** Department of Computer Science**

**KNUST Kumasi, Ghana**

**FRIMPONG TWUM (Ph.D)**

**+233 (24) 7 842 668/+233 (50) 134 8808**

Curriculum Vitae

[**ftwum.cos@knust.edu.gh**](mailto:ftwum.cos@knust.edu.gh)

**PROFILE**

Dr. Frimpong Twum holds PhD in Computer Science from Kwame Nkrumah University of Science and Technology (KNUST), Ghana, with specialization in Computer Security. He is currently a Senior Lecturer at the Department of Computer Science, KNUST. Dr. Twum is a committed, highly skilled, motivated, hardworking, and technically competent professional with passion for knowledge acquisition and dissemination in the field of computer science especially computer network security, machine learning, and cloud computing. His long-term goal is to help improve life by finding solutions to problems using knowledge acquired in these fields. He is effective communicator at all levels and a team player in dealing with technical/non-technical issues with proven organizational and people skills. He has several papers to his credit in credible journals including PloS One, MDPI Sensors, IEEE access, IEEE Xplore, Hindawi, KSII-TIIS, Inderscience (IJCAET), IJACSA, and Journal of Computer Science. Together with his co-authors, they have proposed solutions for securing cloud data that deals with the issues relating to data ownership, data location, confidentiality and data integrity. They have also employed Machine Learning Algorithms for Medicinal Plant Identification, Evaluation of Conversational Agents, and Rainfall Prediction for the Various Ecological Zones of Ghana. His research in these areas is steadily having impact in the research community. In addition, he has proposed new technique for enhancing digital forensic data acquisition, and the approach have given new ways of recovering digital data for forensic evidence in adjudication of criminal cases. His areas of research interest include Computer Networks Security, Machine Learning, Computer Vision and Cloud Computing.

**SOME POSITIONS HELD**

**INTERNATIONAL:** Reviewer – IEEE ACCESS, Academia Letters, Science Publishing Group - International Journal of Sustainability Management and Information Technologies, INDERSCIENCE - International Journal of Information and Computer Security (IJICS), The Science and Information Organization: International Journal of Advanced Computer Science and Applications (IJACSA). Editorial Advisory Board - African Union (AU) – Africa Centre for Study and Research on Terrorism (ACSRT), West African Examination Council Examiner and Moderator. Invited Speaker: 2nd Global Summit on Electronics & Electrical Engineering in Chicago, USA, International Forum on Electronics and Electrical Engineering, Spain.

**NATIONAL:** Member of Ghana Tertiary Education Commission (GTEC) Panel of Assessors for accreditation of Computer Science and related programs, Member of GTEC Panel of Academic Auditors, Moderator and External Examiner for several universities in Ghana, External Assessor for Promotion documents, Member of the Internet Society (Ghana Chapter), and IT Consultant to various firms in Ghana.

**KNUST:** Examinations Officer, Graduate Coordinator, Internal and External Assessor for PhD Thesis, Web Content Manager, Academic Tutor, Resource Person for ICT, and Member of several Committees.

**ACADEMIC DEGREES EARNED; INSTITUTIONS ATTENDED WITH DATES**

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| |  |  |  | | --- | --- | --- | | **Date** | **Institution** | **Degree** | | 2013 - 2017 | Kwame Nkrumah University of Science & Technology, (KNUST). School of Graduate Studies, Kumasi, Ghana | PhD. Computer Science | | 2008 - 2011 | Roehampton University, Business School, London, United Kingdom | MSc. Information Systems | | 2005 - 2007 | London South Bank University, Graduate School, London, United Kingdom | MSc. Internet and Multimedia Engineering | | 2002 - 2004 | London South Bank University, London, United Kingdom | BSc. Electrical and Electronic Engineering |   **ACADEMIC RANKS HELD, INSTITUTION WITH DATES**   |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | **Date** | **Institution** | **Degree** | | 08/2017 - to Date | Kwame Nkrumah University of Science & Technology, (KNUST). School of Graduate Studies, Kumasi, Ghana | Senior Lecturer, Department of Computer Science | | 04/2012 – 07/2017 | Kwame Nkrumah University of Science & Technology, (KNUST). School of Graduate Studies, Kumasi, Ghana | Lecturer, Department  of Computer Science | | 2006 - 2012 | Roehampton University, London, UK | Lecturer/Systems Admin |   **PROFESSIONAL QUALIFICATIONS & CERTIFICATIONS @ CROYDON COLLEGE, UK**   |  |  | | --- | --- | | **DATE** | **QUALIFICATION** | | 2010 | Prince2 Overview and Foundation | | 2005 - 2007 | City & Guilds Software Development: JAVA, VB.NET/ASP.NET, Website Design | | 2006 | OCR Level 3 Certificate for IT Practitioners (ICT Systems Support) | | 2004 - 2005 | CISCO Certified Network Associate (CCNA) | | |

