Curriculum Vitae

1. Personal Details

Official Name: John Gichuki Ndia

Permanent Address: P.O. Box 1605 – 00232, Ruiru, Kenya

Email Address: ndiajg@gmail.com or jndia@mut.ac.ke

Mobile Phone: 0725733449

Gender: Male

Marital Status: Married

Nationality: Kenyan

2. Education

Ph.D. (Information Technology)	Masinde Muliro University of Science and Technology, 2020.
M.Sc. (Data Communications)	KCA University, 2013.
Bachelor of Information Technology	Busoga University, 2009.
Diploma in Computer Studies	Kenya Institute of Highways and Building Technology (KNEC, 2005)
K.C. S. E	Njiiri School (2000)
K.C. P. E	Mbiri Primary School (1996)

3. Work

I. **Murang'a University of Technology,** October 2020 – Present

   Designation: Lecturer

- **Additional Responsibilities:**

   1. **Dean of School- School of Computing and Information Technology**, July 2022 to Date.
   2. **Chairman of Department -Information Technology,** October 2020 – August 2023.

3. **Member of The University Digitalization Committee,** August 2023 to Date

4. **Chairman of ICT, Registration and Certification Subcommittee-** for purpose of preparing for International Conference taking place between 8th – 10th November, 2023

5. **Member of the ERP Software Project Management Committee**, December, 2016 – Present.

6. **Member of the Alcohol and Drug Abuse Committee**, June.2019 – Present.

7. **Member of Contract Implementation Committee for Provision of Comprehensive Cleaning Services,** 21st August 2020 - Present

8. **Chief Returning Officer,** for the 2023 and 2024 Murang'a University of Technology Students' Organization (MUTSO) elections.

9. **Member of ICT, Registration and Certification Subcommittee-** for purpose of preparing for International Conference which took place between 3rd – 5th November, 2021.

10. **Member of MUT TVET Board** – February 2024 to Present.

II. **Murang'a University of Technology,** November 2015 – October 2020

   • **Designation:** Tutorial Fellow

   Additional Responsibilities:

   1. **Acting Deputy Registrar (Academics and Students Affairs),** January 2020 - July 2020

   2. **Examinations Officer, Department of Information Technology**, 18th Nov.2016 – September 2020

III. **Murang'a University of Technology,** April .2013 – October 2015

   Designation: Teaching Assistant

IV. **Murang'a College of Technology,** September.2010 - March. 2013

   Designation: Assistant Lecturer

   Additional Responsibilities:

   1. Assistant Head of Department, Information Technology Department, 3rd October 2011 - March 2013

   2. Member of Automation Committee, 31st January 2013 – March 2013

3. Member of the Secretariat for Performance Contract, 2011- March 2013

4.   Certificates of Participation at Computer Pride Ltd

- Network + support skills
- A+ Certification: Software support skills
- A+ Certification: Hardware support skills

5.   Community Service

I. Member of the School Board of Management

- Mbiri Primary School, Murang'a, October 2015 - Present.

II. Patron of the Christian Union

- Murang'a University of Technology, October 2017 – Present

III. Involvement in Faith-Based Organizations,

- Chairman of the Church Board, Cities of Refuge Ministries - Ruiru, January 2021 – Present
- Member, FOCUS Northern Nairobi Regional Council – from November 2022 to Present

6.   Research

I.   Research Purpose

To contribute to the fields of software engineering, Artificial intelligence applications in software quality, and computer networks and security

II.   Research Interests

- Software engineering – Software structural complexity frameworks, metrics, software quality, static analysis metrics tools, Machine learning techniques in software engineering.
- Artificial Intelligence applications for Software quality- algorithms for predicting software maintainability, reliability, usability.
- Computer networks and security– network protocols, wireless sensor networks, networks security and networks design and management.

III.   Publications

<u>**Journal Papers:**</u>

- **Publications as Tutorial Fellow**

1. **Ndia, J. G.**, Muketha, G. M, & Omieno K. K, (2019, May). <u>A Survey of Cascading Style Sheets Complexity Metrics</u>. *International Journal of Software Engineering & Applications* (IJSEA), 10(3): ISSN: 0976-2221.

