James Dzisi Gadze

Faculty of Electrical and Computer Engineering
Kwame Nkrumah University of Science and Technology

ORCID 0000-0003-0550-9431 · Homepage eleceng.knust.edu.gh/staff-directory/academicstaff/j-d-gadze · Google Scholar scholar.google.com/citations?user=WJhLrY4AAAAJ&hl=en · Profile knust.peerford.com/staff/590134c1-7661-49a1-81d3-5597af8a7b56

RESEARCH

Interests: Mobile and wireless communication

Areas: Computer Networks and Communications · Electrical and Electronic Engineering · Artificial Intelligence · Information Systems · Signal Processing · Aerospace Engineering

RESEARCH SUMMARY

51	999	14	18	2.61	23%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 51 publications listed below, 2006–2026. Field-weighted impact is the mean over the 35 works scored for it; 1.00 is the world average for works of the same field, type and year. 8 of the 35 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Head of Department 2011–present
Telecommunication Engineering, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

PhD 2003–2007
Electrical & Computer Engineering, Florida International University, Miami, United States

PUBLICATIONS

Journal articles 43

1. Emmanuel Atebawone, Kwame Opuni-Boachie Obour Agyekum, **James Dzisi Gadze**, Kwasi Adu-Boahen Opare, Owusu Agyeman Antwi, Robert Akromond (2026). A RIS-Programmable hybrid uplink for grant-Free NOMA networks with distributed signal aggregation. *Physical Communication*. https://doi.org/10.1016/j.phycom.2026.103047
2. Emmanuel Atebawone, Kwame Opuni-Boachie Obour Agyekum, **James Dzisi Gadze**, Kwasi Adu-Boahen Opare, Owusu Agyeman Antwi, Robert Akromond (2026). CA-PPO: Collision-Aware Reinforcement Learning for Grant-Free NOMA in Wireless Federated Learning. *IET Networks*. https://doi.org/10.1049/ntw2.70028
3. Emmanuel Atebawone, Kwame Oponi-Boachie Obour Agyekum, **James Dzisi Gadze**, Kwasi Adu-Boahen Opare, Owusu Agyeman Antwi, Robert Akromond (2026). Collision-Aware Optimization Framework for Wireless Federated Learning Over Grant-Free NOMA. *Wireless Personal Communications*. https://doi.org/10.1007/s11277-026-12129-7
4. Emmanuel Atebawone, Kwame Opuni-Boachie Obour Agyekum, **James Dzisi Gadze**, Kwasi Adu-Boahen Opare, Owusu Agyeman Antwi, Robert Akromond (2026). Communication-Security Co-Design for Federated Learning in Grant-Free NOMA IoT Networks. *IET Communications*. https://doi.org/10.1049/cmu2.70138

5. Daniel Commey, Benjamin Appiah, Griffith S. Klogo, Winful Bagyl-Bac, **James D. Gadze**, Yousef Alsenani, Garth V. Crosby (2026). Performance analysis and deployment considerations of post-quantum cryptography for consumer Electronics. *Scientific Reports*. https://doi.org/10.1038/s41598-026-62968-4

6. KAB Opare, **JAD GADZE**, K AGYEKUM (2025). A HEURISTIC K-MEANS-BASED UNSUPERVISED MACHINE LEARNING MODEL FOR UNMANNED AERIAL VEHICLE MOUNTED RECONFIGURABLE INTELLIGENT SURFACE FOR ENHANCED 5G AND BEYOND NETWORKS PERFORMANCE. *International Journal of Computer Applications*. https://scholar.google.com/scholar?cluster=18279579895761036071&hl=en&oi=scholarr

7. Robert Antwi, **James Dzisi Gadze**, Eric Tutu Tchao, Axel Sikora, Kwame Opuni-Boachie Obour Agyekum, Henry Nunoo-Mensah, Andrew Selasi Agbemenu, Justice Owusu Agyemang, Dominik Welte, Abdul-Rahman Ahmed, Eliel Keelson (2025). Optimising peer-to-peer topology for blockchain-based industrial internet of things networks using particle swarm optimisation. *Cluster Computing*. https://doi.org/10.1007/s10586-024-04917-2

