

Innocent Nyalala | PhD

Department of Computer Science, **Egerton University**

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Research Interest

I conduct research on efficient **machine learning (ML)** and **computer vision systems** for agricultural automation, focusing on **image processing, IoT, and artificial intelligence** to optimize agricultural processes. That is to answer the question **“how can advanced machine learning and computer vision techniques be effectively applied to automate and enhance decision-making processes in agriculture.”** My long-term goal is to advance these systems using sophisticated algorithms and programming technologies to address critical challenges in agriculture

Education

PhD in Agricultural Electrification & Automation
Nanjing Agricultural University

Nanjing, China
09/2017–12/2023

Thesis: Research on Agricultural Products Volume Estimation Method
Based on Depth Imaging and Machine Learning Technology
Supervisor: Prof. Chen Kunjie

M.Sc. in Computer Science & Technology
Nanjing Agricultural University

Nanjing, China
09/2013–07/2016

Thesis: Research and Development of an Intelligent Control and Monitoring System based on Arduino for the Greenhouse Environment
Supervisor: Prof. Xu Huanliang

Bachelor in BMIT (IT Major)
Kabarak University

Nakuru, Kenya
09/2009–08/2012

Thesis: Knowledge-based Prime Insurance Management System
Honors: *second class upper*

Work Experience

09/2017–12/2023: Doctoral Researcher in **Nanjing Agricultural University, Nanjing, China**

01/2013–present: Technology Consultant at **NiTS Consulting, Nakuru, Kenya**

01/2013–08/2013: Technical Support Intern in **Simbanet(K) Ltd, Nakuru, Kenya**

09/2013–12/2013: Technical Support Intern in **Kenya Power Company, Nakuru, Kenya**

Teaching Experience

04/2022-present: Part-time Lecturer, *Department of Computer Science, Egerton University, Nakuru*

09/2022-present: Part-time Lecturer, *Department of Literature, Language and Linguistics, Egerton University*

01/2023-04/2023: Part-time Lecturer, *Department of Accounting, Finance and Management, Egerton University*

02/2022-08/2022: Part-time Lecturer, *Department of Information Technology, Maseno University, Yala*

01/2017-08/2017: Part-time Tutorial Fellow, *Department of ICT & Engineering, Zetech University, Nairobi*

09/2016-08/2017: Tutorial Fellow, *Department of Computer Science, The East African University, Kitengela*

09/2016-12/2016: Part-time lecturer, *Department of Computer Science & Information Technology, Kabarak University*

Honors & Awards

2017–2021: China Scholarship Council (CSC), PhD Scholarship, Nanjing Agricultural University

2020: Excellent in Both Studies and Behavior Award, for excellent performance in the 1st Semester of the academic year
2019-2020, Nanjing Agricultural University

2013–2016: China Scholarship Council (CSC), Master Scholarship, Nanjing Agricultural University

2014: Excellent International Student Leader Award, Nanjing Agricultural University

Publications

[Google Scholar Profile](#) [ResearchGate Profile](#) [ORCID Profile](#)

- o **Innocent Nyalala**, Zhang Jiayu, Chen Zixuan, Chen Junlong, Kunjie Chen: **Online chicken carcass volume estimation using depth imaging and 3-D reconstruction**, *Under review, 2024*