2. **Ndia, J. G.** (2017). <u>A Survey of security protocols for wireless sensor networks</u>. *International Journal of Applied Computer Science (IJACS), 1*(II), 1-12.

3. **Ndia, J. G.**, Muketha, G. M, & Omieno K. K. (2019, December). <u>Complexity Metrics for Sassy Cascading Style Sheets.</u> *Baltic Journal of Modern Computing*, 7(4), 454-474.

4. **Ndia, J. G.,** Muketha, G. M, & Omieno K. K., (2020, January). <u>Structural Complexity Attribute Classification Framework (SCACF) for Sassy Cascading Style Sheets.</u> *International Journal of Software Engineering & Applications* (IJSEA), 11(1): ISSN: 0976-2221. DOI: 10.5121/ijsea.2020.11105

- **Publications as Lecturer**

1. Ochago, V. M., Wambugu, G. M., & **Ndia, J. G. (2022).** <u>Comparative Analysis of Machine Learning Algorithms Accuracy for Maize Leaf Disease Identification.</u> *International Journal of Formal Sciences: Current and Future Research Trends* (IJFSCFRT)

2. Ochango, V. M., Wambugu, G. M., & **Ndia, J. G. (2022).** <u>Feature Extraction using Histogram of Oriented Gradients for Image Classification in Maize Leaf Diseases. International.</u> *Journal of Computer and Information Technology* (22790764), 11(2).

3. Njuki, J. W., Muketha, G. M., & **Ndia, J. G. (2022).** <u>A systematic literature review on security indicators for open-source enterprise resource planning software.</u> *International Journal of Software Engineering & Applications* (IJSEA), Vol.13, No.3, May 2022 DOI: 10.5121/ijsea.2022.13303 27

4. Mwangi, P. M., **Ndia, J. G.,** & Muketha, G. M. (**2022**). <u>Cluster Head Selection Algorithms for Enhanced Energy Efficiency in Wireless Sensor Networks: A Systematic Literature Review.</u> *International Journal of Computer Science and Engineering Survey* (IJCSES), Vol.13, No.3, June 2022 DOI: 10.5121/ijcses.2022.13303 29 C

5. Njuki, J. W., Muketha, G. M., & **Ndia, J. G. (2022).** An Extended Security Measurement Framework for Open-Source Enterprise Resource Planning Software Security. International Journal of Network Security & its Applications (IJNSA), 2022.

6. Mburu, J.M, & **Ndia, J. G. (2022).** A Systematic Mapping Study on UML Model basd Test Case Generation and Optimization Techniques. International Journal of Computer Applications (975, 8887).

7. Mukunga, C. W., **Ndia, J. G** & Mariga G. W (**2022, October**). Factors Affecting Software Maintenance Cost of Python Programs. *International Journal of Software Engineering (IJSE)*, 10(2), 22-36.

8. Mwangi, P. M., **Ndia J.G.**, and Muketha G.M. **(2023)** AN EXTENDED K-MEANS CLUSTER HEAD SELECTION ALGORITHM FOR EFFICIENT ENERGY CONSUMPTION IN WIRELESS SENSOR NETWORKS. International Journal of Network Security & Its Applications (IJNSA) Vol.15, No.3, May 2023 DOI:10.5121/ijnsa.2023.15305 65.

9. Mukunga, C. W., **Ndia, J. G** & Mariga G. W (**2023, May**). A Metrics-based Model for Estimating the Maintenance Effort of Python Software. *International Journal of Software Engineering & Applications (IJSEA)*, Vol.14 (3), 15-29.

10. Walumbe, D. W. & **Ndia J. G (2023)**. "A Systematic Literature Review of Proof of Work and Proof of Activity: Privacy and Performance," *International Journal of Computer Sciences and Engineering*, Vol.11, Issue.10, pp.37-44, 2023.

11. Ochago, V. M. & **Ndia, J. G. (2023).** Architecture of Deep Learning Algorithms in Image Classification: Systematic Literature Review". *International Journal of Formal Sciences: Current and Future Research Trends* (IJFSCFRT).

