Mussa Ngosha, Curriculum Vitae

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SUMMARY

- I am a data scientist at the Tanzania Fisheries Research Institute (TAFIRI) with a wealth of experience in earth observation sciences, GIS, and remote sensing, as well as proficiency in computer programming skills like R and Python. I am well-versed in artificial intelligence, machine learning, deep learning, natural language processing, and big data analytics. I am proficient in working with remotely sensed satellite imagery and in situ data from local, remote, and distributed servers. I have collaborated with scientists working on physical oceanography, blue carbon ecosystems, and marine and coastal environments in the West Indian Ocean (WIO) region and Indo-Pacific waters.

EDUCATION

- M.Sc. in Data Science, University of Dar es Salaam, 2021
- B.Sc. in Computer Science, Sokoine University of Agriculture, 2013

PROFESSIONAL SKILLS

- **Artificial Intelligent -** Machine Learning, Deep Learning and Natural Language Processing
- **Data processing and Analysis -** R and Python
- **Geospatial Data Analysis Software**: ERDAS, ENVI, ILWIS, SNAP, QGIS and ArcGIS Pro
- **Big Data Analytics Platform**: Hadoop and Spark

RESEARCH AND PROJECT EXPERIENCE

- Benthic Habitat Mapping, August-October 2023
- The Use of Earth Observation Satellite for Identification of Potential Fishing Zones in Tanzania, Funded by the European Union through Global Monitoring Environment and Security in Africa (GMESA) May 2017 to present
- Identification and Demarcation of Collaborative Fisheries Management Areas, funded by World Bank through SWIOFish Project, implemented by the Ministry of Livestock and Fisheries, 2019
- Nautical Miles (MN) Restriction Zones from the Shore During the Lowest Tidal Mark for the Prawn Fisheries in Tanzania, funded by World Bank through SWIOFish Project, implemented by the Ministry of Livestock and Fisheries 2019

RESEARCH GRANTS

Grants under Review

- The Marine Research Grant (MARG I) Grant for Seagrass research projects that promote and strengthen the contributions of Seagrass to socio-ecological resilience and blue economy development in the Western Indian Ocean Marine Sciences Association (WIO) 2023-2024 – PI.

CONSULTANCIES

- 2023 – 2024: Fish Pattern Mapping Survey- GIS and Remote Sensing Expert
- 2022 – 2024: Developing a digital tool for prawn's fishery Data Collection-Data Scientist and System Developer.

TEACHING AND MENTORING EXPERIENCE

- Training GIS and Remote Sensing to Scientists and Researchers at TAFIRI.
- Supporting PhD and Master Candidates in Exploratory Data Analysis (EDA) by using High level programming languages such as R and Python and other related software Graduate Teaching Assistant for Immunology

AWARDS

- The U.S. President's Emergency Plan for AIDS Relief (PEPFAR) – M.Sc. in Data Science Scholarship
- Australian Award Scholarship

SHORT COURSES AND WORKSHOPS

25th – 29th Oct 2023

- Soil moisture and Inland water monitoring with radar satellite, hosted by both the University of Twente and the Institute of Resource Assessment (IRA) in Dar es Salaam, Tanzania.

17th – 28th Jul 2023

- Machine Learning, Deep Learning, and Natural Language Processing hosted by AI4D Lab, Anglophone Africa in Dodoma, Tanzania.

21st - 25th Nov 2022

- Seagrass mapping hosted by the Commonwealth Scientific and Industry Research Organization (CSIRO) in in Brisbane, Queensland, Australia.

05th Jul - 09th Sept 2022

- Early Career Visiting Professionals focusing on Blue Carbon Ecosystems hosted by the Commonwealth Scientific and Industry Research Organization (CSIRO) at the IORA Blue Carbon Hub in Perth, Western Australia.

13rd – 17th Dec 2021

- Ecosystem Mapping and Coastal Vulnerability hosted by the Mauritius Oceanography Institute (MOI) through GMESA in Mauritius.

22nd – 26th Nov 2021

- Geospatial Innovation & Science for Africa's growth and Sustainable Development hosted by the Mauritius GMESA and Africa Union Commission (AUC) in Abidjan, Cote D'Ivoire.

23rd – 25th Sep 2021

- Spatial Geoinformatics Using Machine Learning Approaches hosted by the GRSS Kolkata Chapter in India, virtually.

30st Aug – 25th Sep 2021

- Deep Learning for Remote Sensing hosted by the IEEE-GRSS in India, virtually.