8. Akua Achiaa, **James Dzisi Gadze**, Kingsford Sarkodie Obeng Kwakye, Kwame Agyeman Prempeh Agyekum, Justice Owusu Agyemang (2024). Measurement and evaluation of electromagnetic radiation exposure from antennas in cellular networks in Ghana. *International Journal of Wireless and Mobile Computing*. https://doi.org/10.1504/ijwmc.2024.141457

9. Kwame Opuni-Boachie Obour Agyekum, Alex Yaw Boakye, Benedict Appati, Jochebed Akoto Opoku, Justice Owusu Agyemang, Gordon Owusu Boateng, **James Dzisi Gadze** (2024). Resource Allocation in D2D-Enabled 5G Networks Using Multiagent Reinforcement Learning. *Journal of Computer Networks and Communications*. https://doi.org/10.1155/2024/2780845

10. 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

11. 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

12. Robert Antwi, **James Dzisi Gadze**, Eric Tutu Tchao, Axel Sikora, Henry Nunoo-Mensah, Andrew Selasi Agbemenu, Kwame Opunie-Boachie Obour Agyekum, Justice Owusu Agyemang, Dominik Welte, Eliel Keelson (2022). A Survey on Network Optimization Techniques for Blockchain Systems. *Algorithms*. https://doi.org/10.3390/a15060193

13. Clement Nartey, Eric Tutu Tchao, **James Dzisi Gadze**, Bright Yeboah-Akowuah, Henry Nunoo-Mensah, Dominik Welte, Axel Sikora (2022). Blockchain-IoT peer device storage optimization using an advanced time-variant multi-objective particle swarm optimization algorithm. *EURASIP Journal on Wireless Communications and Networking*. https://doi.org/10.1186/s13638-021-02074-3

14. **James Dzisi Gadze**, Reynah Akwafo, Kwame Agyeman-Prempeh Agyekum, Kwasi Adu-Boahen Opare (2021). A 100 Gbps OFDM-Based 28 GHz Millimeter-Wave Radio over Fiber Fronthaul System for 5G. *Optics*. https://doi.org/10.3390/opt2020008

15. **James Dzisi Gadze**, Akua Acheampomaa Bamfo-Asante, Justice Owusu Agyemang, Henry Nunoo-Mensah, Kwasi Adu-Boahen Opare (2021). An Investigation into the Application of Deep Learning in the Detection and Mitigation of DDOS Attack on SDN Controllers. *Technologies*. https://doi.org/10.3390/technologies9010014

16. Delali Kwasi Dake, **James Dzisi Gadze**, Griffith Selorm Klogo, Henry Nunoo-Mensah (2021). Multi-Agent Reinforcement Learning Framework in SDN-IoT for Transient Load Detection and Prevention. *Technologies*. https://doi.org/10.3390/technologies9030044

17. Clement Nartey, Eric Tutu Tchao, **James Dzisi Gadze**, Eliel Keelson, Griffith Selorm Klogo, Benjamin Kommey, Kwasi Diawuo (2021). On Blockchain and IoT Integration Platforms: Current Implementation Challenges and Future Perspectives. *Wireless Communications and Mobile Computing*. https://doi.org/10.1155/2021/6672482

18. Delali Kwasi Dake, **James Dzisi Gadze**, Griffith Selorm Klogo, Henry Nunoo-Mensah (2021). Traffic Engineering in Software-defined Networks using Reinforcement Learning: A Review. *International Journal of Advanced Computer Science and Applications*. https://doi.org/10.14569/ijacsa.2021.0120541

19. **Dr. James Dzisi Gadze**, Kobby Asare Obeng, Justice Owusu-Agyeman (2020). Dynamic Bandwidth Utilization in Software - Defined Campus Based Networks: A Case Study of the Kwame Nkrumah University of Science and Technology. *IJARCCE*. https://doi.org/10.17148/ijarcce.2020.9617

20. Henry Nunoo-Mensah, Kwame Osei Boateng, **James Dzisi Gadze** (2020). PSTRM: Privacy-aware sociopsychological trust and reputation model for wireless sensor networks. *Peer-to-Peer Networking and Applications*. https://doi.org/10.1007/s12083-020-00906-5

21. Kotey Seth Djanie, Tchao Eric Tutu, **Gadze James Dzisi** (2019). A Proposed DoS Detection Scheme for Mitigating DoS Attack Using Data Mining Techniques. *Computers*. https://doi.org/10.3390/computers8040085

