

Loyani Kisula Loyani

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WORK EXPERIENCE

Nov 2022 – Present

Assistant Lecturer – Machine Learning at the Nelson Mandela African Institution of Science and Technology (NM-AIST)

Responsibilities:

To:-

- Assist Senior Academic Staff in practicals, seminars, and tutorials for Masters students
- Work in co-operation with senior members on specific projects
- Assist in writing and preparation of teaching manuals and compendia.
- Undertake research and innovation activities in relevant fields.
- Perform any consultancy duties as may be assigned by the relevant authority.

Nov 2021 – Nov 2022

Assistant Lecturer – Computer Science at Mwenge Catholic University

Responsibilities:

To:-

- Conduct lectures, seminars, tutorials, and practical sessions for undergraduate programmes
- Assist senior staff in practical sessions, seminars, and tutorials for postgraduate programmes as part of their learning and building capacities in various aspects of teaching, learning, research, and public service
- Work in co-operation with senior members of staff on specific projects
- Supervise special projects for undergraduate students
- Assist in writing teaching manuals and compendia
- Prepare case studies, and attend workshops, conferences, and symposia
- Conduct and publish research results

June – Aug 2021

Field Assistant at the Nelson Mandela African Institution of Science and Technology (NM-AIST) and Kilimanjaro Clinical Research Institution (KCRI)

Project Title: Exploring the Current Status and Future Prospects for Mobile-enabled Diagnostics in Tanzania

Responsibilities:

To:-

- Collect data from Medical experts using ODK questionnaire and oral interview
- Assist the PI in data cleaning and analysis.

Dec 2020 – Sept 2021

Research Assistant for Tanzania Lacuna Fund (TLF) Project at the Nelson Mandela African Institution of Science and Technology (NM-AIST)

Responsibilities:

To:-

- Collect and annotate data on maize diseases
- Prepare data annotation protocols for Deep learning tasks
- Participate in training farmers and field assistants on how to use data collection tools and quality control of the collected data, Data quality checks for maize, and presenting progress to the team.

Feb 2020 – Feb 2021

Research/Teaching Assistant for Automated Poultry Disease Diagnostics ([APDD](#)) Project at the Nelson Mandela African Institution of Science and Technology (NM-AIST)

Responsibilities:

To:-

- Manage a Data and Information Sciences Research (DISR) Lab
- Develop and maintain an electronic DISR laboratory logbook and equipment book
- Provide access to users at the DISR laboratory and maintaining the timetable of access to the laboratory in collaboration with NM-AIST academic officer
- Manage the equipment in the laboratory in accordance to good practice in ICT
- Assist the PI in collecting and annotating data, and developing a deep learning tool for poultry diseases diagnostics.

July – Sept 2016

An *IT Intern/Trainee* at National Social Security Fund (NSSF) HQ –Directorate of Information Technology.

Responsibilities:

- Assisted in network and computer technology troubleshooting including Cisco telephones, printers and operating systems.
- Assisted in network cabling in different floors of the headquarters buildings and other branches
- Performed computer hardware maintenance, and installation of system and application softwares
- Performed data recovery and backups.

July – Sept 2015

An *IT Intern/Trainee* at Mzumbe University – Directorate of Information Communication and Technology.

Responsibilities:

- Assisted in Local Area Network (LAN) installation and configuration on different campus buildings
- Assisted in network troubleshooting
- Performed computer hardware maintenance, and installation of system and application softwares
- Worked as a Student and Staff Help Desk to provide assistance, attend and solve computer systems problems for students and staff
- Created and maintained a database for ICT tools and equipment inventory

EDUCATION

Jan 2019 – Sept 2021

Masters in Information Communication Science and Engineering,
Nelson Mandela African Institution of Science and Technology (NM-AIST).

Oct 2014 – July 2017

Bachelor of Science in Information Technology and Systems,
Mzumbe University (MU).

PUBLICATIONS

Loyani L., Bradshaw K., & Machuve D. (2021). Segmentation of Tuta absoluta's damage on tomato plants: A computer vision approach. *Applied Artificial Intelligence*. Taylor & Francis. <https://doi.org/10.1080/08839514.2021.1972254>

Loyani L., & Machuve D. (2021). A Deep Learning-based Mobile Application for Segmenting Tuta absoluta's Damages on Tomato Plants. *Engineering, Technology & Applied Science Research (ETASR)*. <https://doi.org/10.48084/etasr.4355>

Rubanga, D. P., Mkonyi L., Richard M., Zekeya N., Loyani L. K., Shimada S., & Machuve D. (2020). A Deep Learning Dataset for Tomato Pest Leafminer TUTA ABSOLUTA. *Zenodo Repository*. <https://doi.org/10.5281/ZENODO.4305416>.