**SUBJECTS TAUGHT:**

Dr. Twum teaches various courses including JAVA Programming, Computer Network Security, Software Engineering, Digital Electronics, Architecture and OS, Middleware Technologies and Web Programming at undergraduate and postgraduate levels.

**SUPERVISION OF STUDENT PROJECT WORK/THESES/RESEARCH**

Dr. Frimpong Twum has supervised over eighty (80) MPhil/MSc theses and over 150 undergraduate projects. Dr. Twum is currently supervising and co-supervising over 20 PhD students on various research.

**RECENT PUBLICATIONS ARISING OUT OF RESEARCH:**

1. Oppong, O. S, **Twum, F**, Hayfron-Acquah, J. B, Missah, Y. M, "A Novel Computer Vision Model for Medicinal Plant Identification Using Log-Gabor Filters and Deep Learning Algorithms", *Computational Intelligence and Neuroscience (HINDAWI)*, vol. 2022, Article ID 1189509, 21 pages, 2022. https://doi.org/10.1155/2022/1189509
2. **Twum, F.**, Lagoh E. M., Missah, Y. M., Ussiph, N., Ahene, E. (2022). Cold Boot Attack on Encrypted Containers for Forensic Investigations. *Korean Society for Internet Information - Transactions on Internet and Information Systems*, 16(9)
3. **Twum, F.**, Missah, Y. M., Oppong, O. S., Ussiph, N. (2022). Textural Analysis for Medicinal Plants Identification Using Log Gabor Filters. *IEEE Access*, DOI: [10.1109/ACCESS.2022.3196788](https://doi.org/10.1109/ACCESS.2022.3196788)
4. **Twum, F.**, Amankona V., Missah, Y. M., Ussiph, N., Opoku, M. (2022). Implementation of a Data Protection Model dubbed Harricent\_RSECC. *International Journal of Advanced Computer Science and Applications (IJACSA)*, 13(5), pp. 133 – 145
5. Dawson J. K., **Twum, F**., Hayfron-Acquah, J. B., Missah, Y. M., Ayawli, B. K. (2022). An Enhanced RSA Algorithm Using Gaussian Interpolation Formula. *International Journal of Computer Aided Engineering and Technology*, 16(4), pp. 534 – 552
6. Teye, M.T., Missah, Y. M., Ahene, E., **Twum, F.** (2022). Ethical Evaluation of Conversational Agents: Understanding Culture, Context and Environment in Emotion Detection. *IEEE Access*, Vol 10, pp.24976-24984 DOI: [1109/ACCESS.2022.3153787](https://doi.org/10.1109/ACCESS.2022.3153787)
7. Appiah, J., Missah, Y. M., Amekudzi, L., Ussiph, N., **Twum, F.**, Ahene, E. (2022). Rainfall Prediction Using Machine Learning Algorithms for the Various Ecological Zones of Ghana. *IEEE Access*, 10, pp. 5069 – 5082. DOI: [1109/ACCESS.2021.3139312](https://doi.org/10.1109/ACCESS.2021.3139312)
8. Oppong, S.O., **Twum, F**., Hayfron-Acquah, J. B. (2022). Medicinal Plant Identification Using Log Gabor Filters and Deep Learning Algorithms. Journal of Computer Science, 17(12), pp. 1210 – 1221. DOI: <https://doi.org/10.3844/jcssp.2021.1210.1221>
9. Amankona V. **Twum, F**. Hayfron-Acquah, J. B. (2021). ‘A Framework for Securing Data by using Elliptic Curve Cryptography (ECC) and Reed Solomon (RS) Coding Schemes’. Proceedings of the International Conference on Electrical, Computer and Energy Technologies (ICECET). 9-10 December 2021, Cape Town-South Africa. *IEEE Xplore*. DOI: [1109/ICECET52533.2021.9698759](https://doi.org/10.1109/ICECET52533.2021.9698759)
10. Asante, K., **Twum, F**., Missah, Y. M., Asante, M. (2021). ‘Network-Centric Optimal Hybrid Mobility Scheme for IPv6 Wireless Sensor Networks’. Proceedings of the International Conference on Electrical, Computer and Energy Technologies (ICECET). 9-10 December 2021, Cape Town-South Africa. *IEEE Xplore*. DOI: [1109/ICECET52533.2021.9698636](https://doi.org/10.1109/ICECET52533.2021.9698636)
11. Oppong, S.O., **Twum, F**., Hayfron-Acquah, J. B., Missah, Y. M. (2021). ‘Hybrid Approach to Medicinal Plant Leaf Image Enhancement using Contrast Limited Adaptive Histogram Equalization and Homomorphic Filter’. Proceedings of the International Conference on Electrical, Computer and Energy Technologies (ICECET). 9-10 December 2021, Cape Town-South Africa. *IEEE Xplore*. **DOI:**[10.1109/ICECET52533.2021.9698460](https://doi.org/10.1109/ICECET52533.2021.9698460)