22. **James D Gadze**, Kwame A Agyekum, Stephen J Nuagah, E.A. Affum (2019). Improved Propagation Models for LTE Path Loss Prediction in Urban & Suburban Ghana. *International Journal of Wireless & Mobile Networks*. https://doi.org/10.5121/ijwmn.2019.11603

23. Seth Djane Kotey, Eric Tutu Tchao, **James Dzisi Gadze** (2019). On Distributed Denial of Service Current Defense Schemes. *Technologies*. https://doi.org/10.3390/technologies7010019

24. **JD Gadze**, GS Klogo (2018). Interference Temperature Model Based Technique for Dead Zone Elimination in Cognitive Radio Overlay Networks. *International Journal*. https://www.academia.edu/download/57168468/ijwcnt01732018.pdf

25. E.T. Tchao, **J.D. Gadze**, Jonathan Obeng (2018). Performance Evaluation of a Deployed 4G LTE Network. *International Journal of Advanced Computer Science and Applications*. https://doi.org/10.14569/ijacsa.2018.090325

26. H Nunoo-Mensah, KO Boateng, **JD Gadze**, GS Klogo (2018). SoTRMSim: Sociopsychological Trust and Reputation Models Simulator for Wireless Sensor Networks. *International Journal of Applied Information Systems*. https://www.ijais.org/archives/volume12/number16/1041-2018451775/

27. Henry Nunoo-Mensah, Kwame Osei Boateng, **James Dzisi Gadze** (2017). Tamper-aware authentication framework for wireless sensor networks. *IET Wireless Sensor Systems*. https://doi.org/10.1049/iet-wss.2015.0131

28. Henry Nunoo-Mensah, Kwame Osei Boateng, **James Dzisi Gadze** (2017). The adoption of socio- and bio-inspired algorithms for trust models in wireless sensor networks: A survey. *International Journal of Communication Systems*. https://doi.org/10.1002/dac.3444

29. **James D. Gadze**, Griffith S. Klogo, Theophilus Anafo (2016). Link-Level Performance Evaluation of Relay-Based Wimax Network. *International Journal of Wireless & Mobile Networks*. https://doi.org/10.5121/ijwmn.2016.8303

30. **James D. Gadze**, Maxwell Cobbah, Griffith S. Klogo (2016). Network Intrusion Detection And Countermeasure Selection In Virtual Network (NIDCS). *International Journal of Security Privacy and Trust Management*. https://doi.org/10.5121/ijsptm.2016.5103

31. **JD Gadze**, KAP Agyekum (2016). Real time traffic base station power consumption model for Telcos in Ghana. *International Journal of Computer Science and Telecommunications*. http://www.ijcst.org/Volume7/Issue5/p2_7_5.pdf

32. **PANKD James Dzisi Gadze*** (2015). Characterization of Ghanaian Turbulent Atmospheric Channel for Free Space Optical Communication. *INTERNATIONAL JOURNAL OF MICROWAVE AND OPTICAL TECHNOLOGY*. https://www.researchgate.net/profile/Dzisi-Gadze/publication/282271915_Characterization_of_ghanaian_turbulent_atmospheric_channel_for_free_space_optical_communication/links/581a1c6f08ae30a2c01c9858/Characterization-of-ghanaian-turbulent-atmospheric-channel-for-free-space-optical-communication.pdf

33. Henry Nunoo-Mensah, Kwame Osei Boateng, **James Dzisi Gadze** (2015). Comparative Analysis of Energy Usage of Hash Functions in Secured Wireless Sensor Networks. *International Journal of Computer*

Applications. https://doi.org/10.5120/19233-0968

34. **ETT J. D. Gadze**, ET Tchao (2015). Throughput and coverage evaluation of a deployed wimax network in ghana. *International Journal of Computer Science and Telecommunications*. https://www.academia.edu/download/59369556/p4_7_520190523-62737-1x77ajj.pdf

35. **JD Gadze** (2014). A performance study of energy detection based spectrum sensing for cognitive radio networks. *International Journal of Emerging Technology and Advanced Engineering*. https://www.researchgate.net/profile/Dzisi-Gadze/publication/309618665_A_Performance_Study_of_Energy_Detection_Based_Spectrum_Sensing_for_Cognitive_Radio_Networks/links/581a1cb208aeffb29413123c/A-Performance-Study-of-Energy-Detection-Based-Spectrum-Sensing-for-Cognitive-Radio-Networks.pdf

