DR. GEOFFREY MARIGA WAMBUGU

B.Sc. (Mathematics & Computer Science-JKUAT), M.Sc.(Information Systems-UON),
Ph.D.(Information Technology-JKUAT)
SENIOR LECTURER IN INFORMATION TECHNOLOGY

CURRICULUM VITAE

1. PERSONAL INFORMATION

Nationality	:	Kenyan
Gender	:	Male
Marital Status	:	Married
Cell Phone	:	**+254-722-440677**
Address	:	P.O. Box 7459 – 01000
		THIKA.
		e-mail: geoffreymariga@gmail.com

2. EDUCATIONAL BACKGROUND

University Education:

PhD. Information Technology (2019). Specialization:- Machine Learning. Jomo Kenyatta University of Agriculture and Technology.

Title of Thesis
"Topic Model Deployment Framework and Gibbs Sampling Based Quadratic Topics Approximation Method for Large Text Analytics"

Master of Science in Information Systems (2012)
University of Nairobi.

Bachelor of Science - Maths & Computer Science (2000)
Second Class Honours (Upper Division)
Jomo Kenyatta University of Agriculture and Technology (JKUAT).

Secondary Education :
Gikondi Secondary School, Nyeri District (1991-1994)
Form 1-4: **KCSE Mean Grade B+ (Plus).**

Primary Education :
Kiawamururu Primary School, Nyeri District (1982-1990)
Standard 1-8: **KCPE Marks 489 out of 700.**

3. RESEARCH INTERESTS

Data Science, Machine Learning, Text Analytics, Natural Language Processing, Data mining, Big Data Analytics and Information Systems Implementation.

4. <u>POST GRADUATE TEACHING INTERESTS</u>

Data Science, Machine Learning, Natural Language Processing, Data mining, Computer Programming (C, C++, Python & R), Analytics & Computer Intelligence, Information Systems Implementation, Scientific Writing, Research Methods.

5. <u>OTHER SELECTED CERTIFICATIONS</u>

- ICT Authority June 2024: **Certificate of Cybersecurity and Emerging Technologies Awareness Training**
- Huawei Certified ICT Associate in Artificial Intelligence (HCIA-AI V3.0) Certification
  Through this course, the following was covered: AI development history, Huawei Ascend AI system, Full-stack all-scenario AI strategy Traditional Machine Learning Algorithms, Deep Learning; TensorFlow and MindSpore.
- **AGMOND INTERNATIONAL:** 30th October to 1st November 2019:- Certificate in **Leadership and Corporate Governance.**
- **IBM Skills Academy Program:** 20th – 24th May 2019:- Received Certificate of **Artificial Intelligence Analyst 2019 Mastery Award.**
- **Price WaterHouse Coopers: 7th April 2017:** Received training on Job Analysis.
- **Kenya School of Government, 2015:** Participated in Management Skills Development and Team Building Training on 29th June to 1st July 2015.
- **Murang'a University College: 24th November 2015:** Certificate of appreciation in recognition of contribution in the development of BSc Software Engineering Curriculum.
- **Apex Consulting Africa, 22nd -27th March 2010:** Attended training on Implementation of a Quality Management System Based on ISO 9001:2008 Standard.

6. <u>SELECTED ABILITIES, SKILLS AND EXPERIENCE</u>

I have a very high standard of integrity, honesty and good values. Experience in policy and strategic plan formulation and implementation. Curriculum development, Research, innovation and technology leadership. I have training and experience in development and implementation of organizational Quality Management Systems based on ISO standards.