- Liu, Haolu, Khurram Yousaf, Zhenwei Yu, Asad Riaz, **Innocent Nyalala**, Muhammad Waqas Alam Chattha, and Kunjie Chen: **Drying process optimization of garlic slices in closed-loop heat pump drying system by Box-Behnken design**, *Journal of Food Processing and Preservation* (IF=2), 2022
- **Innocent Nyalala**, Cedric Okinda, Nelson Makange, Tchalla Korohou, Qi Chao, Luke Nyalala, Zhang Jiayu, Zuo Yi, Khurram Yousaf, Liu Chao, Chen Kunjie: **On-line weight estimation of broiler carcass and cuts by a computer vision system**, *Poultry Science* (IF=3.8), 2021
- Makange, Nelson Richard, Changying Ji, **Innocent Nyalala**, Idris Sunusi, and Samwel Opiyo: **Prediction of precise subsoiling based on analytical method, discrete element simulation and experimental data from soil bin**, *Scientific Reports* (IF=3.8), 2021
- Qi, Chao, **Innocent Nyalala**, and Kunjie Chen: **Detecting the early flowering stage of tea chrysanthemum using the F-YOLO model**, *Agronomy* (IF=3.3), 2021
- **Innocent Nyalala**, Cedric Okinda, Chen Kunjie, Tchalla Korohou, Luke Nyalala, and Qi Chao: **Weight and volume estimation of poultry and products based on computer vision systems: a review**, *Poultry Science* (IF=3.8), 2021
- **Nyalala Innocent**, Cedric Okinda, Qi Chao, Peter Mecha, Tchalla Korohou, Zuo Yi, Samuel Nyalala, Zhang Jiayu, Liu Chao, and Chen Kunjie: **Weight and volume estimation of single and occluded tomatoes using machine vision**, *International Journal of Food Properties* (IF=3.1), 2021
- Yousaf, Khurram, Haolu Liu, Xu Gao, Chao Liu, Adnan Abbas, **Innocent Nyalala**, Muhammad Ahmad, Muhammad Ameen, and Kunjie Chen: **Influence of environmental conditions on drying efficiency and heat pump performance in closed and open loop drying of paddy**, *Drying Technology* (IF=2.7), 2020
- Q. Korohou, Tchalla, Okinda, C., **Nyalala, I.**, Torotwa, I., Mwangi, E., Wang, X., He, R., & Ding: **Separation of partially occluded rice kernels and variety classification based on computer vision**, *International Agricultural Engineering Journal* (IF=0.23), 2020
- Okinda, Cedric, Yuwen Sun, **Innocent Nyalala**, Tchalla Korohou, Samwel Opiyo, Jintao Wang, and Mingxia Shen: **Egg volume estimation based on image processing and computer vision**, *Journal of Food Engineering* (IF=5.3), 2020
- Korohou, Tchalla, Cedric Okinda, Haikang Li, Yifei Cao, **Innocent Nyalala**, Lianfei Huo, Mouloumdèma Potcho, Xiang Li, and Qishuo Ding: **Wheat grain yield estimation based on image morphological properties and wheat biomass**, *Journal of Sensors* (IF=1.4), 2020
- Okinda, Cedric, **Innocent Nyalala**, Tchalla Korohou, Celestine Okinda, Jintao Wang, Tracy Achieng, Patrick Wamalwa, Tai Mang, and Mingxia Shen: **A review on computer vision systems in monitoring of poultry: A welfare perspective**, *Artificial Intelligence in Agriculture* (IF=8.2), 2020.
- Okinda, Cedric, Mingzhou Lu, Longshen Liu, **Innocent Nyalala**, Caroline Muneri, Jintao Wang, Hailin Zhang, and Mingxia Shen: **A machine vision system for early detection and prediction of sick birds: A broiler chicken model**, *Biosystems Engineering* (IF=4.4), 2019
- **Nyalala Innocent**, Cedric Okinda, Luke Nyalala, Nelson Makange, Qi Chao, Liu Chao, Khurram Yousaf, and Kunjie Chen: **Tomato volume and mass estimation using computer vision and machine learning algorithms: Cherry tomato model**, *Journal of Food Engineering* (IF=5.3), 2019
- Yu, Zhenwei, Qi Gao, Yue Zhang, Dandan Wang, **Innocent Nyalala**, and Kunjie Chen: **Production of activated carbon from sludge and herb residue of traditional Chinese medicine industry and its application for methylene blue removal**, *BioResources* (IF=1.747), 2019
- Okinda, Cedric, Mingzhou Lu, **Innocent Nyalala**, Jiawei Li, and Mingxia Shen: **Asphyxia occurrence detection in sows during the farrowing phase by inter-birth interval evaluation**, *Computers and Electronics in Agriculture* (IF=7.7), 2018
- Okinda, C., MingXia Shen, JiaWei Li, **I. Nyalala**, LongShen Liu, MingZhou Lu, and GuangYue Zhang: **Detection of an onset of farrowing by classification of crated sow's activities**, *International Agricultural Engineering Journal* (IF=0.23), 2018

- Wang, Haoyun, Ke Wang, Duo Li, **Innocent Nyalala**, Yingjun Xiong, and Huanliang Xu: **Research on range-based localization algorithm with virtual force and time synchronization in wireless sensor and actor networks**, *International Journal of Communication Networks and Distributed Systems* (IF=1), 2016
- Okinda, Cedric Sean, **Innocent Nyalala**, Zhang Chi and Shen Mingxia: **Intelligent energy saving system**, *International Journal of Emerging Technology and Advanced Engineering* 2015

Academic Services

Reviewers for Journals: Journal of Electronics, MDPI 2024
Computers and Electronics in Agriculture, Elsevier 2024
Journal of Food Engineering, Elsevier 2019-2023
Artificial Intelligence in Agriculture, Elsevier 2020-2022
Scientific Reports, Nature 2023

Head of Department: Department of Computer Science, The East African University. 2017

Senate Member: University Senate Member, The East African University. 2017

Professional Memberships

Association for the Advancement of Artificial Intelligence (AAAI) 2024, Member ID: 638956

Association for Computing Machinery (ACM) 2024, Member ID: 5070064

Internet Society (ISOC) 2022, Kenya Chapter

International Association of Engineers (IAENG) 2024, Member ID: 259573

Leadership Experience

2013–2014: President, International Students Association, Nanjing Agricultural University, China

2009–2012: Youth Chairperson at Holy Trinity Catholic Parish Church, Nakuru, Kenya

China Scholarship Council (CSC), PhD Scholarship, Nanjing Agricultural University

References (with website links on names)

Name	Affiliation	Email address
Prof. Chen Kunjie	Nanjing Agricultural University, China	kunjiechen@njau.edu.cn
Prof. Bai Zhentian	Nanjing Agricultural University, China	baizht@njau.edu.cn
Prof. Xu Huanliang	Nanjing Agricultural University, China	huanliangxu@njau.edu.cn
Dr. Mary Manyange Bosire	Egerton University, Kenya	henrymary.bosire@egerton.ac.ke
Dr. Muhambe Titus Mukisa	Alupe University, Kenya	muhambe@au.ac.ke