12. Ahene, E., Ofori-Oduro, M., **Twum, F**., Walker, J., Missah, Y. M. (2021). Efficient Authentication Protocol and Its Application in Resonant Inductive Coupling Wireless Power Transfer Systems. MDPI Sensors, 21(8245), pp 2-12. DOI: [10.3390/s21248245](https://doi.org/10.3390/s21248245)
13. Inusah, F., Missah, Y. M., Ussiph, N., **Twum, F**. (2021). Expert System in Enhancing Efficiency in Basic Educational Management using Data Mining Techniques. International Journal of Advanced Computer Science and Applications (IJACSA), 12(11), pp. 427 – 434. (DOI): [14569/IJACSA.2021.0121148](https://dx.doi.org/10.14569/IJACSA.2021.0121148)
14. Kattah M., Asamoah D., **Twum F**., Evaluating the Impact of Full Virtualized High-Performance Computing Platform on Large Scale Scientific Data using Quantum Espresso. International Journal of Computer Applications 177, No. 37, pp. 10-14, February 2020.
15. **Twum F**., Hayfron-Acquah J. B, Panford J.K. A comparative study of existing cloud security system models as against an implementation of the CDDI model dubbed SecureMyFiles system. International Journal of Computer Applications177, No. 31, pp. 17-37, January 2020.
16. Sayibu U., **Twum F.**, Baako I., Delivering a Secured Cloud Computing Architecture and Traditional IT Outsourcing Environment via Penetration Tools in Ghana. International Journal of Computer Network and Information Security, No. 11, pp 46-59, November 2019.
17. Mohammed Tee A. B., Asante M., **Twum F.**, An Improved VoIP using Adaptive Multivariate Encoder (AMR). International Journal of Computer Applications, Vol. 178, No. 51, pp 23-32, September 2019.
18. **Twum F**., Hayfron-Acquah J. B, Panford J.K. A Proposed New Framework for Securing Cloud Data on Multiple Infrastructures using Erasure Coding, Dispersal Technique and Encryption. International Journal of Computer Applications, Vol. 181, No. 50, pp. 38-49, April 2019.
19. **Twum F**., Hayfron-Acquah J. B, Morgan-Darko W., A Proposed Enhanced Transposition Cipher Algorithm Based on Rubik’s Cube Transformations. International Journal of Computer Applications, Vol. 182, No. 35, pp 18-26, January 2019.
20. Ahulu B., **Twum F,**Hayfron-Acquah J. B., Mapping cases of Tuberculosis Distribution and Treatment Outcomes using Geographical Information Systems – The case of Birim Central Municipality, E/R, Ghana. International Journal of Computer Applications, Vol. 182, No. 35, pp 45-54, January 2019.
21. Ibrahim, U.; Hayfron-Acquah, J. B.; **Twum, F**. Comparative Analysis of Codeigniter and Laravel in relation to Object-Relational Mapping, Load Testing and Stress Testing. International Research Journal of Engineering and Technology (IRJET). Vol. 5, No. 2, 2018
22. Boahen E. K., Hayfron-Acquah J. B., and **Twum F.**, An Enhanced Elliptic Curve Cryptosystem for Securing Data. International Journal of Computer Applications, Vol. 182, No. 9, pp 47-53, August 2018.
23. Oppong-Twum F., **Twum F.**, Hayfron-Acquah J. B., Binary Image Segmentation through the Carl Friedrich Gauss Equation. International Journal of Computer Applications, Vol. 179, No. 41, pp 1-9, May 2018.
24. Agbedanu P. R., Hayfron-Acquah J. B., and **Twum F.**, Mitigating computer attacks in a corporate network using honeypots: A case study of Ghana Education Service. International Journal of Computer Applications, Vol. 180, No. 32, pp. 18-22, April 2018.
25. Terkper J. N, Hayfron-Acquah J. B., **Twum F**. An Efficient and Secure One-Way Cryptographic Hash Function with Digest Length of 1024 Bits. International Journal of Computer Science and Information Security, Vol 15, No. 2, February 2017
26. Okoampa-Larbi R.,**Twum F.**, Hayfron-Acquah J. B., A proposed cloud security framework for service providers in Ghana. International Journal of Computer Applications, Vol. 158, No. 1, pp 17-22, January 2017.