Rubanga, D. P., Loyani, L. K., Richard, M., & Shimada, S. (2020). A Deep Learning Approach for Determining Effects of *Tuta Absoluta* in Tomato Plants. *International Conference on Learning Representations (ICLR)*. [arXiv preprint arXiv:2004.04023](https://arxiv.org/abs/2004.04023).

WORKSHOPS AND

15th – 16th Nov 2023

CONFERENCES

The [1st International Conference on the Advancements of Artificial Intelligence in African Context \(AAIAC\)](#) held at Arusha International Conference Centre (AICC) in Arusha, Tanzania. AI4D Africa's Anglophone Multidisciplinary Research Lab. (Member of the Organizing Committee).

24th – 29th Sept 2023

[RL4Eng: Development of Remote and Virtual Laboratories for Teaching and Training Engineering Students in the South Mediterranean and Sub-Saharan Higher Education Institutions](#) held at the Hochschule Bonn-Rhein-Sieg University of Applied Sciences in Sankt Augustin, Germany. European Commission in the Capacity Building stream of the Erasmus+ program. (Exchange Program).

3rd – 9th Sept 2023

[Segmentation of Tuta absoluta's Damage on Tomato Plants: A Computer Vision Approach](#). Deep Learning Indaba Conference in Accra, Ghana. (Spotlight talk, Poster presentation, Travel Grant).

28th Nov – 9th Dec 2022

[Segmentation of Tuta absoluta's Damage on Tomato Plants: A Computer Vision Approach](#). 6th Black in AI (BAI) workshop co-located with the 36th Neural Information Processing Systems (NeurIPS) Conference in New Orleans, Louisiana, USA. (Poster presentation, BAI Travel Grant).

24th – 25th Nov 2022

The [1st International Conference on Technological Advancement in Embedded and Mobile Systems \(ICTA-EMoS\)](#) held at Arusha International Conference Centre (AICC) in Arusha, Tanzania. Centre of Excellence for ICT in East Africa (CENIT@EA). (Member of the Organizing Committee).

17th – 19th August 2020

[A deep learning approach for determining effects of Tuta absoluta in tomato plants](#). 4th Mechanism Design for Social Good (MD4SG'20) workshop (Virtual). (Poster presentation).

24th July – 1st August 2020

[A Deep Learning Approach for Quantifying the Effects of Tuta absoluta in Tomato Plants](#). Data Science Africa (DSA) Workshop in Kampala, Uganda (Virtual). (Contributed talk).

26th – 30th April 202

[A deep learning approach for determining effects of Tuta absoluta in tomato plants](#). Computer Vision for Agriculture (CV4A) workshop cohosted virtually with International Conference on Learning Representations (ICLR) in Addis Ababa, Ethiopia (Virtual). (Oral presentation)

8th – 14th December 2019

[Decision Support System for Farmers against Tuta Absoluta Effects on Tomato Plants](#). 3rd Black in AI (BAI) workshop co-located with the 33rd Neural Information Processing Systems (NeurIPS) in Vancouver, Canada. (Poster presentation, BAI Travel Grant).

HONORS & AWARDS

8th September 2023

[Honorable Mention Award](#) at the Weakly Supervised Computer Vision Workshop (WSCV) co-located with the Deep Learning Indaba Conference in Accra, Ghana
Poster Presented: *"Segmentation of Tuta absoluta's Damage on Tomato Plants: A Computer Vision Approach"*

July 2019

African Development Bank (AfDB) Scholarship through Project No. P-Z1-IA0-016 under Grant No. 2100155032816 to pursue a Master's degree in the United Republic of Tanzania

