-01735-1
36. **JJ Kponyo**, KAB Opare, KO Gyasi (2023). An Optimized Vertical Handover Decision Model for the Heterogeneous DSRC/LTE Vehicular Networks. *J. Commun.*. https://www.jocm.us/2023/JCM-V18N8-489.pdf
37. Mubarak S. Ellis, Abdul-Rahman Ahmed, **Jerry J. Kponyo**, Isaac Acquah, Nouman Rasool (2023). Characteristic modal analysis in miniaturization and bandwidth-enhancement of monopole antenna for WLAN/WiMAX/LTE applications. *Microwave and Optical Technology Letters*. https://doi.org/10.1002/mop.33921
38. Kwame Oteng Gyasi, Abdelheq Boukarkar, Kingsford Sarkodie Obeng Kwakye, Mubarak Sani Ellis, Abdul-Rahman Ahmed, **Jerry John Kponyo**, Muhammad Abdul Basit, Nosherwan Shoaib (2023). Characteristic mode analysis of a compact circularly polarized rotated square slot antenna. *Microwave and Optical Technology Letters*. https://doi.org/10.1002/mop.33616
39. Kingsford Sarkodie Obeng Kwakye, Nouman Rasool, Kwame Oteng Gyasi, Joseph Abroquah, Mubarak Sani Ellis, Ohemeng Lord Owusu, Abdul-Rahman Ahmed, **Jerry John Kponyo** (2023). Design and Analysis of a Low-Profile Dual-Band Circularly Polarized Monopole Antenna Based on Characteristic Mode Analysis. *International Journal of RF and Microwave Computer-Aided Engineering*. https://doi.org/10.1155/2023/7855907
40. **JJ Kponyo**, KAB Opare, KO Gyasi (2023). Heterogeneous Architecture for DSRC/LTE Vehicular Communication Networks Based on the ITS Reference Architecture with Fuzzy Logic for Decision-Making. *J. Commun.*. https://www.jocm.us/2023/JCM-V18N5-318.pdf
41. Raymond Sabogu-Sumah, Kwasi A. Opare, James D. Gadze, **Jerry J. Kponyo**, Ahmed Abdul-Rahman, Ezer O. Yeboah-Boateng, Edmund Y. Fianko (2023). Optimal Coverage Enhancement for Multiple UAVs Using Multi-agent Learning Technique. *International Journal of Computing and Digital Systems*. https://doi.org/10.12785/ijcds/1301109
42. Akwasi Adu-Poku, God'sable Sitsofe Koku Aidam, Godfrey Atta Jackson, Kokouvi Edem N'tsoukpoe, **Jerry John Kponyo**, Adamah Messan, Ozioma Ikonne, Wofa Kwarteng, Francis Kemausuor (2023). Performance assessment and resilience of solar mini-grids for sustainable energy access in Ghana. *Energy*. https://doi.org/10.1016/j.energy.2023.129431
43. Simon Atuah Asakipaam, **Jerry John Kponyo**, Kwame Oteng Gyasi (2023). Resource Provisioning and Utilization in 5G Network Slicing: A Survey of Recent Advances, Challenges, and Open Issues. *International Journal of Computer Networks And Applications*. https://doi.org/10.22247/ijcna/2023/220736

44. EK Akowuah, **JJ Kponyo**, KO Boateng (2023). Ọdigbo metaheuristic optimization algorithm for computation of real-parameters and engineering design optimization. *International Journal of Advanced Computer Science and Applications*. https://www.researchgate.net/profile/Emmanuel-Akowuah-3/publication/367983317_Odigbo_Metaheuristic_Optimization_Algorithm_for_Computation_of_Real-Parameters_and_Engineering_Design_Optimization/links/642aff34ad9b6d17dc31fe1c/Odigbo-Metaheuristic-Optimization-Algorithm-for-Computation-of-Real-Parameters-and-Engineering-Design-Optimization.pdf

45. Justice Owusu Agyemang, **Jerry John Kponyo**, James Dzisi Gadze, Henry Nunoo-Mensah, Dantong Yu (2022). A Lightweight Messaging Protocol for Internet of Things Devices. *Technologies*. https://doi.org/10.3390/technologies10010021

46. Benjamin Kommey, Francis Gyimah, **Jerry John Kponyo**, Samuel Ato Andam-Akorful (2022). A Web Based System for Easy and Secured Managing Process of University Accreditation Information. *Indonesian Journal of Computing Engineering and Design (IJoCED)*. https://doi.org/10.35806/ijoced.v4i1.240