7. <u>WORK EXPERIENCE</u>

- **Murang'a University of Technology: July 2013 to Date.**
  <u>Designation and other responsibilities:</u>
  - ▶ <u>CURRENT</u>: **Senior Lecturer in Information Technology** 2021 to date.
  - ▶ **Ag. Dean, School of Computing and Information Technology,** 2020 to 2022.
  - ▶ **Chairman of Information Technology Department,** 2013 to 2020.
  - ▶ **Ag. Dean, School of Computing and Information Technology,** January 2017 to April 2017
  - ▶ Lecturer in Information Technology 2013 to 2021.
- **Laikipia University: 2010 to 2013:**
  <u>Designation and other responsibilities:</u>
  - ▶ Assistant Lecturer (ICT).
  - ▶ Departmental Examination Officer, 2012 –2013

- ▶ Nyahururu Town Campus Examination Officer, 2011 & 2012.
- ▶ Nyahururu Town Campus Timetabling Officer, 2011 & 2012.
- ▶ Nyahururu Town Campus Computer Programmes Coordinator, Appointed in March 2011.
- ▶ Information Communication Technology Officer II 2010 – 2012.
- **Teachers Service Commission: Nyandarua Institute of Science and Technology. Feb 2009 – Sept 2010**
  - ▶ Assistant Lecturer (ICT) and Head of ICT Department.
- **Tracom College, January 2007 – February 2009**
  - ▶ Head of IT Department: April 2007 - August 2008
  - ▶ Coordinator of JKUAT Programmes: May 2007 - August 2008
  - ▶ Lecturer (IT).
- **The Kenya Institute of Management**
  - ▶ Part-time Lecturer, Mathematics and Computer Science.
- **Pinnacle College of Professional Studies, April 2004 – Jan. 2007**
  - ▶ Lecturer, Mathematics and Information Technology.
- **Computer for Schools Project: Jan 2001 – Dec 2003**
  - ▶ Teacher Computer Studies and Incharge of Computer lab at Wangunyu High School, Jan 2002 - Dec 2003.
  - ▶ Tutor Computer Studies and Incharge of Computer lab at Rift Valley Institute of Science and Technology, Jan 2001 - Jan 2002.

8. **EXPERIENCE IN CURRICULUM DEVELOPMENT**
   - ▶ **Murang'a University of Technology:**
   Participated in the Development of the following Postgraduate Programmes as Chairman of Department (*Programmes are approved by the Commission for University Education*):
   [1] **Ph.D. in Computer Science:** Approved at Department and School Level
   [2] **Ph.D. in Information Technology:** Approved at Department and School Level.
   [3] **M.Sc. in Computer Science:** Approved at Department and School Level
   [4] **M.Sc. in Information Technology:** Approved at Department and School Level.
   Drafted and Chaired Development of the following Programmes (Undergraduate *Programmes are approved by the Commission for University Education*):
   [5] **B.Sc. Computer Science:** In process of approval by Commission for University Education (CUE).
   [6] **B.Sc. Computer Technology:** In process of approval by Commission for University Education (CUE).
   [7] **B.Sc. Software Engineering:** Approved by Commission for University Education (CUE).
   [8] **B.Sc. Information Technology:** Review Approved by University Senate.
   [9] **Bachelor of Business Information Technology:** Review Approved by University Senate.
   [10] Post Graduate Diploma in Information Technology. Approved by University Senate.

[11] Diploma in Computer Science: Approved by University College Academic Board.

[12] Diploma in Information Technology: Approved by University Senate.

[13] Diploma in Computer Engineering and Technology: Approved by University College Academic Board.

[14] Certificate in Information Technology: Approved by University College Academic Board..

[15] Proficiency Certificate in Computer Applications. Approved by University College Academic Board.

[16] Certificate in Computer Repair and Maintenance. Approved by University College Academic Board.

▶ **Laikipia University: October 2010 to July 2013.**
   <u>Drafted and participated in development of the following programmes:</u>

[17] *B.Sc. Information and Communication Technology:* In process of approval by Commission for University Education (CUE).

[18] Conforming *B.Sc. Computer Science* to the format of the Commission for University Education (CUE).

[19] Diploma in Information and Communication Technology: Approved by University Senate.

[20] Certificate in Information and Communication Technology: Approved by University Senate.