14th – 16th Dec 2020

- Marine Weather Forecast hosted by the Mauritius Oceanography Institute (MOI) through GMESA in Mauritius, virtually.

02nd – 05th Dec 2020

- Machine Learning and Satellite Revolution hosted by Radiant Earth Foundation, virtually.

09th – 19th Nov 2020

- Earth *Observation* for Wetland's Assessment, Monitoring, and Management hosted by the Southern African Science Service Centre for Climate Change and Adaptive Land Management (SASSCAL) in South Africa, virtually

19th – 22nd Nov 2020

- Big Data and Artificial Intelligence (AI) for Earth Observation hosted by European Commission.

Oct 2020

- Spatial Data Science hosted by Environmental Systems Research Institute (ESRI).

Aug 2020

- Application of Earth Observation (EO) using Digital Earth Africa (DEA) platform hosted by Environmental Systems Research Institute (ESRI)

3rd – 7th Oct 2020

- GIS for Education Access hosted by Tanzania Data Lab (DLab) in Dar es Salaam, Tanzania.

Aug 2020

- Geospatial Data Management hosted by GeoICT, University of Dar es Salaam, Tanzania

02nd – 14th Mar 2020

- Regional Workshop on Stock Assessment and Estimation of SDG Indicator 14.4.1 using R language hosted by Institute of Marine Science (IMS), University of Dar es Salaam, in Zanzibar, Tanzania.

05th – 07th Feb 2020

- Ocean Satellite Data hosted by National Oceanography and Atmospheric Administration (NOAA) in San Juan Puerto Rico

20th – 23rd Oct 2019

- Remote Sensing and GIS of Coral Reefs hosted by Iranian Institute of Oceanography and Atmospheric Science in Tehran, Iran

29th – 02nd Aug 2019

- Operational Physical Oceanography hosted by Kenya Marine and Fisheries Research Institute (KEMFRI) in Mombasa, Kenya.

17th – 23rd Sept 2019

- Inland Water and Integrated Ecosystems Monitoring in hosted by Tanzania Fisheries Research Institute (TAFIRI) through the Nanjing Institute of Geography and Limnology, Chinese Academy of Sciences (NIGLAS) project.

20th May – 24th Jun 2019

- Ocean Management; Sustainable Fisheries and Governance hosted by Wollongong University in Australia

17th - 28th Sept 2029

- Using Satellite Data and GIS for Sustainable Management of Marine Resources hosted by Institute of Marine Science, University of Dar es Salaam in Zanzibar, Tanzania.

10th – 14th Sep 2018

- Marine Spatial Planning (MSP) hosted by Kenya Marine and Fisheries Research Institute (KEMFRI) in Mombasa, Kenya.

06th Jul – 05th Sept 2017

- Author AID Proposal and Research Writing hosted by Tanzania Fisheries Research Institute (TAFIRI) in Dar es Salaam, Tanzania.

06th – 10th Sept 2017

- Copernicus Data Stream (CDS) for Ocean Application in Africa hosted by University of Ghana in Accra, Ghana.

03rd – 07th Jul 2017

- Marine Research Data Management hosted by Kenya Marine and Fisheries Research Institute (KEMFRI) in Mombasa, Kenya.

02rd – 08th Mar 2017

- Marine Manipulation of Raster and Vector Datasets and Terrain Modelling using Open Source GIS hosted by Tanzania Fisheries Research Institute (TAFIRI) in Mwanza, Tanzania.

LANGUAGE

- English
- Swahili – Bantu Language

PUBLICATIONS

In Preparation

- Mussa Ngosha, Milica, Mathew Vanderklif, Nick Mortimer. Deep learning for Seagrass Detection from Unmanned Aerial Vehicle (UAV) Imagery
- Upal Mahamud, Mussa Ngosha. Examining the impact of rising sea levels on mangrove species distribution in Sundarbans. *A machine learning and Remote Sensing Approach*
- Mussa Ngosha, January Wegoro, Samson Job. Seagrass Detection from Underwater Digital Images using Deep Learning Algorithms

MEMBERSHIPS

- Ocean Hack Week-Data Science, Oceanography and Fisheries
- The Western Indian Ocean Marine Sciences Association (WIOMSA)
- Ocean Expert- Marine and Freshwater Professionals

CERTIFICATION

- I, the undersigned certify that, to the best of my knowledge and belief, this Curriculum Vitae correctly describes qualifications, my experience and myself

REFEREES

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- Dr. James Chambua, +255 737 956135 chambua@udsm.ac.tz
- Dr. Mat Vanderklif, +61428541432. mat.vanderklif@csiro.au

Signature