Michael Asante

Department of Computer Science
Kwame Nkrumah University of Science and Technology

ORCID 0009-0002-9820-7028 · Email mkasante@cougarnet.uh.edu · Profile knust.peerford.com/staff/5e7c82d3-7479-4812-9a67-63bc80d9cff6

RESEARCH

Interests: Retina · Visual neuroscience · Myopia · Biomedical optics

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

RESEARCH SUMMARY

67	300	9	9	0.61	6%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 67 publications listed below, 2015–2026. Field-weighted impact is the mean over the 66 works scored for it; 1.00 is the world average for works of the same field, type and year. 4 of the 66 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Graduate Teaching Assistant 2025–2030
College of Optometry, University of Houston, Houston, United States

Research and Teaching Assistant 2023–2024
Optometry and Visual Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

EDUCATION AND QUALIFICATIONS

PhD in Vision Science/Physiological Optics 2025–2030
College of Optometry, University of Houston, Houston, United States

Doctor of Optometry 2017–2023
Optometry and Visual Science, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

DISTINCTIONS, MEMBERSHIPS AND SERVICE

President 2021–2022
Optometry Students Association of Ghana, Kumasi, Ghana

PUBLICATIONS

Journal articles 57

1. Henry Techie Menson, **Michael Asante**, Yaw Marfo Missah, Gaddafi Abdul Salaam, Stephen Opoku Oppong (2026). A Systematic Review of Artificial Intelligence and Deep Learning Approaches for Cocoa Pod Disease Detection. *Journal of Computer Science*. https://doi.org/10.3844/jcssp.2026.2540.2572
2. Steve Okyere-Gyamfi, **Michael Asante**, Kwame Ofosuhene Peasah, Yaw Marfo Missah, Vivian Akoto-Adjepong (2026). Color Difference Histogram Capsule Network (CDH-CapsNet) for Plant Disease Recognition. *International Journal of Intelligent Systems and Applications*. https://doi.org/10.5815/ijisa.2026.03.03

3. Rose-Mary Owusuaa Mensah Gyening, James Ben Hayfron-Acquah, **Michael Asante**, Kate Takyi, Peter Appiahene (2026). Deep-fuzzy personalisation framework for robot-assisted learning for children with autism. *Indonesian Journal of Electrical Engineering and Computer Science*. https://doi.org/10.11591/ijeecs.v41.i1.pp320-330

4. Osei Isaac, Benjamin Appiah, Daniel Commey, Kwabena Owusu-Agyemang, **Michael Asante**, Benjamin Hayfrom Acquah (2026). EdgeFence: Federated Temporal Graph Neural Networks for Lightweight, Adversarial Malware Detection in Distributed Edge Networks. *International Journal of Information Security*. https://doi.org/10.1007/s10207-026-01237-x

5. Henry Techie-Menson, **Michael Asante**, Yaw Marfo Missah, Gaddafi Abdul-Salaam, Stephen Opoku Oppong (2026). Enhanced convolutional block attention module with Learnable Gated Fusion (LGF-CBAM) for cocoa pod disease identification. *PLoS ONE*. https://doi.org/10.1371/journal.pone.0348147

6. Issah Zabsonre Alhassan, Gaddafi Abdul-Salaam, **Michael Asante**, Yaw Marfo Missah, Alimatu Sadia Shirazu (2026). Ensemble-Guided Pseudorandom Number Generation with Residue Number System Transformation. *Journal of Cyber Security*. https://doi.org/10.32604/jcs.2026.085303

7. Mohammed Abdul-Kabir, **Michael Kwesi Asante**, Bright Boakye, Felix Kofi Awuriki, Prince Mintah, Abdul-Sadik Ahmed, Nana Yaa Koomson, Richchris Konadu Yiadom, Isabella Amoabeng Sam, Stephanie Adjei, Ernest Dartey Kumi (2026). Knowledge and Awareness of Age-Related Eye Conditions among Adults in Oforikrom Municipality, Ghana. *Journal of Science and Technology (Ghana)*. https://doi.org/10.4314/just.v44i1.4

8. Milan Kretzschmar, Maren Dubbert, Matthias Lück, **Michael Asante**, Geoffroy Sossa, Mathias Hoffmann (2026). Sustainable agriculture from the bottom up: a compact and versatile low-cost platform for agricultural monitoring. *Frontiers in Agronomy*. https://doi.org/10.3389/fagro.2026.1768276