▶ **Kenya Institute of Education (KIE), Currently Kenya Institute of Curriculum Development (KICD) – Year 2009 and Year 2010.**

[21] Drafted ICT teaching manual for Diploma in Tourism held at KIE-NACECE Resource Center, 29th January – 6th February 2010.

[22] Chairman in a one week Syllabus editing workshop for Diploma in Computer Science Program held at KIE-NACECE Resource Center, 20th – 28th January 2010.

[23] Chairman in a two weeks Syllabus writing workshop for Diploma in Computer Studies Program renamed to Diploma in Computer Science. The meeting was held at Kisumu Polytechnic, 15th – 28th November 2009.

[24] Chairman in a two weeks subject panel and curriculum design workshop for Diploma in Computer Studies held at KIE – NACECE Resource Center, 11th -23rd October 2009.

▶ **Sacred Heart University (In-formation) – Year 2011 and Year 2012.**

[25] **Drafted B.Sc. Information Technology and B.Sc. (Mathematics and Computer Science) curriculum,** January 2012 to July 2012.

[26] Drafted Computer Science and Mathematics modules for the Bachelor of Education curriculum May to August 2011.

9. POST GRADUATE SUPERVISION

Completed Supervision

[1]   **Title:** *Detection of Visual Similarity Snooping Attacks in Emails Using an Extended Client Based Technique.*
Student Name: George Muhindi Mwangi
Programme: Master of Science in Information Technology, Murang'a University of Technology (Graduated in 2021)

[2]   **Title:** *Naïve Bayes-Based Hybrid Recommender Model for Mobile Marketplace Applications.*
Student Name: Rachael Njeri Ndung'u
Programme: PhD Information Technology, Murang'a University of Technology. (Graduated in 2021)

[3]   **Title:** *A Tomato Plant Disease Classification Model Based on Convolutional Neural Network and Gray Level Co-Occurrence Matrix Techniques.*
Student Name: Hellen K. Wasike
Programme: Master of Science in Information Technology, Murang'a University of Technology. (Graduated in 2021)

[4]   **Title:** *Enhanced Deep Learning Model to Detect Anomalies in surveillance Videos.*
Student Name: John Munyua Gatara
Programme: MSc in Information Technology, Murang'a University of Technology   (Graduated in 2022)

[5]   **Title:** *An Enhanced Image Classification Accuracy Model for Maize Leaf Diseases.*
Student Name: Vincent Mbandu
Programme: MSc in Information Technology, Murang'a University of Technology. (Graduated in 2022)

[6]   **Title:** *A Meta-Learning Model for Detection of Diabetic Retinopathy*
Student Name: Jackson Kamiri Wambugu
Programme: MSc in Information Technology, Murang'a University of Technology. (Graduated in 2022)

[7]   **Title:** *A Model of Palm Vein Biometric Technology to Enhance Integrity Access Systems in Learning Institutions in Kenya*
Student Name: Boniface Mwangi. **Programme:** MSc in Cyber Security, Mount Kenya University. (Graduated in 2023).

[8]   **Title:** *A Hybrid Deep Learning Based Bruteforce Attack Detection Model in Large and High-speed Networks*
Student Name: Stephen Kahara Wanjau
Programme: PhD Computer Science, Murang'a University of Technology. (Graduated in 2023).

[9]   **Title:** *A Neuro-Fuzzy Based Model for Estimating the Maintenance Cost of Python Programs*
Student Name: Catherine Mukunga
Programme: PhD Information Technology, Murang'a University of Technology. (Graduated in 2023).

[10]   **Title:** *A Complexity Evaluation Model for Web-Based Multi-Language Software Architecture.*
Student Name: Nevy Kimani Maina
Programme: Master of Science in Information Technology, Murang'a University of Technology (Graduated in 2023).

Ongoing Supervision

[1]   **Title:** *Deep Learning Model for Decision Support of Stakeholders in Crop Diseases and Pest Management*
Student Name: Vincent Mbandu
Programme: PhD in Information Technology, Murang'a University of Technology.
Status: Proposal Approved by University Senate.