27. **Twum, F.**, Hayfron-Acquah J. B., Oblitey W. W., Morgan-Darko W., Reed-Solomon Decoding Simplified for Programmers. International Journal of Computer Science and Information Security, Vol 15, No. 1, January 2017
28. **Twum F.**, Hayfron-Acquah J. B., Oblitey W. W., Boadi R. K., A proposed algorithm for generating the Reed-Solomon Encoding Polynomial Coefficeints over GF(256) for RS[255,223]8,32. International Journal of Computer Applications, Vol. 156, No. 1, pp 24-39, December 2016.
29. **Twum, F.**, Hayfron-Acquah J. B., Oblitey W. W., Morgan-Darko W., Reed-Solomon Encoding: Simplified for Programmers. International Journal of Computer Science and Information Security, Vol 14, No. 11, November 2016
30. Akpah S., Asante, M., **Twum, F.**, An Improved Computer Network Access Control Using FREE BSD PFSENCE. Communications on Applied Electronics, Vol. 6, No. 1, October 2016
31. Apau R., Hayfron-Acquah, J. B., **Twum, F.**, A Modified High-Capacity Video Steganography Technique Based on Spatial Domain Method, Asymmetric Cryptography and Huffman Code Algorithm. *Communications on Applied Electronics*, Vol. 5, No. 10, September, 2016
32. Obaweya O., Hayfron-Acquah J. B., **Twum F**. Performance Enhancement of 4G Networks Using Network Coding. *International Journal of Computer Science and Information Security*, Vol 14, No. 8, August 2016
33. Safianu O., **Twum F.**, Hayfron-Acquah J. B., Information System Security Threats and Vulnerabilities: Evaluating the Human Factor in Data Protection. *International Journal of Computer Applications*, Vol. 143, No. 5, pp 8-14, June 2016.
34. Apau R., Hayfron-Acquah J. B., **Twum F.**, Enhancing Data Security using Video Steganography, RSA, and Huffman Code Algorithm with LSB Insertion. *International Journal of Computer Applications*, Vol. 143, No. 4, pp 28-36, June 2016.
35. Yeng P. K, Panford J. K., Hayfron-Acquah J. B., **Twum F.**, An efficient Symmetric Cipher Algorithm for Data Encryption. *International Research Journal of Engineering and Technology*, Vol. 3, No. 5, pp 1713-1732, May 2016.
36. **Twum F.**, Nti K., Asante M., Improving Security Levels in Automatic Teller Machines (ATM) Using Multifactor Authentication. *International Journal of Science and Engineering Applications*, Vol. 5, No. 3, pp 126-134, May 2016.
37. **Twum F.**, Asante K., Asante M., Implementation of Network Services on IPv6 Networks. *International Journal of Computer Applications*, Vol. 142, No. 5, pp 11-16, May 2016.
38. Ampomah M. O., Hayfron-Acquah J. B., **Twum F.**, Panford J. K., Hash-Based Random Salt Password Authentication in Two Servers. *International Research Journal of Engineering and Technology*, Vol. 2, No. 5, pp 853-859, August 2015.
39. Appiah F., Hayfron-Acquah J. B., Panford J. K., **Twum F.**, A Tool Selection Framework for Cross Platform Mobile App Development. *International Journal of Computer Applications*, Vol. 123, No. 2, pp 14-19, August 2015.
40. Ganaa E. D., **Twum F.**, Hayfron-Acquah J. B., A Comparative Study of Remote Access Technologies and Implementation of a Smartphone App for Remote System Administration Based on a Proposed Secure RFB Protocol. *International Journal of Science and Engineering Applications*, Vol. 4, No. 4, pp 163-168, July 2015.
41. Karkari A. O., Panford J. K., Hayfron-Acquah J. B., Twum, Detecting Data Leakage in Cloud Computing Environment (A Case Study of General Hospital Software). *International Journal of Scientific Engineering and Applied Science*, Vol. 1, No. 3, pp 192-197, June 2015.
42. Sedem A. A.Y., **Twum F.**, Hayfron-Acquah J. B., Panford J. K., Cloud Computing Framework for E-Health in Ghana: Adoption Issues and Strategies: Case Study of Ghana Health Service. *International Journal of Computer Applications*, Vol. 118, No. 17, pp 13-17, May 2015.
43. **Twum F.**, Ahenkora K., Internet Banking Security: Securing Customer Trust. *Journal of Management and Strategy*, Vol. 3, No. 4, pp 78-83, October 2012.