9. Steven Yirenkyi, Cyril D. Boateng, Emmanuel Ahene, Jeffrey N. A. Aryee, **Michael Asante**, Alex Baffour Akoto (2026). The feasibility gap: a systematic review of AI flood forecasting strategies in data-scarce regions. *International Journal of River Basin Management*. https://doi.org/10.1080/15715124.2026.2712534

10. Eldrick Adu Acquah, Isaiah Osei Duah, Albert Kwadjo Amoah Andoh, Prince Mintah, Anderson Andrews, **Michael Kwesi Asante**, Bright Kusi Owusu, Samuel Benaiah Oppong, Beatrice Okrah, Kwadwo Owusu Akuffo (2025). Accessibility and challenges to ophthalmic instruments acquisition among optometry students in Ghana. *BMC Research Notes*. https://doi.org/10.1186/s13104-025-07385-y

11. Eliezer Ofori Odei-Lartey, Stephaney Gyaase, Dominic Asamoah, Thomas Gyan, Kwaku Poku Asante, **Michael Asante** (2025). Advancing Knowledge on Machine Learning Algorithms for Predicting Childhood Vaccination Defaulters in Ghana: A Comparative Performance Analysis. *Applied Sciences*. https://doi.org/10.3390/app15158198

12. Steve Okyere-Gyamfi, **Michael Asante**, Kwame Ofosuhene Peasah, Yaw Marfo Missah, Vivian Akoto-Adjepong (2025). Contrast limited adaptive histogram equalization (CLAHE) and colour difference histogram (CDH) feature merging capsule network (CCFMCapsNet) for complex image recognition. *PLoS ONE*. https://doi.org/10.1371/journal.pone.0335393

13. Evans Obu, **Michael Asante**, Eric Opoku Osei (2025). Fog computing-enabled smart seating systems: optimizing latency and network bandwidth efficiency in classrooms. *Advances in Computing and Engineering*. https://doi.org/10.21622/ace.2025.05.1.1335

14. Umar Sayibu, **Michael Asante**, Gaddafi Abdul-Salam, Twum Frimpong (2025). Fraud Prediction and Prevention in Mobile Money Payment Systems (MMPS): A Systematic Literature Review of Text-Based Detection Methods. *Security and Communication Networks*. https://doi.org/10.1155/sec/8913715

15. Mohammed Abdul-Kabir, Prince Mintah, **Michael Kwesi Asante**, James Forson, Agnes Oppong, James Anin Odame, Gabriel Kwaku Agbeshie, Stephanie Obeng-Inkoom (2025). Management of ocular adverse reactions to antiglaucoma medications–Survey of optometrists in Ghana. *PLOS Global Public Health*. https://doi.org/10.1371/journal.pgph.0004251

16. Siddique Abubakr Muntaka, Jacques Bou Abdo, Kemi Akanbi, Sunkanmi Oluwadare, Faiza Hussein, Oliver Kornyo, **Michael Asante** (2025). Mapping the invisible internet: Framework and dataset. *Data in Brief*.

https://doi.org/10.1016/j.dib.2025.112175

17. Francis Kwadzo Agbenyegah, Jinfu Chen, **Micheal Asante**, Ernest Akpaku (2025). Predicting Vulnerabilities in Computer Source Code Using Non-Investigated Software Metrics. *Software Quality Journal*. https://doi.org/10.1007/s11219-025-09715-6

18. Augustina Dede Agor, **Michael Asante**, James Benjamin Hayfron-Acquah, James Tetteh Ami-Narh, Lawrence Kwami Aziale, Kwame Ofosuhene Peasah (2024). A Power-Aware River Formation Dynamics Routing Algorithm for Enhanced Longevity in MANETs. *International Journal of Computer Networks And Applications*. https://doi.org/10.22247/ijcna/2024/17

19. Oliver Kornyo, Benjamin Tei Partey, **Michael Asante**, Kwabena Owusu-Agyemang, Eric Osei Opoku, William Asiedu, Prince Clement Addo, Maxwell Dorgbefu, Jesse Damptey, Siddique Abubakr Muntaka (2024). Enhancing AMI network security with STI model: A mathematical perspective. *Internet of Things*. https://doi.org/10.1016/j.iot.2024.101244

20. Richard Apau, **Michael Asante**, Frimpong Twum, James Ben Hayfron-Acquah, Kwame Ofosuhene Peasah (2024). Image steganography techniques for resisting statistical steganalysis attacks: A systematic literature review. *PLoS ONE*. https://doi.org/10.1371/journal.pone.0308807