[2]   **Title:** *A Multi-Task Deep Neural Network Model for Medical Image Processing*
Student Name: Jackson Kamiri Wambugu
Programme: PhD in Information Technology, Murang'a University of Technology. **Status: Proposal Approved at School Level.**

[3]   **Title:** *A Large Language Model Framework for Enhancing Personalized Learning of Computer Programming*
Student Name: Fredrick Muema Mboya
Programme: MSc in Information Technology, Murang'a University of Technology.
Status: Concept Approved at School Level.

10. THESIS EXAMINATION

[1]   <u>**Title:**</u> *An Improved Transformer-Based Model for Text Summarization of News Articles*
Student Name: Charles Munyao Muia, Master of Science in Computer Science Thesis, MUT;
Date Marked: July 2024

[2]   <u>**Title:**</u> *Modeling the Prevalence of Depression Among Murang'a University Students Using Machine Learning Techniques.*
Student Name: Loise Muthoni Wahome, Master of Science in Statistics Thesis, MUT;
Date Marked: June/July 2024

[3]   <u>Title:</u> *Cognitive Complexity Metrics for UML Statechart Diagrams*
        Student Name: Jane Wanjiru Njuki, Doctor of Philosophy in Information Technology Thesis, MUT.
        Date Marked: August 2023

[4]   <u>Title:</u> *A Cloud Computing Framework for Enhancing Business Continuity Management in Institutions of Higher Learning*
        Student Name: Sofie Muthoni Muriithi, Master of Science in Computer Systems Thesis, JKUAT.
        Date Marked: August 2023

[5]   <u>Title:</u> *Integrated QOS Management Technique for Internet Protocol Storage Area Networks*
        Student Name: Joseph Kithinji, Doctor of Philosophy in Computer Science Thesis, Meru University of Science and Technology.
        Date Marked: June/July 2022

[6]   **Title:** *Fuzzy Logic Model for Obstacles Avoidance Mobile Robot in Static Unknown Environment*
        Student Name: Aggrey Shitsukane Shisiali, Master of Science in Computer Systems Thesis, JKUAT.
        Date Marked: March 2022

[7]   **Title:** *Segmentation Via Principal Component Analysis for Perceptron Classification: A Case Study of Kenyan Mobile Subscribers.*
        Student Name: Khamis Mwero Maneno, Master of Science in Information Technology Thesis, JKUAT.
        Date Marked: October/November 2021

[8]   **Title:** *A Log-Polar Mapping Approach to Copyright Protection of Video Data*
        Student Name: David Shiala Ongoma, Master of Science in Computer Systems Thesis, JKUAT.
        Date Marked: February/March 2020

[9]   **Title:** *Mobile Health Applications Risk Management Framework*
        Student Name: Benard Kipkoech, Master of Science in Computer Systems Thesis, JKUAT; **Date Marked:** September/October 2020

[10]   **Title:** *Cognitive Complexity Metrics for UML Statechart Diagrams*
        Student Name: Ann Wambui King'ori, Master of Science in Information Technology Thesis, MUT; **Date Marked:** November/December 2020

[11]   **Title:** *Data Privacy Preserving Cloud Model for Health Care Management Systems Based on Multifactor Authentication*
        Student Name: Ntoja Kenneth Gitonga, Master of Science in Information Technology Thesis, MUT; **Date Marked:** Feb./March 2021

11. **REVIEWED PAPERS**
   [1] **Title of Paper:** Smart Kitchen System Using Artificial Intelligence-Based IoT Approach, **Manuscript Number:** AIHC-D-19-01866
   Journal: Springer's Journal of Ambient Intelligence and Humanized Computing, **Date Reviewed:** February 2020

   [2] **Title of Paper:** A comparative analysis of methods of end member selection for use in sub-pixel classification: A convex hull approach **Manuscript Number:** AIHC-D-21-00240
   Journal: Springer's Journal of Ambient Intelligence and Humanized Computing, **Date Reviewed:** May 2021.