# **EXHIBITION**

9th Summer School on the theme: ‘SDGs and Universities: Actions towards KNUST’s Mandate at 70 and beyond’. College of Science Exhibition of Posters. 30/8/2021 – 2/9 2021

# **CONFERENCES ATTENDED**

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| **2021** | Inusah, F., Missah, Y. M., Ussiph, N., **Twum, F**. Identifying the challenges of Basic Education in Ghana using Data Mining Techniques. *14th Annual Interdisciplinary Conference, UDS Nyankpala Campus.* Book of Abstracts, pgs. 27-28, 09/2021 |
| **2021** | Oppong, S.O., **Twum, F**., Hayfron-Acquah, J. B., Missah, Y. M. Hybrid Approach to Medicinal Plant Leaf Image Enhancement using Contrast Limited Adaptive Histogram Equalization and Homomorphic Filter. *(IEEE) International Conference on Electrical, Computer and Energy Technologies (ICECET)*. Cape Town, South Africa. 12/2021 |
| **2021** | Amankona, V., **Twum, F**., Hayfron-Acquah, J. B. A Framework for Securing Data by using Elliptic Curve Cryptography (ECC) and Reed Solomon (RS) Coding Schemes. *(IEEE) International Conference on Electrical, Computer and Energy Technologies (ICECET)*. Cape Town, South Africa. 12/2021 |
| **2021** | Asante, K., **Twum, F**., Missah, Y. M., Asante, M. Network-Centric Optimal Hybrid Mobility Scheme for IPv6 Wireless Sensor Networks. *(IEEE) International Conference on Electrical, Computer & Energy Technologies (ICECET)*. Cape Town, South Africa 12/2021 |

