

MAXWELL OWUSU, M.S

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PROFESSIONAL SUMMARY

High-performing Geospatial data scientist with over seven years of experience delivering high-impact work in the GIS industry. Skills in leveraging cutting-edge tools and methodologies to unlock the potential of geospatial data for sustainable solutions. Confidence in ability to thrive in a fast-paced setting and leverage skills in geospatial data science, science communication, and project management to enable team success. Committed to lifelong learning and going the extra mile to facilitate continuous improvement.

RELEVANT SKILLS

Research | Project Management | Science communication | Data Visualization
Esri ArcGIS Pro and Online | Python and related geospatial libraries including Geopandas, GDAL/ORG, PyTorch, TensorFlow, Scikit Learn | R Programming | Cloud computing (AWS, Microsoft Azure) | Git and GitHub

RELEVANT PROFESSIONAL EXPERIENCE

Research Analyst; 2023-present

Metrics for Management, Baltimore, MD, USA

- Designed an interactive GIS web application for small area estimation for family planning using Python, JavaScript, HTML, and CSS.
- Developed advanced visualizations/dashboards and an interactive web application to empower family planning with data-driven insights.
- Actively engaged with partners and collaborators, fostering alignment and knowledge sharing across projects.

Graduate Researcher; 2021 -2023

The George Washington University, Washington, DC, USA

- Designed statistical models and geospatial analysis for measuring urban poverty using earth observation data, python (gdal, geopandas, rasterio, xarrays) and machine learning packages (sci-kit learn, TensorFlow, and PyTorch).
- Conducted literature review, support technical proposal development, and contribute to scientific publications.
- Designed and engineered a pipeline for extracting and organizing OpenStreetMap data from APIs, processing Sentinel-2 imagery from Google Earth Engine.

Geospatial Data Scientist; 2022-2023

United Nations Development Program (UNDP), New York, USA

- Developed an AI model for mapping Informal Settlement using geospatial data.
- Engineered a workflow for collecting, managing, and cleaning several geospatial datasets for AI modeling.
- Evaluated and updated an existing AI production for mapping Informal Settlement.

Research Assistant; 2021-2021

Heidelberg Institute for Geoinformation Technology, Heidelberg, Germany

- Researched and documented important metrics for assessing OpenStreetMap data quality.
- Designed a framework for analyzing OpenStreetMap data quality.
- Led and revised OpenStreetMap data model in collaboration with OpenStreetMap community working group.

Geospatial Data Scientist; 2019-2021

University of Twente, Enschede, Netherlands

- Created an open-source artificial intelligence tool for monitoring and analyzing slums and climate risk in Sub-Saharan Africa.
- Led the co-design of interactive web maps through participatory sessions with local experts and stakeholders, incorporating user feedback and ethical design principles.

- Conducted original research, including desk research and quantitative geospatial analysis of global population dataset and climate.

Teaching and Research Assistant; 2017-2018

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana

- Coordinated the urban planning studio class.
- Led students to conduct field data using mobile applications such as Kobo toolbox.
- Conducted desktop research, designed maps and graphs, and prepared presentation slides and publications.

EDUCATION

University of Twente, Enschede, Netherlands; Anticipated May 2026

Doctor of Philosophy, Geoinformation Science and Earth Observation

Dissertation: A scalable and transferable approach to map urban deprivation using low-cost tools and geospatial data

George Washington University, Washington, DC; May 2023

Master of Science, Geography | Geographic Information Science (GIS) Certificate

Dissertation: Deprived area mapping using scalable, transferable, and open-source machine learning approach

University of Twente, Enschede, Netherlands; July 2020

Master of Science, Geoinformation Science and Earth Observation | Master Research Honors Programme

Dissertation: Spatio-temporal slum mapping at citywide scale using high-resolution images

Kwame Nkrumah University of Science and Technology, Kumasi, Ghana; July 2017

Bachelor of Science, Human Settlement Planning

Dissertation: Managing wetlands in Kumasi, Ghana

SELECT PEER REVIEWED PUBLICATIONS

1. **Owusu, M.**, Nair, A., Jafari, A., Thomson, D., Kuffer, M., & Engstrom, R. (2024). Towards a scalable and transferable approach to map deprived areas using Sentinel-2 images and machine learning. *Computers, Environment and Urban Systems*, 109, 102075.
2. **Owusu, M.**; Engstrom, R.; Thomson, D.; Kuffer, M.; Mann, M.L. Mapping Deprived Urban Areas Using Open Geospatial Data and Machine Learning in Africa. *Urban Sci.* 2023, 7, 116.
3. Kuffer M, **Owusu M**, Oliveira L, Sliuzas R, van Rijn F. The Missing Millions in Maps: Exploring Causes of Uncertainties in Global Gridded Population Datasets. *ISPRS International Journal of Geo-Information*. 2022 Jul 14;11(7):403.
4. **Owusu M**, Kuffer M, Belgiu M, Grippa T, Lennert M, Georganos S, Vanhuysse S. Towards user-driven earth observation-based slum mapping. *Computers, environment and urban systems*. 2021 Sep 1;89:101681.

For a more complete list of publications: <https://www.researchgate.net/profile/Maxwell-Owusu-6>

PROFESSIONAL AND SERVICE AFFILIATIONS

- Member, OpenStreetMap community. 2018 – present.
- Advisor, YouthMappers. 2021 – present.
- Member, IDEAMAPS Network, 2028 – present.

LANGUAGES

English (Proficient) | **Twí** (Native) | **French** (Beginner)