12. **JOURNAL PUBLICATIONS**
   [1] Wanjau, S. K., **Wambugu, G. M.,** Oirere, A. M., & Muketha, G. M. (2024). Discriminative spatial-temporal feature learning for modeling network intrusion detection systems. Journal of Computer Security, 32(1), 1-30.
   [2] Wanjau, S.K., **Wambugu, G.M.,** & Oirere, A.M. (2023). 'Evaluating Linear and Non-linear Dimensionality Reduction Approaches for Deep Learning-based Network Intrusion Detection Systems', International Journal of Wireless and Microwave Technologies(IJWMT), Vol.13, No.4, pp. 35-46, 2023. DOI:10.5815/ijwmt.2023.04.05
   [3] Nandasaba, S., Wanyembi, G., & **Wambugu, G. M.** (2023). Electronic Health System Integration Framework for Secure M-Health Services: A Case of University of Nairobi Hospital. Computer and Information Science, 16(4), 1-21.
   [4] Mukunga, C.W., Ndia, J.G. & **Wambugu, G.M.** (2023). 'A Metrics -Based Model for Estimating the Maintenance Effort of Python Software' International Journal of Software Engineering & Applications (IJSEA) 14(03): 15-29. ISSN 0976-2221 (print).
   [5] Wanjau, S.K., **Wambugu, G.M.,** Oirere, A.M. & Muketha, G.M. (2023). 'Discriminative spatial-temporal feature learning for modeling network intrusion detection systems' Journal of Computer Security, vol. Pre-press, no. Pre-press, pp. 1-30. DOI: 10.3233/JCS-220031.
   [6] Wambua, A.W. & **Wambugu, G.M.** (2023). A Comparative Analysis of Bat and Genetic Algorithms for Test Case Prioritization in Regression Testing. International Journal of Intelligent Systems and Applications(IJISA). 15(01): 13-21. DOI:10.5815/ijisa.2023.01.02
   [7] Maina, N. K., Muketha, G. M., & **Wambugu, G. M.** (2023). A New Complexity Metric for UML Sequence Diagrams. International Journal of Software Engineering & Applications (IJSEA) 4(01)
   [8] Onyango, K. A., & **Wambugu, G. M.** (2023). Comparative Analysis on the Evaluation of the Complexity of C, C++, Java, PHP and Python Programming Languages based on Halstead Software Science. Vol.12 No.1 (March 2021), ISSN: 2279-0764. 10(2).
   [9] Mukunga, C.W., Ndia, J.G. & **Wambugu, G.M.** (2022). Factors Affecting Software Maintenance Cost of Python Programs. International Journal of Software Engineering (IJSE). 10(02): 22-36.

[10] Kamiri, J., Wambugu, G.M., & Oirere, A. M. (2022). A Comparative Study of Deep Learning and Transfer Learning in Detection of Diabetic Retinopathy. International Journal of Computer Applications Technology and Research. 11(07): 247-254. DOI:10.7753/IJCATR1107.1001

[11] Maina, N. K., Muketha, G. M., & Wambugu, G. M. (2022). A Literature Survey of Complexity Metrics for Object-Oriented Programs. International Journal of Science and Engineering Applications 11(5), pp.66-71. DOI:10.7753/IJSEA1105.1003

[12] Wanjau, S.K., Wambugu, G.M., & Oirere, A.M. (2022). 'Network Intrusion Detection Systems: A Systematic Literature Review of Hybrid Deep Learning Approaches' International Journal of Emerging Science and Engineering (IJESE), 10(7). ISSN 2319-6378 (online).

[13] Ochango, V.M., Wambugu, G.M., & Ndia, J.G. (2022). Feature Extraction Using Histogram of Oriented Gradients for Image Classification in Maize Leaf Diseases. International Journal of Computer and Information Technology, ISSN: 2279-0764, 11(2). https://doi.org/10.24203/ijcit.v11i2.204.