# **RECORDS OF SERVICE TO THE COMMUNITY (UNIVERSITY, NATIONAL AND INTERNATIONAL)**

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| **RECORDS OF SERVICES TO KNUST COMMUNITY** | | | |
| **S/N** | **POSITION** | **BODY/INSTITUTION** | **DATE** |
| 1. | Guest Speaker | KNUST Computer Science Society. “Tell Your Story Event”. | 04/05/22 |
| 2. | Member | A committee for MOU Between KNUST and EC Council. | 20/03/22 |
| 3. | Member | Republic Hall, Database Collation and Publicity Committee for the 60th Anniversary. | 27/01/22 |
| 4. | Member | College of Science INFORMATION TECHNOLOGY (IT) Committee. | 02/12/19 |
| 5. | Member | College of Science Career Guidance Committee. | 02/12/19 |
| 6. | Member | College of Science, Committee on Mandatory One Year Taught Course(s) in Ph.D Programmes. | 28/04/21 |
| 7. | IDL Programme Coordinator - Postgraduate | Department of Computer Science Postgraduate Programs at IDL  MSc. Health Informatics, MSc Information Technology. | 26/11/19 |
| 8. | IDL Programme Coordinator - Postgraduate | Department of Computer Science Postgraduate Programs at IDL  MSc. Health Informatics, MSc Information Technology. | 04/01/21 |
| 9. | IDL Examinations Officer | Postgraduate Programs at IDL for the Dept. of Computer Science:  MSc. Health Informatics, MSc. Information Technology  MSc Cyber Security & Digital Forensics. | 01/03/19  to Date |
| 10. | Reviewer | KNUST Research Fund (KReF) Scientific Review. KNUST Office of Grants & Research | 30/09/19  and  04/05/21 |
| 11. | Mentor | Mentoring Dr. Kate Takyi, newly appointed lecturer of Computer Science Department. | 23/04/21 |
| 12. | Member | Committee to oversee the setup of Professional Courses at KNUST. | 09/10/17  and  27/02/18 |
| 13. | Resource Person for ICT | Ghana Science Association (GSA) training workshop for STEM Teachers in Second Cycle Institutions | 19/10/20 |
| 14. | Member | Committee for Institutional Assessment for Renewal of Affiliation with KNUST. Institutional visit by KNUST to Catholic Institute of Business and Technology (CIBT). | 28/08/18 |
| 15. | Member, Curriculum Review Committee | Committee to review Accra Institute of Technology (AIT) MSc. /MPhil Cyber Security and Computer Forensics programme curriculum for Affiliation with KNUST. | 19/11/19 |
| 16. | Academic Tutor | Dept. of Computer Science. | 2012 -to- date |
| 17. | Web Content Manager | Department of Computer Science. | 2017 - 2018 |
| 18. | Chairman Welfare Committee | Departmental Welfare Scheme KNUST, Department of Computer Science. | 27/02/18 |
| 19. | Nominee to represent KNUST | Represent KNUST at Data Link Institute of Business and Technology, for Re-Accreditation of BSc. Information Technology and BSc. Computer Science & Information Systems | 11/5/21  and  16/5/22 |
| 20. | Member | Faculty of Physical and Computational Sciences Website Development Committee | 30/07/21 |
| 21. | Member | College of Science Library Committee. | 10/09/21 |
| 22. | Member | Committee for Institutional Assessment for Renewal of Christ Apostolic University College affiliation with KNUST. | 11/11/21 |
| 23. | Member | Committee for Institutional Assessment for Renewal of Accra Institute of Technology affiliation with KNUST. | 11/10/21 |