36. Griffith S.Klogo, **James D. Gadze**, Henry Nunoo-Mensah (2014). On the Number of Anchor Nodes for the Localization of Smart Energy Meters (SEM) in an African Environment. *International Journal of Computer Applications*. https://doi.org/10.5120/18950-0089

37. Griffith S.Klogo, **James D. Gadze**, Henry Diawuo (2014). Radio Coverage Analysis of Anchor Nodes for the Localization and Monitoring of Smart Energy Meters (SEM). *International Journal of Computer Applications*. https://doi.org/10.5120/14901-3393

38. Griffith S.Klogo, **James D. Gadze** (2014). Secured Clustered Network for Localization and Monitoring of Smart Energy Meters (SEM) in Ghana. *International Journal of Computer Applications*. https://doi.org/10.5120/15490-4280

39. **JD Gadze**, Delali KwasiDake, Kwasi Diawuo (2013). Adaptive Congestion Control Protocol (ACCP) for Wireless Sensor Networks. *International Journal of Wireless & Mobile Networks*. https://doi.org/10.5121/ijwmn.2013.5509

40. Griffith S.Klogo, **James D. Gadze** (2013). Energy Constraints of Localization Techniques in Wireless Sensor Networks (WSN): A Survey. *International Journal of Computer Applications*. https://doi.org/10.5120/13143-0543

41. **JD Gadze** (2013). Short-term traffic volume prediction in UMTS networks using the Kalman filter algorithm. *Int. J. Mob. Netw. Commun. Telemat*. https://scholar.google.com/scholar?cluster=7844829785148238287&hl=en&oi=scholarr

42. **J Gadze** (2009). Control-aware wireless sensor network platform for the smart electric grid. *IJCSNS International Journal of Computer Science and Network Security*. https://scholar.google.com/scholar?cluster=10410813038920012266&hl=en&oi=scholarr

43. **JD Gadze** (2006). Intelligent agent approach to the control of critical infrastructure networks. *Proc. of World Acac. of Sci, Eng and Tech*. https://scholar.google.com/scholar?cluster=3437296586561835255&hl=en&oi=scholarr

Conference papers 6

1. 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

2. Raymond Sabogu-Sumah, Kwasi Adu-Boahen Opare, **James D. Gadze**, Edmund Y. Fianko, Timothy Ashong (2024). Reconfigurable Intelligent Reflecting Surfaces Enabled Spectrum Access for Beyond 5G Networks. https://doi.org/10.1109/icetsis61505.2024.10459475

3. Delali Kwasi Dake, **James Dzisi Gadze**, Griffith Selorm Klogo (2021). DDoS and Flash Event Detection in Higher Bandwidth SDN-IoT using Multiagent Reinforcement Learning. https://doi.org/10.1109/iccma53594.2021.00011

4. **J Gadze** (2007). On optimal slot allocation for reservation TDMA MAC protocol in shadow fading environment. *2007 4th International Symposium on Wireless Communication Systems*. https://ieeexplore.ieee.org/abstract/document/4392453/

5. **J Gadze** (2007). Wireless networked-based sensing for protection and decentralized control of critical infrastructures. *2007 IEEE International Conference on Networking, Sensing and Control*. https://ieeexplore.ieee.org/abstract/document/4239068/

6. **J Gadze** (2006). A framework for trust-based cluster head election in wireless sensor networks. *Second IEEE Workshop on Dependability and Security in Sensor Networks and Systems*. https://ieeexplore.ieee.org/abstract/document/1630358/

Reports 1

1. **JD Gadze**, KAP Agyekum, K Opare (2021). 100 Gbps OFDM-Based 28 GHz Millimeter-Wave Radio over Fiber Fronthaul System for 5G. Optics 2021, 2, 70–86. *s Note: MDPI stays neutral with regard to jurisdictional claims in published ….* https://www.academia.edu/download/106394861/pdf.pdf

Theses 1

1. **JD Gadze** (2007). Autonomic and embedded wireless sensor protocols for critical infrastructures. *Florida International University*. https://search.proquest.com/openview/cf229ab2d7dd80ee8b1affdbd74b17f0/1?pq-origsite=gscholar&cbl=18750