12. Ochieng, F., Kaburu, D., & **Ndia, J. G. (2023).** Automation-Based User Input Sql Injection Detection and Prevention Framework. *Computer and Information Science*, *16*(2).

13. King'ori, A. W., Muketha, G. M., & **Ndia, J. G. (2024).** A Suite of Metrics for UML Behavioral Diagrams based on Complexity Perspectives. *International Journal of Software Engineering & Applications* (IJSEA), Vol.15, No.1, March 2024.

Conference Papers

- **Conference Proceedings as Tutorial Fellow**

1. **John Gichuki Ndia**, Geoffrey Muchiri Muketha, and Kelvin Kabeti Omieno, (**March 2020**). Implementation of a Structural Complexity Metrics Tool for Sassy Cascading Style Sheets (SCMT-SCSS). 1st Nyeri National Polytechnic International Research Conference on Attaining Sustainable Growth through Science, Research, Technology, and Innovation, Nyeri, Kenya. 11-13th March 2020.

- **Conference Proceedings as Lecturer**

1. Jane Wanjiru Njuki, Geoffrey Muchiri Muketha and **John Gichuki Ndia (2021)**, Information Security Models: A systematic Literature Review. Ist International Conference on Technology and Innovation for Sustainable Development at Murang'a University of Technology. **3rd to 5th November 2021.**

2. Vincent Mbandu Ochago, Geoffrey Mariga Wambugu, and **John Gichuki Ndia (December, 2021).** A Model for Face Recognition using Principal Component Analysis Algorithm. Proceedings of 4th Gretsa University International Multidisciplinary Research Conference.

3. Kanuku Watson Musyoki and **John Gichuki Ndia (2022).** Fog-To-Cloud continuum fault tolerance: A systematic review. 4th International Conference at Machakos University, June 2022.

4. Jane Wanjiru Njuki, Geoffrey Muchiri Muketha and **John Gichuki Ndia (2022),** Security Measurement Framework for Enterprise Resource Planning Software. 10th RVTTI International TVET and Interdisciplinary Research Conference. 29th June – 1st July, 2022.

5. Ann Wambui King'ori, Geoffrey Muchiri Muketha and **John Gichuki Ndia (2023).** Towards a measurement framework for uml behavioral diagrams based on complexity perspectives. Murang'a University of Technology 2nd International Conference. 8th November to 10th November 2023.

6. Kevin Agina Onyango & **John Gichuki Ndia (2023)**. Predicting software maintainability using soft computing techniques: a systematic literature review. Murang'a University of Technology 2nd International Conference. 8th November to 10th November 2023.

7. Patrick Macharia Njoroge & **John Gichuki Ndia (2023)**. A systematic review of anomaly detection using data mining techniques. Murang'a University of Technology 2nd International Conference. 8th November to 10th November 2023.

IV.   **Supervision of Postgraduate Students**

PhD Students

1. **Njuki, Jane Wanjiru**

Topic: A Security Metrics Framework and Metrics For Open Source Enterprise Resource Planning Software. Murang'a University of Technology, Department of Information Technology (**Completed - 2023**).

2. **Mukunga, Catherine Wambui**

   Topic: A Metrics Based Model For Estimating the Maintenance Effort of Python Software. Murang'a University of Technology, Department of Information Technology (**Completed - 2023**)

3. **Mwangi, Peter Maina**

   Topic: An Extended LEACH Protocol for Efficient Energy Consumption in Wireless Sensor Networks. Murang'a University of Technology, Department of Computer Science (Completed – **Completed August 2024**).

4. **King'ori, Ann Wambui**

   Topic: A Perspective Based Metrics Framework for Predicting the Analyzability of UML Behavioral Diagrams. Murang'a University of Technology, Department of Information Technology (**Ongoing**).

5. **Onyango, Kevin Agina**

   Topic: A Model View Controller-based Complexity Classification Framework and Metrics for Analysing the Modifiability of Laravel Software. Murang'a University of Technology, Department of Information Technology (**Ongoing**).