47. Nana Kwadwo Akrasi-Mensah, Andrew Selasi Agbemenu, Henry Nunoo-Mensah, Eric Tutu Tchao, Abdul-Rahman Ahmed, Eliel Keelson, Axel Sikora, Dominik Welte, **Jerry John Kponyo** (2022). Adaptive Storage Optimization Scheme for Blockchain-IIoT Applications Using Deep Reinforcement Learning. *IEEE Access*. https://doi.org/10.1109/access.2022.3233474

48. Simon Atuah Asakipaam, **Jerry John Kponyo**, Justice Owusu Agyemang, Fredrick Appiah-Twum (2022). DESIGN OF A MINIMAL OVERHEAD CONTROL TRAFFIC TOPOLOGY DISCOVERY AND DATA FORWARDING PROTOCOL FOR SOFTWARE-DEFINED WIRELESS SENSOR NETWORKS. *International Journal of Communication Networks and Information Security (IJCNIS)*. https://doi.org/10.17762/ijcnis.v12i3.4803

49. Philip Arthur, Mubarak Sani Ellis, Abdul-Rahman Ahmed, **Jerry John Kponyo** (2022). Design of pattern-reconfigurable circularly polarized unidirectional antenna based on quasi-radiator for ISM applications. *Heliyon*. https://doi.org/10.1016/j.heliyon.2022.e11721

50. **Jerry John Kponyo**, Justice Owusu Agyemang, Griffith Selorm Klogo (2022). Detecting End-Point (EP) Man-In-The-Middle (MITM) Attack based on ARP Analysis: A Machine Learning Approach. *International Journal of Communication Networks and Information Security (IJCNIS)*. https://doi.org/10.17762/ijcnis.v12i3.4735

51. M.S. Ellis, A.-R. Ahmed, **J.J. Kponyo**, K.O. Gyasi, K.S.O. Kwakye, S. Ameyaw (2022). Improved bandwidth and F/B ratio of a CPW-fed planar monopole antenna. *Heliyon*. https://doi.org/10.1016/j.heliyon.2022.e10037

52. Simon Atuah Asakipaam, **Jerry John Kponyo**, Justice Owusu Agyemang, Frederick Egyin Appiah-Twum (2021). A Critical Survey on Overhead Control Traffic Reduction Strategies in Software-Defined Wireless Sensor Networking. *International Journal of Computer Networks And Applications*. https://doi.org/10.22247/ijcna/2021/207978

53. Mamudu Hamidu, **Jerry John Kponyo** (2021). Closed Loop Capacitive Accelerometer Model using Simple Regression Test for Linearity. *Advances in Science Technology and Engineering Systems Journal*. https://doi.org/10.25046/aj0602118

54. Mubarak Sani Ellis, Philip Arthur, Abdul Rahman Ahmed, **Jerry John Kponyo**, Benedicta Andoh-Mensah, Bob John (2021). Design and circuit analysis of a single and dual band-notched UWB antenna using vertical stubs embedded in feedline. *Heliyon*. https://doi.org/10.1016/j.heliyon.2021.e08554

55. Benson Ahunu, Richard Opoku, **Jerry J. Kponyo**, Eric K. Antwi Agyei (2021). Technical and financial analysis of grid-tied solar PV for sustainable irrigation in rural agro-based communities in developing countries: a case study in Ghana. *International Journal of Energy Technology and Policy*. https://doi.org/10.1504/ijetp.2021.119851

56. Mubarak Sani Ellis, Francis B. Effah, Abdul-Rahman Ahmed, **Jerry J. Kponyo**, Javad Nourinia, Changiz Ghobadi, Bahman Mohammadi (2020). Asymmetric circularly polarized open-slot antenna. *International Journal of RF and Microwave Computer-Aided Engineering*. https://doi.org/10.1002/mmce.22141

57. Simon Atuah Asakipaam, **Jerry John Kponyo**, Justice Owusu Agyemang, Fredrick Appiah-Twum (2020).

DESIGN OF A MINIMAL OVERHEAD CONTROL TRAFFIC TOPOLOGY DISCOVERY AND DATA FORWARDING PROTOCOL FOR SOFTWARE-DEFINED WIRELESS SENSOR NETWORKS. *International Journal of Communication Networks and Information Security (IJCNIS)*. https://doi.org/10.54039/ijcnis.v12i3.4803

58. **Jerry John Kponyo**, Justice Owusu Agyemang, Griffith Selorm Klogo (2020). Detecting End-Point (EP) Man-In-The-Middle (MITM) Attack based on ARP Analysis: A Machine Learning Approach. *International Journal of Communication Networks and Information Security (IJCNIS)*. https://doi.org/10.54039/ijcnis.v12i3.4735