[14] Wambui, B. M., Gikandi, J. W., & Wambugu, G. M. (2022). A Framework for Verification in Contactless Secure Physical Access Control and Authentication Systems.

[15] Kamiri, J., Wambugu, G. M., & Oirere, A. (2022). A Systematic Literature Review of Meta-Learning Models for Classification Tasks.

[16] Ochango, V. M., Wambugu, G. M., & Ndia, J. G. (2022). Comparative Analysis of Machine Learning Algorithms Accuracy for Maize Leaf Disease Identification.

[17] Wambui, B. M., Gikandi, J. W., & Wambugu, G. M. (2022). A Survey of Biometric Authentication Technologies Towards Secure And Robust Systems: A Case Study of Mount Kenya University. Computer and Information Science; Vol. 15, No. 2; ISSN(Print): 1913-8989 ISSN(Online): 1913-8997

[18] Munyua, J. G., Wambugu, G. M., & Njenga, S. T. (2021). A Survey of Deep Learning Solutions for Anomaly Detection in Surveillance Videos. International Journal of Computer and Information Technology (2279-0764), 10(5).

[19] Wasike, H. K., Njenga, S. T., & Wambugu, G. M. (2021). A Review: Diseased Leaf Feature Extraction Using Machine Learning Classification Techniques. International Journal of Formal Sciences: Current and Future Research Trends, 10(01), 10-29.

[20] Muhindi, G., Wambugu, G., & Oirere, A, 'Detection of Visual Similarity Snooping Attacks in Emails using an Extended Client Based Technique. International Journal of Engineering and Advanced Technology (IJEAT) ISSN: 2249-8958, Volume-10 Issue-4, April 2021

[21] Wambugu, J.K., & Wambugu, G.M., Research Methods in Machine Learning: A Content Analysis. International Journal of Computer and Information Technology Vol.10 No.2 (March 2021), ISSN: 2279-0764. 10(2). https://doi.org/10.24203/ijcit.v10i2.79

[22] Ndung'u, R.N., Kamau, G.N., & Wambugu, G.M., Developing Hybrid-Based Recommender System with Naïve Bayes Optimization to Increase Prediction Efficiency, International Journal of Computer and Information

Technology Vol.10 No.2 (March 2021), ISSN: 2279-0764. https://doi.org/10.24203/ijcit.v10i2.75

[23] Ndung'u, R.N., **Wambugu, G.M.**, & Kamau, G.N., 'Using feature selection methods to discover frequent users' preferences for online recommender systems' International Journal of Computer and Information Technology Vol.10 No.1 (January 2021), ISSN : 2279-0764.

[24] Wanjau, S.K., **Wambugu, G.M.**, & Kamau, G.N., 'SSH-Brute Force Attack Detection Model Based on Deep Learning' International Journal of Computer Applications Technology and Research, Volume 10– Issue 01, January 2021, (ISSN: 2319–8656 (Online))

[25] Muhindi, G., **Wambugu, G.**, & Oirere, A 'A Literature Survey of Visual Similarity Snooping Attacks in Emails' *International Journal of Network Security (IJNS)*, ISSN 1816-353X (Print) ISSN 1816-3548 (Online)

[26] **Wambugu, G.,** Onyango, G., & Kimani, S. 2018 'Quadratic Approach for Fast Topic Selection in Modelling Big Text Analytics' *International Journal of Advancements in Computing Technology (IJACT)* Volume10, Number2 ISSN : 2005-8039(Print), 2233-9337(Online).

[27] **Wambugu, G.M.**, Okeyo, G. and Kimani, S., 2018. 'A Survey of Topic Model Inference *Techniques' International Journal of Computer and Information Technology* (ISSN: 2279 – 0764) Volume 07– Issue 04, July 2018.