21. Kwadwo Asante, Yaw Marfo Missah, Frimpong Twum, **Michael Asante** (2024). Network-centric Optimal Hybrid Sensing Hole Recovery and Self- Healing in IPV6 WSNs. *International Journal of Wireless & Mobile Networks*. https://doi.org/10.5121/ijwmn.2024.16605

22. Paul K Arhin Jnr, **Michael Asante**, Linda Otoo (2023). A Comparative Study of RSA and ELGAMAL Cryptosystems. *International Journal of Computing and Engineering*. https://doi.org/10.47941/ijce.1291

23. Seiba Alhassan, Gaddafi Abdul-Salaam, **Michael Asante**, Yaw Missah, Ernest Ganaa (2023). Analyzing Autoencoder-Based Intrusion Detection System Performance. *Journal of Information Security and Cybercrimes Research*. https://doi.org/10.26735/ylxb6430

24. Ferdinand Alifo, Mustapha Awinsongya yakubu, Martin Doe, **Michael Asante** (2023). Analyzing the Impact of Blackhole Attacks on AODV and DSR Routing Protocols' Performance in NS-2. *International Journal of Computer Science Engineering and Applications*. https://doi.org/10.5121/ijcsea.2023.13402

25. Mustapha Adamu Mohammed, **Michael Asante**, Seth Alornyo, Bernard Obo Essah (2023). Android applications classification with deep neural networks. *Iran Journal of Computer Science*. https://doi.org/10.1007/s42044-023-00136-x

26. Oliver Kornyo, **Michael Asante**, Richard Opoku, Kwabena Owusu-Agyemang, Benjamin Tei Partey, Emmanuel Kwesi Baah, Nkrumah Boadu (2023). Botnet attacks classification in AMI networks with recursive feature elimination (RFE) and machine learning algorithms. *Computers & Security*. https://doi.org/10.1016/j.cose.2023.103456

27. Paul K. Arhin Jnr, **Michael Asante**, Linda Otoo (2023). Enhancing the Time Complexity of Mathematically Intensive Algorithms; the Case of Cryptography. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2023922736

28. Ntaye Emmanuel, **Michael Asante**, Dennis Redeemer Korda, Emmanuel Oteng Dapaah, Dickson Kodzo Mawuli Hodowu (2023). Improved Grey Wolf Optimizer based on Levy Flight for Multi-thresholding Image Segmentation. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2023922595

29. Alexander Boakye Marful, Oliver Kornyo, **Michael Asante**, Richard Opoku, Daniel Yaw Addai Duah, Benjamin Tei-Partey (2023). Integration of Advanced Metering Infrastructure for Mini-Grid Solar PV Systems in Off-Grid Rural Communities (SoAMIRural). *Sustainability*. https://doi.org/10.3390/su15097526

30. Mustapha Adamu Mohammed, Obeng Bismark, Seth Alornyo, **Michael Asante**, Bernard Obo Essah (2023). ResFCNET: A Skin Lesion Segmentation Method Based on a Deep Residual Fully Convolutional Neural Network. *IETI Transactions on Data Analysis and Forecasting (iTDAF)*. https://doi.org/10.3991/itdaf.v1i1.35723

31. George Asante, James Ben Hayfron-Acquah, **Michael Asante**, Joshua Caleb Dagadu (2022). A Symmetric,

Probabilistic, Non-Circuit Based Fully Homomorphic Encryption Scheme. *International Journal of Computer Networks And Applications*. https://doi.org/10.22247/ijcna/2022/212332