PROJECTS

	<i>January 2020 – August 2021</i>
A Quantification Model Against <i>Tuta Absoluta</i> effects on Tomato Plants: A Computer Vision Approach.	
Technologies used: TensorFlow, Convolutional Neural Networks, Python, Keras, Android Studio, Kotlin	
Type: Masters' Dissertation	
Supervisors: Dr Dina Machuve, Dr Denis Pastory and Prof Karen Bradshaw	
	<i>March 2021 – June 2021</i>
A Deep Learning-based Mobile Application for Segmenting <i>Tuta Absoluta</i> 's damage on Tomato Plants.	
Technologies used: TensorFlow, Python, Keras, Android Studio, Kotlin, XML	
Role: A developer and administrator	
Supervisors: Dr Dina Machuve	
	<i>August – September 2020</i>
Automated Poultry Disease Diagnostics (APDD) Project – A website for the Project's online visibility and maintaining their activities.	
Technologies used: HTML, CSS, Github markdown	
Role: A developer and web administrator	
Supervisors: Dr Dina Machuve	
	<i>March – April 2019</i>
NM-AIST GRADUATION APP – A mobile application for providing information about convocation and graduation events of NM-AIST 5th graduation.	
Technologies used: Java, Android Studio	
Role: A developer (team)	
Supervisors: Dr Dina Machuve	
	<i>March – June 2017</i>
JOB PORTAL APPLICATION – A desktop application for Employment recruitment.	
Technologies used: Java FX, MySQL, JDBC and CSS	
Type: BSc Final Year project	
Roles: System analyst & designer, Programmer and DB administrator.	
Supervisor(s): Dr Almas Maguya	

ORGANISATIONAL MEMBERSHIP AND LEADERSHIP

	<i>Feb 2023 – Present</i>
System Analyst/Member of the Information Management System Taskforce at NM-AIST.	
Chairperson: Prof Shubi Kaijage	
	<i>May – Oct 2022</i>
Secretary and member of MWECAU Online Teaching and Learning Taskforce at Mwenge Catholic University (MWECAU).	
Deputy Vice Chancellor: Prof Henry Laswai	
	<i>April – Oct 2022</i>
Member of the Research, Innovation and Consultancy Committee at the Department of Natural Sciences and Information Technology - Mwenge Catholic University (MWECAU).	
Head of Department (HoD): Dr. Theresia Mkenda	
	<i>April 2022 – Present</i>
Member of the Black in Artificial Intelligence Community	
	<i>Feb 2022 – Feb 2023</i>
Student Member for the Institute of Electrical and Electronics Engineers (IEEE)	
IEEE ID: 98153926	
	<i>Jan – Oct 2022</i>
Secretary and member of the Undergraduate Studies Committee at the Department of Natural Sciences and Information Technology - Mwenge Catholic University (MWECAU).	
HoD: Dr. Theresia Mkenda	
	<i>Jan 2019 – Sept 2021</i>
Ambassador of Science Technology Engineering Mathematics Innovation (STEMi) at the Nelson Mandela African Institution of Science and Technology (NM-AIST).	
Mentor: Dr. Eliaman Laltaika	

Nov 2019 – Dec 2020

Students' representative to the School of Computational and Communication Science and Engineering (CoCSE) board, Nelson Mandela African Institution of Science and Technology (NM-AIST).

Nov 2019 – June 2020

Minister of ICT infrastructures and services at the Nelson Mandela African Institution of Science and Technology Students' Organization (NM-AISTSO)

Nov 2019 – June 2020

Deputy Minister of Academic, Research and Innovation at the Nelson Mandela African Institution of Science and Technology Students' Organization (NM-AISTSO).

TRAINING/ SHORT COURSES

September – December 2020

Research and Proposal Writing in the Sciences - International Network for Advancing Science and Policy (INASP).

November – December 2020

Academic Writing Skills - International Network for Advancing Science and Policy (INASP).

13th – 17th July 2020

Soft Skills Training – Center of Excellence for ICT in East Africa (CENIT@EA) at NM-AIST.

August – September 2019

*Introduction to Artificial Intelligence V2 Certificate - IBM digital nation Africa.
Credentials: [IBM Certificate Verification](#)*

August – September 2019

*Machine Learning Certificate - IBM digital nation Africa.
Credentials: [IBM Certificate Verification](#)*

August – September 2019

*IBM Watson V2 Certificate - IBM digital nation Africa.
Credentials: [IBM Certificate Verification](#)*

February – March 2018

Digital Marketing Certificate - Google Digital Skills for Africa.

REFERENCES

Prof. Karen Bradshaw
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Department of Computer Science
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Prof. Shubi Kaijage
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Dr. Dina Machuve
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Other references available on request
