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RESEARCH

Interests: Optical Spectroscopy and Imaging Processing

Areas: Computer Vision and Pattern Recognition · Molecular Biology · Analytical Chemistry · Artificial Intelligence · Biophysics · Signal Processing

RESEARCH SUMMARY

61	335	9	7	0.73	4%
Publications	Citations	h-index	i10-index	Field-weighted impact	World top 10%

Counted from the 61 publications listed below, 2003–2026. Field-weighted impact is the mean over the 49 works scored for it; 1.00 is the world average for works of the same field, type and year. 2 of the 49 papers scored for it are among the world's most cited tenth for their field, type and year.

POSITIONS

Prof 2013–present
Physics, University of Cape Coast School of Physical Sciences, Cape Coast, Ghana

EDUCATION AND QUALIFICATIONS

PhD 1992–present
Physics Department, University of Cape Coast, Cape Coast, Ghana

PUBLICATIONS

Journal articles 42

1. Savanna Nyarko, **Moses Jojo Eghan**, Catharina De Lange Davies, Mercy Afadzi Tetteh, Jerry Opoku-Ansah, Raphaell Moreira, E. Johan Foster, Solomon Kingsley Katu, Elvis K. Tiburu (2026). Impact of Synthesis Temperature on the Drug Loading Capacity of Linde Type A Zeolite. *Journal of biomimetics, biomaterials and biomedical engineering*. https://doi.org/10.4028/p-s7thip
2. **Moses Jojo Eghan**, CLY Amuah, J Opoku-Ansah, POW Adueming (2025). Classification of organic and conventional cocoa beans using laser-induced fluorescence spectroscopy combined with chemometric techniques. *Journal of Fluorescence*.
3. Jerry Opoku-Ansah, Rabbi Boateng, Charles Lloyd Yeboah Amuah, Peter Osei-Wusu Adueming, Justice Allotey Pappoe, Jonathan Ntow, Kwesi Quagraine, Shemmira Yunus, Benjamin Anderson, **Moses Jojo Eghan** (2025). Identification of Spectral Fingerprints in Different Batches of Antimalarial Herbal Drugs Using Laser-Induced Autofluorescence and Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-025-04192-3
4. Rabbi Boateng, Jerry Opoku-Ansah, Charles Lloyd Yeboah Amuah, Peter Osei-Wusu Adueming, Andrew Huzortey, Kingsley Taah, **Moses Jojo Eghan** (2025). Laser-induced fluorescence spectroscopy combined with multivariate analysis for rice seeds and grains discrimination. *Applied Optics*. https://doi.org/10.1364/ao.546627
5. Rabbi Boateng, Hampus Månefjord, Jerry Opoku-Ansah, Peter Osei-Wusu Adueming, Andrew Huzortey,

Moses Jojo Eghan, Benjamin Anderson, Kingsley Taah, Charles Lloyd Yeboah Amuah (2025). Modular 3D-printed biophotonic platform for cost-effective hyperspectral and polarimetric imaging. *Optics Continuum*. https://doi.org/10.1364/optcon.575071