6. **Mburu, James Maina**

   Topic: An Efficient Model-Based Test Case Generation and Optimization Technique for Object-Oriented Software. Murang'a University of Technology, Department of Information Technology (**Ongoing**).

MSc. Students

1. **Ochango, Vincent Mbandu**

   Topic: <u>A Hybrid Model for an Enhanced Image Classification Accuracy in Maize Leaf Disease Identification.</u> Murang'a University of Technology, Department of Information Technology (**Completed**).

2. **Katonyi, Kelvin Mutunga**

   Topic: <u>A Metric-based Technique for Predicting Modularity of Aspect-Oriented Software</u>. Murang'a University of Technology, Department of Information Technology (**Ongoing**).

3. **Nyutu, Samson Waweru**

   Topic: An Adaptive Man-in-The-Middle Attack Resistant Trust Model for Improved Security In Vehicular Ad-Hoc Networks. Murang'a University of Technology, Department of Information Technology (**Ongoing**)

V. Examination of Thesis

Internal Examination

- John Gatara(Murang'a University of Technology - 2022), Enhanced Deep Learning Model to Detect Anomalies in Surveillance   Videos - **MSc Thesis**

- Jackson Kamiri (Murang'a University of Technology - 2022), A Meta-learning model for detection of diabetic retinopathy (2022)- **MSc Thesis**

- Ephantus Mwangi (Murang'a University of Technology - 2021), Trust-based resilient cooperative bait detection technique to curb black hole attacks in mobile ad-hoc networks – **PhD Thesis**

- Jane Kinanu Kiruki (Murang'a University of Technology – 2023), A Real-Time Intrusion Detection Model for Local Area Networks based on Enhanced Alert Correlation - **PhD. Thesis**

- Nevy Kimani Maina (Murang'a University of Technology – 2023), A Complexity Evaluation Model for Web Based Multi-Language Software Architectures - **Msc. Thesis**

External Examination

- Nyachiro Kemunto Asanath (Technical University of Mombasa-2023), Adoption Strategy For Cloud Computing In Kenyan Research Institutions - **MSc. Thesis**

- George Mutwiri Muthee (Meru University of Science and Technology-2023), A Finite State Transducer for Morphological Segmentation of Swahili Verbs - **MSc. Thesis**

VI.   Peer Reviewing

- **Reviewer,** Informatics in Medicine Unlocked(2023). Elsevier Reviewer.

- **Reviewer,** Metrics and Models for Evaluating the Quality and Effectiveness of ERP Software. *IGI Global*. ISBN13: 9781522576785.

- **Reviewer,** International Journal of Software Engineering & Applications (IJSEA). Ijsea: ISSN: 0976-2221

- **Reviewer**, 9th International Conference on Software Engineering and Applications (JSE 2020). November 21~22, 2020, Zurich, Switzerland

7.   Projects

I. Completed Msc. Thesis
1. John Gichuki Ndia, 2013. A Model for Selecting Security Protocols for Wireless Sensor Networks, KCA-U.

II. Completed PhD Thesis

2. John Gichuki Ndia, 2019. Structural Complexity Framework and Metrics for Analyzing the Maintainability of Sassy Cascading Style Sheets, Masinde Muliro University of Science & Technology.

8. Research Grants

Vice Chancellor's Research grant of Three Hundred Ninety Eight Thousand Only (**Kshs. 398,000**) under the theme Application of Information Technology in Managing Emerging Issues. **Topic of Study:** A Usability Evaluation Model for E-Learning Platforms in Kenyan Universities: Case of Murang'a University of Technology (project ongoing)

9. Membership to Professional Bodies

I. **Member,** Association for Computing Machinery (ACM), Member No. 4832694.

II. **Member**, Institute of Electrical and Electronics Engineering (IEEE). Member No. 94903329

10. Referees

Prof. Geoffrey Muchiri Muketha, PhD

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Murang'a University of Technology
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Dean, School of Computing and Information Technology
Kaimosi Friends University
P.O Box 385 – 50309, Kaimosi, Kenya
E-Mail: komieno@kafu.ac.ke
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Prof. (Eng) Christopher Maina Muriithi, PhD

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