32. Adolf Fenyi, Isaac Fenyi, **Michael Asante** (2022). Colored Edge Detection Using Thresholding Techniques. *Recent Advances in Computer Science and Communications*. https://doi.org/10.2174/2666255816666220617092943
33. Emmanuel Ahene, Joojo Walker, Ikram Ali, Kwame Ofosuhene Peasah, **Michael Asante** (2022). Efficient deniable authentication and its application in location-based services. *Computers & Electrical Engineering*. https://doi.org/10.1016/j.compeleceng.2022.107958
34. Mustapha A. Mohammed, Seth Alornyo, **Michael Asante**, Bernard O. Essah (2022). Intelligent Detection Technique for Malicious Websites Based on Deep Neural Network Classifier. *International Journal of Education and Management Engineering*. https://doi.org/10.5815/ijeme.2022.06.05
35. Doris Ohui Agbettor, **Michael Asante** (2022). The Impact of Information Technology on the Management of Diabetes – A Case Study of the Trust Hospital, Accra. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2022922362
36. **Michael Asante**, Francis Kwadzo Agbenyegah, James Owusu Kusi (2021). Effect of Asynchronous Transfer Mode Adaptation Layers and Service Class on Network Performance. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2021921399
37. George Asante, James Ben Hayfron-Acquah, **Michael Asante** (2021). Evolution of Homomorphic Encryption. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2021921679
38. Seth Alornyo, Mustapha Adamu Mohammed, Bright Selorm Anibrika, **Michael Asante** (2021). ID-Based Plaintext Checkable Signcryption with Equality Test in Healthcare Systems. *SN Computer Science*. https://doi.org/10.1007/s42979-020-00436-0
39. Seth Alornyo, Kingsford Kissi Mireku, Mustapha Adamu Mohammed, Daniel Adu-Gyamfi, **Michael Asante** (2021). ID-based key-insulated signcryption with equality test in cloud computing. *SN Applied Sciences*. https://doi.org/10.1007/s42452-021-04469-9
40. Michael Kyei Kissi, **Michael Asante** (2021). Penetration Testing of IEEE 802.1X Port-based Authentication Protocols using Kali Linux Hacking Tools. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2021921186
41. Oliver Kufuor, **Michael Asante** (2020). A Comparative Performance Analysis of 6to4 Transition Mechanism over MPLS and Frame Relay using OPNET. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2020920316
42. Obed Appiah, James Benjamin Hayfron-Acquah, **Michael Asante** (2020). An Effective Algorithm for Denoising Salt-And-Pepper Noise in Real-Time. *Asian Journal of Research in Computer Science*. https://doi.org/10.9734/ajrcos/2020/v6i130149
43. Vivian Akoto-Adjepong, **Michael Asante**, Steve Okyere-Gyamfi (2020). An Enhanced Non-Cryptographic Hash Function. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2020920014
44. Rockson Kwasi Afriyie, **Michael Asante**, Edeh Michael Onyema (2020). Implementing Morpheme-based Compression Security Mechanism in Distributed Systems. *International Journal of Innovative Research and Development*. https://doi.org/10.24940/ijird/2020/v9/i2/jan20092
45. Obed Appiah, **Michael Asante**, James Benjamin Hayfron-Acquah (2020). Improved approximated median filter algorithm for real-time computer vision applications. *Journal of King Saud University - Computer and Information Sciences*. https://doi.org/10.1016/j.jksuci.2020.04.005
46. Seth Alornyo, Mustapha Adamu Mohammed, Bright Anibrika Selorm Kodzo, Pious Akwasi Sarpong, **Michael Asante** (2020). Parallel Key Insulated ID-Based Public Key Cryptographic Primitive with Outsourced Equality Test. *Journal of Computer and Communications*. https://doi.org/10.4236/jcc.2020.812018
47. Michael Kyei, **Michael Asante** (2020). Penetration Testing of IEEE 802.11 Encryption Protocols using Kali Linux Hacking Tools. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2020920365

48. Bright Selorm, **Michael Asante**, Benjamin Hayfron-Acquah, Ebenezer K. (2020). Reengineering MANET Routing using Ant Colony Optimization: Modelling and Performance Study. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2020920372

49. Vincent Appiah, **Michael Asante**, Isaac Kofi Nti, Owusu Nyarko-Boateng (2019). Survey of Websites and Web Application Security Threats Using Vulnerability Assessment. *Journal of Computer Science*. https://doi.org/10.3844/jcssp.2019.1341.1354

50. Umar Farouk, **Michael Asante**, James Ben (2018). A Survey of Machine Learning's Electricity Consumption Models. *Communications on Applied Electronics*. https://doi.org/10.5120/cae2018652789

51. Francis Agbenyegah Kwadzo, Regina Kafui Adroe, **Dr. Michael Asante** (2018). Analysis of Electronic Payment Systems in Ghana - A Case Study of Mobile Payment System. *International Journal of Scientific Research and Management (IJSRM)*. https://doi.org/10.18535/ijsrm/v6i6.ec02

52. Owusu Nyarko- Boateng, **Michael Asante**, Isaac Kofi Nti (2017). Implementation of Advanced Encryption Standard Algorithm with Key Length of 256 Bits for Preventing Data Loss in an Organization. *International Journal of Science and Engineering Applications*. https://doi.org/10.7753/ijsea0603.1004