59. **Jerry John Kponyo**, Justice Owusu Agyemang, Griffith Selorm Klogo, Joshua Ofori Boateng (2020). Lightweight and host-based denial of service (DoS) detection and defense mechanism for resource-constrained IoT devices. *Internet of Things*. https://doi.org/10.1016/j.iot.2020.100319

60. Justice Owusu Agyemang, **Jerry John Kponyo**, Griffith Selorm Klogo, Joshua Ofori Boateng (2020). Lightweight rogue access point detection algorithm for WiFi-enabled Internet of Things(IoT) devices. *Internet of Things*. https://doi.org/10.1016/j.iot.2020.100200

61. Emmanuel Wendsongre Ramde, Eric Tutu Tchao, Yesuenyeagbe Atsu Kwabla Fiagbe, **Jerry John Kponyo**, Asakipaam Simon Atuah (2020). Pilot Low-Cost Concentrating Solar Power Systems Deployment in Sub-Saharan Africa: A Case Study of Implementation Challenges. *Sustainability*. https://doi.org/10.3390/su12156223

62. Justice Owusu Agyemang, **Jerry John Kponyo**, Griffith Selorm Klogo (2019). A Lightweight Rogue Access Point Detection Algorithm for Embedded Internet of Things (IoT) Devices. *Information Security and Computer Fraud*. https://doi.org/10.12691/iscf-7-1-2

63. **Jerry John Kponyo**, Kenneth Coker, Justice Owusu Agyemang, Joyce Der (2019). An Algorithm to Determine the Extent of an Epidemic Spread: A NetLogo Modeling Approach. *Engineering and Applied Sciences*. https://doi.org/10.11648/j.eas.20190404.11

64. **Jerry John Kponyo**, KAB Opare, JO Agyemang (2019). An Intelligent Irrigation System for Rural Agriculture. *International Journal of Applied Agricultural Sciences*. https://doi.org/10.11648/j.ijaas.20190503.13

65. M.S. Ellis, A.R. Ahmed, **J.J. Kponyo**, F.B. Effah, J. Nourinia, C. Ghobadi, B. Mohammadi (2019). Compact broadband circularly polarized printed antenna with a shifted monopole and modified ground plane. *Journal of Instrumentation*. https://doi.org/10.1088/1748-0221/14/11/p11026

66. **JJ Kponyo**, Isaac Acquah (2019). Intelligent traffic management system based on historical data analysis. *Int J Eng Adv Technol*. https://www.researchgate.net/profile/Frederick-Appiah-Twum/publication/331978760_Intelligent_traffic_management_system_based_on_historical_data_analysis/links/6221d7fe84ce8e5b4d052d01/Intelligent-traffic-management-system-based-on-historical-data-analysis.pdf

67. **Jerry John Kponyo** (2019). Lightweight man-in-the-middle (MITM) detection and defense algorithm for WiFi-enabled Internet of Things (IoT) gateways. *Information Security and Computer Fraud*. https://www.academia.edu/download/58292809/iscf-7-1-1.pdf

68. E. T. Tchao, Isaac Acquah, S. D., C. S., **JJ Kponyo** (2019). On Telemedicine Implementations in Ghana. *International Journal of Advanced Computer Science and Applications*. https://doi.org/10.14569/ijacsa.2019.0100325

69. Mubarak S. Ellis, Abdul Rahman Ahmed, **Jerry John Kponyo**, Javad Nourinia, Changiz Ghobadi, Bahman Mohammadi (2019). Simple circularly polarized planar monopole inverted T-shaped antenna. *Microwave and Optical Technology Letters*. https://doi.org/10.1002/mop.32026

70. M.S. Ellis, A.-R. Ahmed, **J.J. Kponyo**, J. Nourinia, Ch. Gbobadi, B. Mohammadi (2018). Miniaturised printed monopole antenna with a linked ground plane and radiator. *Electronics Letters*. https://doi.org/10.1049/el.2018.0756

71. Mubarak Sani Ellis, Ahmed Abdul-Rahman, **Jerry John Kponyo** (2018). Miniaturized Planar Monopole UWB Antenna with Integrated RFID/GPS/GSM/WLAN Bands Using Capactively Loaded Loop Resonator (CLLRs). *International Journal of Wireless and Microwave Technologies*. https://doi.org/10.5815/ijwmt.