6. Ruth Araba Tawiah Annan, **Moses Jojo Eghan**, Joseph Kwabena Amoako, Francis Otoo, Dennis Kpakpo Adotey, Irene Opoku-Ntim, Charles Kansaana, Prince James Adeti (2024). Radiological impact assessment of natural radioactivity in soil and water in Cape Coast North, Central Region of Ghana. *Radiation Protection Dosimetry*. https://doi.org/10.1093/rpd/ncae188
7. Peter Osei-Wusu Adueming, Jerry Opoku-Ansah, Andrew Atiogbe Huzortey, Charles Lloyd Yeboah Amuah, Kwasi Nyandey, **Moses Jojo Eghan**, Benjamin Anderson, Samuel Sonko Sackey (2023). A Feasibility Study on Monitoring Shelf Life of Bottled Natural Fruit Juice Using Laser-Induced Autofluorescence. *International Journal of Optics*. https://doi.org/10.1155/2023/7458190
8. Justice Allotey Pappoe, Jerry Opoku-Ansah, Charles Lloyd Yeboah Amuah, Peter Osei-Wusu Adueming, Samuel Sonko Sackey, Rabbi Boateng, Justice Kwaku Addo, **Moses Jojo Eghan**, Patrick Mensah-Amoah, Benjamin Anderson (2023). Automatic Classification of Antimalarial Herbal Drugs Exposed to Ultraviolet Radiation from Unexposed Ones Using Laser-Induced Autofluorescence with Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-023-03281-5
9. Justice Allotey Pappoe, Olivia Mongson, Charles Lloyd Yeboah Amuah, Jerry Opoku-Ansah, Peter Osei-Wusu Adueming, Rabbi Boateng, **Moses Jojo Eghan**, Samuel Sonko Sackey, Elliot Kwaku Anyidoho, Andrew Atiogbe Huzortey, Benjamin Anderson, Michael Kwame Vowotor, Ernest Teye (2023). Classification of Organic and Conventional Cocoa Beans Using Laser-Induced Fluorescence Spectroscopy Combined with Chemometric Techniques. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-023-03499-3
10. Rabbi Boateng, Jerry Opoku-Ansah, **Moses Jojo Eghan**, Peter Osei-Wusu Adueming, Charles Lloyd Yeboah Amuah (2023). Identification of Commercial Antimalarial Herbal Drugs Using Laser-Induced Autofluorescence Technique and Multivariate Algorithms. *Journal of Fluorescence*. https://doi.org/10.1007/s10895-023-03309-w
11. Patrick Essien, Cosme Alexandre Oliveira Barros Figueiredo, Hisao Takahashi, Nana Ama Browne Klutse, Cristiano Max Wrasse, João Maria de Sousa Afonso, David Pareja Quispe, Solomon Otoo Lomotey, Tunde Toyese Ayorinde, José H. A. Sobral, **Moses Jojo Eghan**, Samuel Sanko Sackey, Diego Barros, Anderson V. Bilibio, Francis Nkrumah, Kwesi Akumenyi Quagraine (2022). Intertropical Convergence Zone as the Possible Source Mechanism for Southward Propagating Medium-Scale Traveling Ionospheric Disturbances over South American Low-Latitude and Equatorial Region. *Atmosphere*. https://doi.org/10.3390/atmos13111836
12. Regina Esi Turkson, Hong Qu, Cobbinah Bernard Mawuli, **Moses J. Eghan** (2021). Classification of Alzheimer's Disease Using Deep Convolutional Spiking Neural Network. *Neural Processing Letters*. https://doi.org/10.1007/s11063-021-10514-w
13. Ernest Kojo Eduful, **Moses Joojo Eghan**, Yaw Boateng Mensah (2021). Estimation of Ghanaian Adult Liver dimensions and body parameters. *International Journal of Scientific Research in Science Engineering and Technology*. https://doi.org/10.32628/ijsrset218526
14. Peter Osei-Wusu Adueming, **Moses Jojo Eghan**, Benjamin Anderson, Samuel Kyei, Jerry Opoku-Ansah, Charles Lloyd Yeboah Amuah, Charles Darko Takyi, Paul Kingsley Buah-Bassuah (2020). Laser-induced autofluorescence assisted by multivariate techniques discriminates a cataractous lens from healthy lens tissues of Sprague–Dawley rats. *Journal of the Optical Society of America A*. https://doi.org/10.1364/josaa.394555
15. Charles Lloyd Yeboah Amuah, **Moses Jojo Eghan**, Benjamin Anderson, Peter Osei-Wusu Adueming, Jerry Opoku-Ansah, Paul Kingsley Buah-Bassuah (2020). Laser-induced fluorescence combined with multivariate techniques identifies the geographical origin of antimalarial herbal plants. *Journal of the Optical Society of America A*. https://doi.org/10.1364/josaa.396701
16. Mark Pokoo–Aikins, Augustine Kwame Kyere, **Moses Jojo Eghan**, Samuel Nii Adu Tagoe, Philip Oppong Kyeremeh, Francis Hasford, George Felix Acquah (2019). A Study on Amorphous Silicon Electronic Portal Imaging Device (A-Si EPID) Response to Delivered Radiation Doses. *International Journal of Sciences: Basic and Applied Research*.