[28] **Wambugu, GM** & Njeru, KM (2017) 'Automatic Debugging Approaches: A literature Review' *International Journal of Applied Computer Science (IJACS)* ISSN 2522-6258 Vol.01– Issue 01

[29] **Wambugu, GM** Ogenga, SO Shikali, C. & Wafula, MJ, 2017 'Computer Laptop Project Strategy for Basic Education Schools in Kenya' *International Journal of Information and Communication Technology Research* ISSN 2223–4985 Vol.07– Issue 05

[30] **Wambugu, GM** Obwaya, M Kimani, C Wambui, I & Loki, M 2015, 'Big Data and Business Support: Strategies and Challenges'. *International Journal of Economics, Commerce and Management, United Kingdom*, Vol. III, Issue 3 ISSN 2348-0386

[31] **Wambugu, GM** & Wausi, AN 2013, 'Subjective Norms and Information Systems Implementation: A Case of Higher Education Institutions in a developing country', *International Journal of Science and Research (IJSR)*, vol. 2, no. 3, pp. 65-70, ISSN: 2319-7064

13. WORKSHOPS ATTENDED

[1] **Kenya Education Network (KENET) 2024 -** Joint Special Interest Groups Forum to be held on May 9th -10th May, 2024 presented a paper on "Application of Generative Artificial Intelligence to Enhance Practical Teaching of Computer Programming Using a High Level Language."

[2] **Huawei Training Centre Hardware Solutions Training Workshop,** Attended on 22nd July 2022.

[3] **Huawei ICT Academy Management Workshop,** Attended on Thursday, April 28th, 2022.

[4] **Kenya Education Network (KENET), 2020:** Attended an Online Workshop on Video Conferencing

[5] **Kenya Education Network (KENET), 2018:** Attended a Computer Science / Information Systems Department Heads Workshop.

[6] **Data Science Africa (DSA), July 2017:** Attended a Data Science Summer School and Workshop, Arusha Tanzania.

[7] **Kenya Education Network (KENET), 2016:** Attended a training workshop on Science Gateways, High Performance Computing and Grid Infrastructures on 30th November 2016 and 1st December 2016 at the University of Nairobi.

[8] **Ministry of Education, Kenya, 12th – 20th June 2009:** Attended a one week Capacity Building Workshop for academic Heads of Department of public TIVET Institutions on ICT integration in Training programs at the Mombasa Polytechnic.

[9] **African Institute for Capacity Development (AICAD):** Attended a one week workshop at to harmonize Diploma in IT course outlines for JKUAT.

14. CONFERENCES

[1] Ochango, M., **Wambugu, G.M.,** & Oirere, A. (2024, August 19th – 20th). *Research Deep Learning Model Factors Influencing Decision Support in Crop Diseases and Pest Management: A Systematic Literature Review* [Presentation]. 7th International Multidisciplnary Research Conference, Gretsa University-Main Campus, Garissa Rd, Thika, Kenya.

[2] **Wambugu, G.M.,** (2022, Nov. 21st -22nd). *Research Methods in Computing and Scientific Writing* [Presentation]. 5th International Multidisciplnary Research Conference, Gretsa University-Main Campus, Garissa Rd, Thika, Kenya.

[3] Wambui, B. M., Gikandi, J. W., **Wambugu, G. M.** & Kamau, J.W. (2022, May 18th -20th). *An analysis of system security vulnerabilities towards enhancing authentication technologies in Covid-19 era.* International Conference on Peace, Security and Social Enterprise, Thika, Kenya. https://peaceconference.mku.ac.ke/

[4] Wanjau, S., **Wambugu, G.,** & Oirere, A. (2021, October 4th – 8th). *Empirical Evaluation of Adaptive Optimization on the Generalization Performance of Convolutional Neural Networks.* Kabarak University International Conference On Computing And Information Systems, Nakuru, Kenya. https://conf.kabarak.ac.ke/event/39/

[5] **USIU-Africa** HPC for **Research and Innovation Conference**, 1st and 2nd December, 2017.

[6] Gretsa University **Multidisciplinary Conference**, 6th and 7th November, 2017.

[7] **UN Environment Assembly (UNEA), Nov/Dec 2017:** Attended a Science-**Policy-Business Conference** at the Third session of the United Nations Environment Assembly in UN Office at Nairobi.