2018.06.03

72. Mubarak Sani Ellis, Abdul-Rahman Ahmed, **Jerry John Kponyo**, Javad Nourinia, Changiz Ghobadi, Bahman Mohammadi (2018). Unidirectional Planar Monopole Antenna Using a Quasi-Radiator. *IEEE Antennas and Wireless Propagation Letters*. https://doi.org/10.1109/lawp.2018.2883579

73. SM Ellis, **JJ Kponyo**, AR Ahmed (2017). A compact wideband circularly polarized L-slot antenna edge-fed by a microstrip feedline for C-band applications. *Progress In Electromagnetics Research Letters*. https://www.jpier.org/PIERL/pier.php?paper=16111105

74. Kwasi A. Opare, Yujun Kuang, **Jerry J. Kponyo** (2015). Mode Combination in an Ideal Wireless OAM-MIMO Multiplexing System. *IEEE Wireless Communications Letters*. https://doi.org/10.1109/lwc.2015.2434375

75. KA Opare, **JJ Kponyo** (2015). The effect of channel estimation errors on the energy efficiency of downlink massive MIMO systems. *2015 Seventh International Conference on Ubiquitous and Future Networks*. https://ieeexplore.ieee.org/abstract/document/7182689/

76. **Jerry John Kponyo** (2014). A Routing Strategy with Distributed Location Service for VANETs. *Journal of Chongqing University of Post and Telecommunications(Natural Science Edition)*.

77. **JJ Kponyo** (2013). Analysis of Packets Reception Rate for One-Hop Broadcast in 2-D VANETs. *SmartCR*. https://www.researchgate.net/profile/Kponyo-Jerry/publication/265600055_Analysis_of_Packets_Reception_Rate_for_One-Hop_Broadcast_in_2-D_VANETs/links/545645290cf26d5090a95d31/Analysis-of-Packets-Reception-Rate-for-One-Hop-Broadcast-in-2-D-VANETs.pdf

78. **JJ Kponyo** (2012). A Time and Area Limited Epidemic Forwarding Method for Alleviating Vehicular Traffic Congestion. *SmartCR*. https://scholar.archive.org/work/myhdmykmj5ebtgcayfo6eixoge/access/wayback/http://www.smartcr.org/view/download.php?filename=smartcr_vol2no3p5.pdf

Books 1

1. Caitlin C. Corrigan, Simon Atuah Asakipaam, **Jerry John Kponyo**, Christoph Luetge (2023). AI Ethics in Higher Education: Insights from Africa and Beyond. *SpringerBriefs in ethics*. https://doi.org/10.1007/978-3-031-23035-6

Book chapters 1

1. **Jerry John Kponyo**, Francis Kemausuor, Eric Tutu Tchao, Henry Nunoo Mensah, Rachel Yayra Adjoe (2025). Promoting Transparency in Generative AI. *Oxford University Press eBooks*. https://doi.org/10.1093/oxfordhb/9780198940272.013.0015

Conference papers 20

1. Prince Dawson Tetteh, Juliet Arthur, Dickson Marfo Fosu, Musah Ibrahim Ali, **Jerry John Kponyo** (2026). Advancing Responsible Artificial Intelligence Ecosystems in African Higher Education Institutions: A Roadmap for Inclusive Growth and Sustainable Development. *Lecture notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*. https://doi.org/10.1007/978-3-032-33957-7_31

2. Amina Salifu, Henry Nunoo-Mensah, Eric Tutu Tchao, Albert Dede, Lukman Kunveng, Francisca Adoma Acheampong, Matthew Cobbinah, Julius Adinkrah, Shafic Issahaku, Andrew Selasi Agbemenu, **Jerry John Kponyo** (2026). Improving Speech Recognition for Ghanaian Accents Using Transformer-Based Accent Classification. *Lecture notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*. https://doi.org/10.1007/978-3-032-33957-7_1

3. Chelsea Kowouvi, Emmanuel Ahene, Joojo Walker, Rosemary Akyere, Dominic Kingsford Opoku Agyili, Desmond Nani, **Jerry John Kponyo** (2026). Incentive-Driven Zero-Knowledge Proof-Based Gradient Aggregation for Federated Learning. *Communications in computer and information science*. https://doi.org/10.1007/978-981-95-9514-3_31

4. Dickson Marfo Fosu, Musah Ibrahim Ali, Juliet Arthur, Prince Dawson Tetteh, **Jerry John Kponyo** (2026). Scaling Successful AI Initiatives Across African Higher Education. *Lecture notes of the Institute for Computer*

Sciences, Social Informatics and Telecommunications Engineering. https://doi.org/10.1007/978-3-032-33957-7_34