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| **RECORDS OF SERVICES TO NATIONAL COMMUNITY** | | | |
| **SN** | **POSITION** | **BODY/INSTITUTION** | **DATE** |
| 1. | Board Chairman | Imperial College of Professional Studies (ICPS), Kentinkrono - Kumasi, Ghana. | 01/01/19 |
| 2. | External Examiner | Garden City University College. Faculty of Applied Sciences – Department of Computer Science. | 22/09/21 |
| 3. | External Examiner | Takoradi Technical University. Faculty of Applied Sciences – Department of Computer Science. | 13/07/21 |
| 4. | External Examiner | Tamale Technical University. B.TECH Information Technology  B.TECH Multimedia Computing. | 13/08/21 |
| 5. | CHAIRMAN GTEC Panel for Programme Accreditation | Accreditation of Bachelor of Technology (B.TECH) Computer Science Programme at **SUNYANI Technical University**  – | 29/10/21 |
| 6. | CHAIRMAN GTEC Panel for Programme Re-Accreditation | Re-Accreditation of HND Computer Science Programme at **ACCRA Technical (ATU)** | 18/10/21 |
| 7. | Member  Programmes Accreditation | Panel of Assessors National Accreditation Board (NAB) now Ghana Tertiary Education Commission (GTEC) | 2018  to  Date |
| 8. | Member  Academic Auditors | Panel of Academic Auditors National Accreditation Board (NAB) now Ghana Tertiary Education Commission (GTEC) –  **Academic Auditing of WA Polytechnic**.  May 2nd, 2018, to Date. | 02/05/18 to Date |
| 9. | Moderator | Ghana Communication Technology University, Accra, Ghana. | 01/06/21  to 31/07/22. |
| 10. | Moderator | Data Link Institute of Business and Technology, Tema, Ghana. | 01/08/20  to 31/07/22. |
| 11. | Moderator | Garden City University College, Kumasi, Ghana. | 01/08/18 to 31/07/20 |
| 12. | Moderator | Kessben University College, Kumasi, Ghana | 01/08/18 to  31/07/20 |
| 13. | Moderator | Radford University College, East Legon, Accra, Ghana. | 01/08/17  to 31/07/18 |
| 14. | Moderator | Moderation Of ICT Examination Questions. **Heritage Christian College.** | 04/02/19 |
| 15. | Moderator | Moderation Of Examination Questions (Information Technology for Pharmacists). **Entrance University College of Health Sciences.** | 23/01/19 |
| 16. | External Assessor for Promotion to Senior Lecturer | External Assessor to review promotion documents to Senior Lecturer of Computer Science – **University of Education, Winneba, Ghana** | 28/07/20 |
| 17. | External Assessor for Promotion to Senior Lecturer | External Assessor to review promotion documents to Senior Lecturer of Computer Science – **University of Education, Winneba, Ghana** | 17/08/20 |
| 18. | External Assessor for Promotion to Senior Lecturer | External Assessor to review promotion documents to Senior Lecturer of Computer Science – **University of Cape Coast, Cape Coast, Ghana**. | 26/09/17 |
| 19. | External Assessor for Promotion to Senior Lecturer | External Assessor to review promotion documents to Senior Lecturer of Computer Science – **Ghana Technology University College.** | 21/05/18 |
| 20. | External Assessor for Promotion to Senior Lecturer | External Assessor to review promotion documents to Senior Lecturer of Computer Science – **Christian Service University College, Kumasi, Ghana**. | 04/08/17 |
| 21. | Invigilation of External Examinations | National Nursing and Midwifery Examination. | 06/2018 06/2019 07/2020 and 08/2021 |
| 22. | Interview Panel Member | Panel to Appointment Computer Science Lecturers at **Christian Service University College, Kumasi, Ghana.** | 07/06/19 |
| 23. | Lead Facilitator | 10th Annual School Event. TOPIC: The IT Architect role in the fight against the COVID-19 Pandemic. Imperial College of Professional Studies (ICPS), Kentinkrono-Kumasi, Ghana. | 18/03/21 |
| 24. | ICT Consultant | QUALITY INSURANCE COMPANY LIMITED (QIC) – Head Office, Accra, Ghana. | 03/11/21 |
| 25. | ICT Consultant | AGHILITAS Company Limited - Accra, Ghana. | 05/05/20 |
| 26. | ICT Consultant | TONY COMPUTERS - Kumasi, Ghana | 05/08/19 |

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| **RECORDS OF SERVICES TO INTERNATIONAL COMMUNITY** | | | |
| **SN** | **POSITION** | **BODY/INSTITUTION** | **DATE** |
| 1. | Editorial Advisory Board Member | African Union (AU) – Africa Centre for Study and Research on Terrorism ACSRT. | 05/2019  to Date |
| 2. | WAEC Examiner | WAEC TEST DEVELOPMENT DIVISION, ACCRA: Examiner’s No. WS05162322103. ABCE Hardware and Networking Moderation Committee Meeting. | 30*/10/*18  and  03/03/22 |
| 3. | Reviewer (Journal Publications) | Science Publishing Group (SciencePG). International Journal of Sustainability Management and Information Technologies | 2018  to  2020 |
| 4. | Reviewer | Academia Letters. | 2021 |
| 5. | Reviewer | INDERSCIENCE. International Journal of Information and Computer Security (IJICS). | 2021 |
| 6. | Invited Speaker | 2nd Global Summit on Electronics & Electrical Engineering (GSEEE2022) in Chicago, USA. | 04/2022 |
| 7. | Speaker | Global Meeting on Robot Intelligence, Technology and Applications (GMROBOT2022). Dubai, UAE. | 2022 |
| 8. | Speaker | International Conference on Materials Science and Engineering. | 2022 |
| 9. | Invited Speaker | International Forum on Electronics and Electrical Engineering. Spain. | 2022 |
| 10. | Reviewer | International Journal of Advanced Computer Science and Applications (IJACSA) | 2022 |

**REFEREES: Available upon request**.