

COLLINS EDEM HLORDZIE

Geospatial Scientist

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Profile

Geographer and Earth Observation scientist with an MSc in Geoinformation Science and Earth Observation, with hands-on expertise in UAV imaging, deep-learning, and agricultural statistics. Developed a deep learning-based crop-mapping pipeline for smallholder landscapes of Mozambique and validating Earth Observation methodologies for nature-based carbon removal. Interested in building spatial frameworks that make environmental data usable for the people who have to act on it — from smallholder farmers, planners, and researchers working on climate-resilient agriculture.

Education

MSc, Geoinformation Science and Earth Observation for Environmental Modelling and Management 2024 - 2026

University of Twente (ITC), The Netherlands & Lund University, Sweden.

Specialisation: Natural Resources and Ecosystems.

Thesis: UAV-based Crop Mapping and Fractional Vegetation Estimation in Smallholder Dominated Landscapes of Mozambique. **Grade:** 8.5/10

Supervisors: Dr. rer. nat. Florian J. Ellsäßer & Dr. Frank Osei

BA, Geography — University of Cape Coast, Ghana | CGPA 3.5/4.0 2016 - 2020

Thesis: Climate Change and Subsistence Farming in Northern Ghana.

Research Experience

MSc Thesis Researcher — University of Twente (ITC) Dec 2025 - June 2026

- Designed an end-to-end UAV image-processing pipeline.
- Implemented a Segformer deep-learning architecture for semantic segmentation of crop types and intercrop compositions in smallholder fields.
- Estimated fractional vegetation cover (Fcover) for agricultural statistics and engaging directly with reference-data uncertainty.

Geospatial Intern — Ramani B.V., The Netherlands Feb 2026 - June 2026

- Contributed to AI-driven agricultural advisory systems integrating Earth Observation indicators with agronomic decision rules.
- Validated and compared Earth Observation-based implementations of Verra's VM0047 methodology for nature-based carbon removal.
- Developed semantic-uplift mappings for vocabulary and data interoperability across carbon-sequestration protocols (Gold Standard, Open Forest).

Researcher — Plant Phenology in Northern Scandinavia, Lund University May 2025

- Analysed 2001–2021 MODIS-derived Plant Phenology Index (PPI) time series using TIMESAT.
- Applied Theil–Sen and Mann–Kendall statistics to detect altitudinally and latitudinally differentiated trends in start-of-season, end-of-season, and length-of-season metrics.

Principal Investigator — Undergraduate Thesis, University of Cape Coast2019 – 2020

- Investigated climate-change adaptation among subsistence farmers in northern Ghana, stakeholder interviews and focus groups, and statistical analysis in SPSS and R.

Earlier Professional Experience

Undergraduate Teaching and Research Assistant — University of Cape Coast2020 – 2021

- Tutored over fifty undergraduates in Human Geography and Resource Perception; mentored ten students of low academic standing toward documented improvements in performance.

Intern — Environmental Protection Agency, Ho, Ghana2019

- Contributed to environmental monitoring and to the drafting of Environmental Impact Assessment reports.

Technical Competencies

Deep learning & computer vision: Segformer, semantic segmentation, supervised classification, model training and evaluation, data augmentation.

Programming & data science: Python (NumPy, pandas, geopandas, xarray, scikit-learn, PyTorch), R, MATLAB, SPSS.

Cloud / geospatial computing: Google Earth Engine for EO processing; CRIB and Flowcell DL training

Earth Observation, UAV & GIS: ArcGIS, QGIS, PIX4D, TIMESAT; Sentinel/Copernicus, Landsat, MODIS, high-resolution UAV multispectral and RGB imagery.

Selected Certifications & Training

- UAV Data Analysis and Segmentation Techniques, Geoversity (2026).
- UAVs in Precision Agriculture (2025)
- From Climate Science to Action, World Bank Group / Coursera (2023)
- Spatial Data Science and Analysis, ESRI (2020).
- GEM Joint Summer School (Enschede, 2025)

Honours & Awards

- Erasmus+ Scholarship for MSc programme
2024 – 2026
- Ghana National Petroleum Corporation Scholarship
2016 – 2020

Professional Membership

- Ghana Geographers Association (GGA).
- South Sweden Geographers Association (SSGA).

Volunteer experience

- Mapathon - ECO-Syria research project
2025
- Green Ghana Project
2024
- Empowered Youth Foundation
2024

2020 -

2020 -

Referees

Available on request