5. Peter Djakwah, William Mawuli Ahado, Andrew Essah Owiredu Annor, Aminatu Amadu, Akua Achiaa, Clerance Abraham Mensah, Justice Owusu Agyemang, James Dzisi Gadze, **Jerry John Kponyo** (2026). UAV-Assisted Reconfigurable Intelligent Surface Channel State Information Prediction in Beyond 5G Communication Systems: A Machine Learning Perspective. *Lecture notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*. https://doi.org/10.1007/978-3-032-33957-7_26
6. Eric Tutu Tchao, Elton Modestus Gyabeng, Andrews Tang, Joseph Barnes Nana Benyin, Eliel Keelson, **John Jerry Kponyo** (2022). An Open and Fully Decentralised Platform for Safe Food Traceability. https://doi.org/10.1109/csci58124.2022.00092
7. Justice Owusu Agyemang, Dantong Yu, **Jerry John Kponyo** (2022). Autonomic IoT: Towards Smart System Components with Cognitive IoT. *Lecture notes of the Institute for Computer Sciences, Social Informatics and Telecommunications Engineering*. https://doi.org/10.1007/978-3-030-93314-2_16
8. Michael Agyare, **Jerry John Kponyo**, Francis Kwabena Oduro-Gyimah (2021). Selective Blocking Approach of User Equipment in Restricted Communication Zones. https://doi.org/10.1109/iccma53594.2021.00026
9. Mamudu Hamidu, **Jerry John Kponyo**, Amevi Acakpovi (2019). Innovative Prediction of Vehicle Position Based on Closed Loop Modeling of Capacitive Accelerometer. https://doi.org/10.1109/icsiot47925.2019.00017
10. Justice Owusu Agyemang, **Jerry John Kponyo**, Joseph Mouzna (2017). Light Fidelity(LiFi) as an Alternative Data Transmission Medium in VANET. https://doi.org/10.1109/ems.2017.44
11. **J.J. Kponyo**, K.S. Nwizege, K.A. Opare, A-R Ahmed, H. Hamdoun, L.O. Akazua, S. Alshehri, H. Frank (2016). A Distributed Intelligent Traffic System Using Ant Colony Optimization: A NetLogo Modeling Approach. https://doi.org/10.1109/sims.2016.32
12. Abdul-Rahman Ahmed, **Jerry John Kponyo**, Kwasi Adu-Boahen Opare, Nwizege S. Kenneth, Koudjo M. Koumadi (2015). Temperature Calibration of a Passive Eight-Port Network for Noise Parameters Measurement. *international conference on Modelling and simulation*. https://doi.org/10.1109/uksim.2015.95
13. Kwasi A. Opare, Yujun Kuang, **Jerry J. Kponyo**, Kenneth S. Nwizege, Zhang Enzhan (2015). The Degrees of Freedom in Wireless Line-of-Sight OAM Multiplexing Systems Using a Circular Array of Receiving Antennas. https://doi.org/10.1109/acct.2015.52
14. Kwasi A. Opare, Yujun Kuang, **Jerry J. Kponyo**, Kenneth S. Nwizege, Parfait I. Tebe (2015). The Effect of Receiver-Side Circular Antenna Arrays on Bit Error Probability in a Wireless Line-of-Sight OAM Communication System. https://doi.org/10.1109/acct.2015.53
15. Parfait I. Tebe, Yujun Kuang, Kwasi A. Opare, **Jerry J. Kponyo** (2015). The optimum number of base station antennas in an energy efficient downlink massive MIMO system. https://doi.org/10.1109/comnetsat.2015.7434291
16. **J Kponyo** (2014). Dynamic travel path optimization system using ant colony optimization. *2014 UKSim-AMSS 16th International Conference on Computer Modelling and Simulation*. https://ieeexplore.ieee.org/abstract/document/7046053/
17. Kenneth Nwizege, **Jerry Kponyo**, Kwasi Opare, Mmeah Shedrack (2014). Optimization of PHY Layer Protocol for Wireless and Mobile Networks. https://doi.org/10.1109/ems.2014.56
18. **Jerry John Kponyo**, MS Ellis (2013). A wideband single fed circularly polarized slot antenna for multi-band applications. *2013 2nd International Symposium on Instrumentation and Measurement, Sensor Network and Automation (IMSNA)*. https://ieeexplore.ieee.org/abstract/document/6743353/
19. **JJ Kponyo** (2013). VANET cluster-on-demand minimum spanning tree (MST) prim clustering algorithm. *2013 International Conference on Computational Problem-Solving (ICCP)*. https://ieeexplore.ieee.org/abstract/document/6893585/

20. **JJ Kponyo** (2012). Real time status collection and dynamic vehicular traffic control using ant colony optimization. *2012 international conference on computational problem-solving (ICCP)*. https://ieeexplore.ieee.org/abstract/document/6384297/