17. Charles Roland Haruna, Mengshu Hou, Rui Xi, **Moses Jojo Eghan**, Michael Y. Kpiebaareh, lawrence Tandoh, Barbie Eghan-Yartel, Maame G. Asante-Mensah (2019). Applying Cluster Refinement to Improve Crowd-Based Data Duplicate Detection Approach. *IEEE Access*. https://doi.org/10.1109/access.2019.2920667

18. Jerry Opoku-Ansah, **Moses Jojo Eghan**, Benjamin Anderson, Johnson Nyarko Boampong, Raymond Edziah, Peter Osei-Wusu Adueming, Charles Lloyd Yeboah Amuah (2019). Optical Identification of Plasmodium falciparum Malarial Byproduct for Parasite Density Estimation. *International Journal of Optics*. https://doi.org/10.1155/2019/8782567

19. Jerry Opoku-Ansah, Benjamin Anderson, **Moses J. Eghan**, Peter Osei-Wusu Adueming, Charles L.Y. Amuah, Samuel S. Sackey (2017). A Retrofitted Metallurgical Microscope Using Light Emitting Diodes for Multi-Spectral Imaging. *Modern Applied Science*. https://doi.org/10.5539/mas.v11n9p30

20. George Amoako, Zhou Ming, **Moses Jojo Eghan**, Samuel Sonko Sackey (2017). DNA Origami as a Tool to Design Asymmetric Gold Nanostructures. *Journal of Materials Science Research*. https://doi.org/10.5539/jmsr.v7n1p1

21. Peter Osei-Wusu Adueming, **Moses Jojo Eghan**, Benjamin Anderson, Samuel Kyei, Jerry Opoku-Ansah, Charles L. Y. Amuah, Samuel Sonko Sackey, Paul Kingsley Buah-Bassuah (2017). Multispectral Imaging in Combination with Multivariate Analysis Discriminates Selenite Induced Cataractous Lenses from Healthy Lenses of Sprague-Dawley Rats. *Open Journal of Biophysics*. https://doi.org/10.4236/ojbiphy.2017.73011

22. **Moses Jojo Eghan** (2017). Variation in the susceptibility of okra (Abelmoschus esculentus L. Moench) genotypes to okra mosaic virus and Podagrica species under field conditions. *Journal of Plant Breeding and Crop Science*. https://academicjournals.org/journal/JPBCS/article-full-text/F96D88664529

23. Jerry Opoku-Ansah, **Moses Jojo Eghan**, Benjamin Anderson, Johnson Nyarko Boampong, Paul Kingsley Buah-Bassuah (2016). Laser-Induced Autofluorescence Technique for Plasmodium falciparum Parasite Density Estimation. *Applied Physics Research*. https://doi.org/10.5539/apr.v8n2p43

24. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Cryptographic and Watermarking Encryption Technique for Securing and Authentication of Digital Images. *International Journal of Computer Applications*. https://doi.org/10.5120/21078-3755

25. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Hybrid Cryptographic Encryption Technique for Securing Surveillance Digital Images in Mobile Urban Situation Awareness Systems. *International Journal of Computer Applications*. https://doi.org/10.5120/21079-3756

26. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Spatial Domain Watermarking Approach for Digital Images based on Image Features built on Formal Concepts Analysis. *International Journal of Computer Applications*. https://doi.org/10.5120/21077-3754

27. **Jojo M Eghan** (2015). A Symmetric Key Cryptographic Encryption Technique of MPEG Digital Video Images Based on RGB Pixel Transposition and Shuffling. *JOURNAL OF INFORMATION ASSURANCE AND SECURITY*. https://scholar.google.com/scholar?cluster=15160516577204078 37&hl=en&oi=scholarr

28. **Jojo M Eghan** (2015). A cryptographic, discrete cosine transform and frequency domain watermarking approach for securing digital images. *Proceedings of the International Conference on Image Processing, Computer Vision, and Pattern Recognition (IPCV)*. https://ir.ucc.edu.gh/items/023abf1d-6ede-423f-8463-69083ca071a0

29. **Jojo M Eghan** (2015). Feature based cryptanalytic technique for digital forensics analysis of visual cryptographic digital image data based on formal concept analysis. *Proceedings of the International Conference on Foundations of Computer Science (FCS)*. https://ir.ucc.edu.gh/items/3632f8d2-e493-4029-9593-2d8207502013

30. Benjamin Anderson, **Moses Jojo Eghan**, Elvis Asare-Bediako, Paul Kingsley Buah-Bassuah (2015). Optical Imaging Method for Determining Symptoms Severity of Cassava Mosaic Disease. *Applied Physics Research*. https://doi.org/10.5539/apr.v7n6p34

31. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2014). A Hybrid Cryptographic and Digital Watermarking Technique for Securing Digital Images based on a Generated Symmetric Key. *International Journal of Computer Applications*. https://doi.org/10.5120/16499-5722

32. **Jojo M Eghan** (2014). A new cryptographic encryption algorithm for securing digital images. *International Journal of Computer Applications*. https://ui.adsabs.harvard.edu/abs/2014IJCA...94s..28K/abstract

33. Jerry Opoku -Ansah, **Moses Jojo Eghan**, Benjamin Anderson, Johnson Nyarko Boampong (2014). Wavelength Markers for Malaria (Plasmodium Falciparum) Infected and Uninfected Red Blood Cells for Ring and Trophozoite Stages. *Applied Physics Research*. https://doi.org/10.5539/apr.v6n2p47

34. Benjamin Anderson, **J. M. Eghan**, Johnson Nyarko Boampong (2013). Automated Protocol for Counting Malaria Parasites (P. falciparum) from Digital Microscopic Image Based on L* a* b* Colour Model and K-Means Clustering. *International Journal of Computer Science and Security (IJCSS)*. https://mail.cscjournals.org/library/manuscriptinfo.php?mc=IJCSS-887

35. K.A. Dompreh, **M.J. Eghan**, L. Kotsedi, M. Maaza (2013). Comprehensive optical study of the dragonfly Aeshna cyanea transparent wing. *Optics Communications*. https://doi.org/10.1016/j.optcom.2013.01.012

36. **Moses Jojo Eghan**, B Anderson (2012). A simple polarized-based diffused reflectance colour imaging system. *Journal of Ghana Science Association*. https://ghanascience.gov.gh/wp-content/uploads/2018/03/9-3.pdf

37. **Moses Jojo Eghan**, Kofi B Nyarko (2011). Coherent imaging of etched fission fragments and alpha particles tracks in a CR-39 SSNTD. *The African Review of Physics*. https://www.academia.edu/download/92486421/187.pdf

38. Benjamin Anderson, **Moses J Eghan**, Elvis Asare-Bediako, Paul K Buah-Bassuah (2011). Violet diode laser-induced chlorophyll fluorescence: a tool for assessing mosaic disease severity in cassava (Manihot esculentaCrantz) cultivars. *Environmental Technology*. https://doi.org/10.1080/09593330.2011.575184

39. David Kofi Essumang, **Moses J Eghan** (2010). Full Terms & Conditions of access and use can be found at https://www. tandfonline. com/action/journalInformation? journalCode= gieh20. *Isotopes in Environmental and Health Studies*. https://ir.ucc.edu.gh/server/api/core/bitstreams/0de6e636-319b-4d04-9874-33d3da624af5/content

40. Benjamin Kofi Nyarko, David Kofi Essumang, **Moses J. Eghan**, Barbara Reichert, Nick van de Giesen, Paul Vlek (2010). Use of isotopes to study floodplain wetland and river flow interaction in the White Volta River basin, Ghana. *Isotopes in Environmental and Health Studies*. https://doi.org/10.1080/10256010903388543

41. **MJ Eghan** (2008). Light scattering investigation of amphiphile and polymer adsorption on the surface of colloidal particles with low optical contrast. *Trends in Colloid and Interface Science XII*. https://doi.org/10.1007/bfb0118056

42. **Moses J Eghan**, Paul K Buah-Bassuah, Osborne C Oppon (2007). Track analysis of laser-illuminated etched track detectors using an opto-digital imaging system. *Measurement Science and Technology*. https://doi.org/10.1088/0957-0233/18/11/051

Book chapters 2

1. Charles R. Haruna, MengShu Hou, **Moses J. Eghan**, Michael Y. Kpiebaareh, Lawrence Tandoh (2019). An Effective and Cost-Based Framework for a Qualitative Hybrid Data Deduplication. *Advances in intelligent systems and computing*. https://doi.org/10.1007/978-981-13-6861-5_44

2. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Cryptographic Encryption Technique of MPEG Digital Video Images Based on RGB Layer Pixel Values. *Advances in intelligent systems and computing*. https://doi.org/10.1007/978-3-319-17398-6_14

