

HENRY MASHEN MASANJA

BSc Agricultural Sciences and Engineering

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Highly motivated Agricultural Sciences professional specializing in precision and digital agriculture, remote sensing, and geospatial analysis. Experienced in UAV data acquisition and processing using Pix4D, Agisoft Metashape, QGIS, and Google Earth Engine. Proficient in Python and R for spatial modeling, statistical analysis, and machine learning applications. Skilled in developing data-driven tools for biomass estimation and precision farm management. Passionate about applying geospatial intelligence and AgriTech innovation to advance sustainable food systems and global agricultural resilience.

EDUCATION

2023 - Present

BSc. Agricultural Sciences

EARTH University

- Statistical Analysis in Banana and Plantain Cultivation: Assessed growth factors (height, circumference, leaf emission) of *Musa acuminata* 'Gran Enano'.
- Integrated Pest Management: Developed sustainable IPM strategies for controlling *Tuta absoluta* in tomatoes in Tanzania.
- Ionization Smoke Detector Study: Researched and presented on the chemistry inside fire alarm systems.
- Coffee Fungicide Plan: Designed a fungicide rotation plan to manage *Colletotrichum kahawae* in Tanzanian coffee plantation
- Relevant Coursework: Precision Agriculture, Agroforestry, GIS and Topography, Renewable Energy, Ecology, Statistics, Entomology, Chemistry.

2025

CLUVEX Climate University virtual exchange (CLUVES) (ATM 398)

University of Helsinki - Finland

- Analyzed the impact of climate change and explored mitigation and adaptation strategies for future resilience.
- Studied planetary boundaries and developed frameworks for a sustainable future.
- Integrated artistic, critical thinking, and scientific data to produce comprehensive analytical reports and presentations (Earned 1 ECTS Credit).

2014 - 2016

Telecommunications Engineering Diploma

Uganda Institute of Information and Communications Technology

- Electrical and Electronics Engineering, ICT and Business Skills
- Networking, security systems (CCTV, intrusion alarms), server management, automation, Microsoft Office, R studio, Cabling and Rack management, Drones, GIS, Arduino.

Soft Skills: Intercultural communication, adaptability, analytical thinking, organizational skills.

WORK AND RESEARCH EXPERIENCE

2026 - Present

Drones and Topography Scenario Lead

EARTH University – Costa Rica

- Lead UAV training and geospatial mapping initiatives.
- Supervise drone data collection, orthomosaic generation, and vegetation index analysis.
- Guide surveys and generate contour maps using RTK (SingularXYZ) and QGIS from delimited text layer, with plugins like HCMGIS for basemaps, OSM Place search and Open Topography DEM downloader .
- Coordinate weekly field operations and mentor first and second year student teams in applied precision agriculture.

- 2026 - Present** Undergraduate Thesis - UAV-Based Biomass Estimation for Kernza (In Progress)
EARTH University - Expected: November 2026
- Developing a UAV-based machine learning regression model to estimate aboveground biomass of Kernza using multispectral imagery and ground-truth data collected at Aarhus University, Denmark.
 - Generating orthomosaics and vegetation indices using Pix4D, QGIS.
 - Applying Python in Google Colab for data processing, feature engineering, and model training.
 - Preparing thesis manuscript documenting model development, validation, and biomass estimation results.
- 2025 **Research Assistant Intern**
Aarhus University - Denmark
- Conduct drone flights (RGB, multispectral, LiDAR) and aid in image processing using Pix4D and QGIS software.
 - Conduct root imaging using multispectral and RGB minirhizotron cameras.
 - Assist with transplanting, weeding, harvesting, seed cleaning, root washing, greenhouse, field and laboratory work
- 2023 **Virtual Farm and e-Learning Platform Developer**
EARTH University
- Edited and tested app and website content for virtual farming platforms.
 - Generated analytical reports and managed content uploads for e-learning modules.
 - Supported the development of interactive agricultural training tools.
- 2023 **Student Researcher**
Renewable Energy Research Center – EARTH University
- Designed renewable energy systems for agricultural applications using solar panels.
 - Implemented water pumping solutions to support animal farming operations.
 - Explored innovative uses of renewable energy in agronomy.
- 2020 – 2022 **Technician**
Security Group Africa - Uganda
- Installed and maintained security systems, including CCTV, intrusion alarms, and automated gates.
 - Provided technical support to clients in the field and remotely.
 - Enhanced customer satisfaction by resolving issues efficiently.

LEADERSHIP ACTIVITIES

- Student Government Representative, EARTH University, Costa Rica
- Community Outreach Volunteer, Club de Paz San Jose, Costa Rica
- Volunteering, Freedom in Creation, Gulu, Uganda

CERTIFICATIONS

- 2025 A1/A3 European Drone License
- 2025 NASA ARSET Fundamentals of Remote Sensing
- 2025 Erasmus mundus + CLUVEX Climate University virtual exchange 3

CONFERENCES

- 2025 iClimate Aarhus University Annual Conference

Languages: English (Advanced), Spanish (Advanced), Lusoga (Native), Luganda (Native)

REFERENCES

1. Dr. Eusun Han, Ph.D
Associate Professor, *Dr. agr* Sustainable Perennial Cropping Systems- Aarhus University, Denmark.
Email: eusun.han@agro.au.dk
2. Yuma Ikeda, Ms.c
PhD student - Plant phenotyping, Phenomic prediction, crop physiology - Aarhus University, Denmark.
Email: yuik@agro.au.dk
3. Victor Hugo Morales Peña, PhD.
Professor Tropical Forestry, Agroforestry, Remote Sensing – EARTH University – Costa Rica
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