53. Akpah Sylvester, **Michael Asante**, Frimpong Twum (2016). An Improved Computer Network Access Control using Free BSD PFSENSE: A Case Study of UMaT Local Area Network. *Communications on Applied Electronics*. https://doi.org/10.5120/cae2016652396

54. Gideon Evans, **Michael Asante**, Anokye Acheampong Amponsah (2016). Dynamic Routing Implementation Decision between OSPFv3 and IS–IS in IPv6 Networks. *Communications on Applied Electronics*. https://doi.org/10.5120/cae2016652446

55. Frimpong Twum, Kwadwo Asante, **Michael Asante** (2016). Implementation of Network Services on IPV6 Networks. *International Journal of Computer Applications*. https://doi.org/10.5120/ijca2016909788

56. Anibrika Bright, Mustapha Adamu, Ashigbi Franklin, **Michael Asante** (2016). Performance Analysis of Enhanced Interior Gateway Routing Protocol (EIGRP) Over Open Shortest Path First (OSPF) Protocol with Opnet. *International Journal of Advanced Computer Science and Applications*. https://doi.org/10.14569/ijacsa.2016.070512

57. Abeo Timothy Apasiba, J. B. Hayfron-Acquah, J. K. Panford, **Michael Asante** (2015). Enhancing the Security of Vehicles and the Work of the DVLA Using GSM/SMS Technologies. *International Journal of Science and Engineering Applications*. https://doi.org/10.7753/ijsea0405.1006

Book chapters 1

1. Francis Kwadzo Agbenyegah, **Micheal Asante**, Jinfu Chen, Ernest Akpaku (2024). Predicting software vulnerability based on software metrics: a deep learning approach. *Iran Journal of Computer Science*. https://doi.org/10.1007/s42044-024-00195-8

Conference papers 9

1. Paul Kobina Arhin Jnr, George Aggrey, **Michael Asante**, Linda Otoo (2025). Optimizing Hybrid Cryptographic Frameworks for Secure Financial Data Transmission in Resource-Constrained Environments. *2025 9th International Conference on Cryptography, Security and Privacy (CSP)*. https://doi.org/10.1109/csp66295.2025.00015

2. Paul Kobina Arhin Jnr, George Aggrey, **Michael Asante**, Linda Otoo, Akua Biney (2025). Optimizing Secure and Efficient Data Communication in Health Information Systems: A Hybrid Cryptographic Approach. *2025 10th International Conference on Information and Network Technologies (ICINT)*. https://doi.org/10.1109/icint65528.2025.11030894

3. Paul Kobina Arhin Jnr, George Aggrey, **Michael Asante**, Linda Otoo (2024). Design and Implementation of a Secure and Transparent E-Voting System Using Blockchain Technology and Hybrid Encryption; the case of Africa. *2024 IEEE SmartBlock4Africa*. https://doi.org/10.1109/smartblock4africa61928.2024.10779535

4. Ferdinand Alifo, Mustapha Awinsongya Yakubu, Martin Doe, **Michael Asante** (2023). Performance Analysis of AODV and DSR Routing Protocols Under Blackhole Attack Using NS-2. https://doi.org/10.5121/csit.2023.131339

5. Kwadwo Asante, Twum Frimpong, Yaw Missah, **Michael Asante** (2021). Network-Centric Optimal Hybrid Mobility Scheme for IPv6 Wireless Sensor Networks. *2021 International Conference on Electrical, Computer and Energy Technologies (ICECET)*. https://doi.org/10.1109/icecet52533.2021.9698636
6. Nabare Williams Kwame, Emmanuel Freeman, **Michael Asante** (2019). An Innovative Technique for Analyzing Network Performance and Congestion in a Hybrid Network Topology. https://doi.org/10.1109/iccma.2019.00017
7. Seth Alornyo, Evans Aidoo, Kingsford Kissi Mireku, Benjamin Kwofie, Xiong Hu, **Michael Asante** (2019). ID-Based Outsourced Plaintext Checkable Encryption in Healthcare Database. https://doi.org/10.1109/icsiot47925.2019.00016
8. Obed Appiah, J. B. Hayfron-Acquah, **Michael Asante** (2019). Real-Time Motion Detection and Surveillance using Approximation of Image Pre-processing Algorithms. https://doi.org/10.1109/africon46755.2019.9133920
9. Seth Alornyo, **Michael Asante**, Xiong Hu, Kingsford Kissi Mireku (2018). Encrypted Traffic Analytic using Identity Based Encryption with Equality Test for Cloud Computing. https://doi.org/10.1109/icastech.2018.8507063