[8] Attended a two days **e-learning Conference** at Kisumu Hotel, 2007.

15. EXTERNAL EXAMINATION

[1] **Kenyatta University, April 2024:** Appointed as External Examiner for Department of Computing & Information Technology.

[2] **Jomo Kenyatta University of Agriculture and Technology, February 2023-Date:** External Examiner for Department of Information Technology.

[3] **Gretsa University, October 2014 to August 2023:** External Examiner in the School of Computing and Informatics.

[4] **Jomo Kenyatta University of Agriculture and Technology, 2007-2008:** External Examiner for Diploma in Information Technology under Continuing Education Programme (CEP), currently School of Open and Distance Learning (SoDEL).

16. MEMBERSHIP OF PROFESSIONAL BODIES

[1] Professional Member, Association for Computing Machinery (ACM) membership number: 5812673.

[2] Member, International Association of Engineers, Membership Number: 202500

[3] Associate Member (UACEE), Institute of Research Engineers and Doctors (theIRED), Membership Number: AM101000581060

17. MEMBERSHIP OF COMMITTEES AND BOARDS

[4] Vice Chairman, Kenyatta Girls High School Board of Management. Appointed for a three year term beginning 2022.

[5] Member, Njiru-ini Secondary School Board of Management. Appointed for a three year term beginning 2022.

[6] Chairman, Invitations, Luncheon Cards and Programme Sub-committee of Murang'a University of Technology Senate for preparation of 6th Graduation.

[7] Chairman, Maintenance/Cleaning/Repair Sub-Committee of Murang'a University of Technology Senate for preparation of 4th & 5th Graduation.

[8] Member, ODeL Board

[9] Member, Deans Committee, Murang'a University of Technology. Appointed on 6th January 2017.

[10] Member, University Senate, Murang'a University of Technology.

[11] Member, Tender Opening for the Supply, Delivery and Installation of N-Computing Solution, Networking Equipments and a Heavy Duty Photocopier Machine Committee for Murang'a University College, Appointed on February 2016.

[12] Member, Student's Disciplinary Committee for Murang'a University College, Appointed on October 2013.

[13] Member, Quality Assurance and Performance Contracting Committee for Murang'a University College, Appointed on August 2013.

[14] Member, ERP/ICT Committee for Laikipia University, Appointed on April 2013.

[15] Member of 5-year Business Plan Committee for Laikipia University, Nairobi Campus. Appointed on November 2012.

[16] Member of Business Plan Committee for Laikipia University, Nyahururu Campus.

[17] Member, ICT Committee for Laikipia University, Appointed on September 2011.

18. **GRANTS**
   - **2024:** Awarded a **KSh. 1,500,000** research fund as **Principal Investigator** by the Kenya Education Network (KENET) under Research and Innovation Grant in Educational Technologies 2023/2024 - (GRANT NO. KENET/EDTECH/2024/2) for a project proposal titled, "Application of Generative Artificial Intelligence to Enhance Practical Teaching of Computer Programming Using a High-Level Language"

   - **2023:** Infrastructure proposal to Ministry of Education, Government of Kenya, October 2021. This proposal seeks the approval of Government grant financing for the establishment of Murang'a University of Technology Data Centre, ICT and Engineering Training and Research Complex. The Complex will be critical in establishing and strengthening industry academia linkages to intensify research. The total cost for the project is estimated to **cost 1.59 Billion Kenya Shillings**. Phase 1 of the project commenced in September 2023.

   - **2016:** Awarded a KSh. 500,000 research fund by the National Commission for Science, Technology and Innovation (NACOSTI - Kenya).

19. **PERSONAL ATTRIBUTES**
   - Committed Christian with very strong moral values; - Good analytical and interpersonal skills; Good leadership and management skills; Good at planning and preparing work to strict deadlines; - Hard working and can work at odd hours, times and from home; - A good team player.

20. **REFEREES**
   To be availed upon request