Conference papers 16

1. Savanna Nyarko, **Moses J. Eghan**, Elvis K. Tiburu (2024). LTA zeolites synthesized at different temperatures and evaluating the drug loading capability. *Plasmonics: Design, Materials, Fabrication, Characterization, and Applications XXII*. https://doi.org/10.1117/12.3026507
2. Regina Esi Turkson, Hong Qu, Yuchen Wang, **Moses J. Eghan** (2020). Unsupervised Multi-layer Spiking Convolutional Neural Network Using Layer-Wise Sparse Coding. *Lecture notes in computer science*. https://doi.org/10.1007/978-3-030-63836-8_30
3. Regina Esi Turkson, Sichao Liu, Edward Y. Baagyere, **Moses J. Eghan** (2019). Using Meta-Heuristic Algorithm in Spiking Neural Network for Pattern Recognition Tasks. https://doi.org/10.1109/iccwamtip47768.2019.9067549
4. Charles R. Haruna, Mengshu Hou, **Moses J. Eghan**, Michael Y. Kpiebaareh, Lawrence Tandoh (2018). A Hybrid Data Deduplication Approach in Entity Resolution Using Chromatic Correlation Clustering. *Communications in computer and information science*. https://doi.org/10.1007/978-981-13-3095-7_12
5. Charles R. Haruna, MengShu Hou, **Moses J. Eghan**, Michael Y. Kpiebaareh, Lawrence Tandoh, Barbie Eghan-Yartel, Maame G. Asante-Mensah (2018). Cost-Based and Effective Human-Machine Based Data Deduplication Model in Entity Reconciliation. https://doi.org/10.1109/icsai.2018.8599375
6. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Cryptographic Technique for Security of Medical Images in Health Information Systems. *Procedia Computer Science*. https://doi.org/10.1016/j.procs.2015.08.070
7. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Fast Discrete Cosine Transform and a Cryptographic Technique for Authentication and Security of Digital Images. *Communications in computer and information science*. https://doi.org/10.1007/978-3-319-22915-7_9
8. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Hybrid Cryptographic and Steganographic Security Approach for Identity Management and Security of Digital Images. *Communications in computer and information science*. https://doi.org/10.1007/978-3-319-22915-7_22
9. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Hybrid Image Cryptographic and Spatial Digital Watermarking Encryption Technique for Security and Authentication of Digital Images. https://doi.org/10.1109/uksim.2015.85
10. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Novel Hybrid Discrete Cosine Transformation and Visual Cryptographic Technique for Securing Digital Images. https://doi.org/10.1109/uksim.2015.101
11. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). A Security Technique for Authentication and Security of Medical Images in Health Information Systems. https://doi.org/10.1109/iccsa.2015.8
12. Quist-Aphetsi Kester, Anca Christine Pascu, Laurent Nana, Sophie Gire, **Jojo M. Eghan**, Nii Narku Quaynor (2015). Feature Based Encryption Technique for Securing Digital Image Data Based on FCA-Image Attributes and Visual Cryptography. *Lecture notes in computer science*. https://doi.org/10.1007/978-3-319-21410-8_54
13. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **Jojo Moses Eghan**, Nii Narku Quaynnor (2014). A Hybrid Encryption Technique for Securing Biometric Image Data Based on Feistel Network and RGB Pixel Displacement. *Communications in computer and information science*. https://doi.org/10.1007/978-3-642-54525-2_47
14. Quist-Aphetsi Kester, Laurent Nana, Anca Christine Pascu, Sophie Gire, **J.M. Eghan**, Nii Narku Quaynor (2014). Feature Based Encryption Technique for Securing Forensic Biometric Image Data Using AES and Visual Cryptography. https://doi.org/10.1109/aims.2014.65
15. Ekua N. Bentil, Charles Amuah, Anna P. M. Michel, **Moses J. Eghan**, James A. Smith, Claire F. Gmachl (2011). Deployment of a Quantum Cascade Laser Open- Path Gas Sensor for Water Vapor and Wood Smoke Analysis. https://doi.org/10.1364/cleo_at.2011.jmc6

16. **M. J. Eghan**, Paul Buah-Bassuah (2003). Alpha track counting in LR-115 nuclear detector with optical Fourier digital system. *Proceedings of SPIE, the International Society for Optical Engineering/Proceedings of SPIE*. https://doi.org/10.1117/12.524479

Reports 1

1. **Jojo M Eghan** (2015). The digital image data transmission and storage in today's cyberspace has increase with privacy and security concerns. Digital media collected from different sources such as .... *University of Cape Coast*. https://ir.ucc.edu.gh/items/1117f193-6ae0-4598-b9a2-6af191f8dca8