

**RICHARD OWUSU-ANSAH**  
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## EDUCATION

**The George Washington University, Washington, DC.**

*Master of Science in Geography and Environment | Certificate in GIS* (August 2023-Present)

Relevant Coursework: Geospatial Programming (Python), GIS, Geospatial Statistics and Climate Change.

**University of Education, Winneba, Ghana.**

*Bachelor of Arts in Geography | Minor in Economics* (August 2016 - July 2020).

Relevant Coursework: Soils and Biogeography, Geomorphology, and Environment and Society.

## RESEARCH EXPERIENCE

**Manuscript in Progress:** *Land Cover Change Dynamics and Socioeconomic Drivers Under Different Political Regimes in Ghana: A Multi-temporal Analysis of Illegal Mining Impacts* (2009-2024)

**Authors:** Nicholas Aboagye & Richard Owusu-Ansah

**Objective:** To assess and quantify land cover changes related to illegal mining under various political administrations in Ghana using remote sensing and statistical approaches.

- Comparing multiple machine learning algorithms for accurate land cover classification in mining regions.
- Analyzing intensity of land cover changes across political administrations using multi-temporal satellite imagery and intensity analysis.
- Identifying and assessing socioeconomic drivers influencing illegal mining-related land cover changes

**Department of Geography and Environment, The George Washington University**

**Masters Thesis:** *Advancing Flood Risk Prediction through Geospatial Modeling: A Case Study of Greater Boston Area* - (August 2024 - Present)

**Objective:** Develop a comprehensive geospatial flood model to assess vulnerable areas and quantify potential economic losses in high flood prone areas outside of FEMA-designated flood zones.

- Utilized ArcGIS Pro, and Python's Arcpy module to conduct spatial analyses and automate workflows.
- Leveraged DEM to conduct slope analysis and hydrological modeling to map flood-prone areas based on elevation, soil type, land use, storm surge, precipitation, climate projections and distance to streams.
- Employed confusion matrix and multi-metric performance analysis to compare high-risk flood zones in my model with FEMA-designated flood zones to identify spatial agreement and discrepancies.
- Integrated social vulnerability data to estimate vulnerable populations within high flood risk zones outside of National Flood Hazard Layer zones.
- Utilized property value data to estimate the potential economic losses in high flood risk zones overlooked by FEMA

**Department of Geography Education, University of Education Winneba (Final Undergraduate Research)**

*Title: Assessment of the effects of large-scale mining on the physical environment of the Asutifi South District of Ghana.* (August 2019 - May 2020)

**Objective:** Evaluate the environmental changes caused by large-scale mining activities, with a focus on water resources and agricultural land degradation.

- Designed and administered field surveys and questionnaires to gather qualitative and quantitative data
- Analyzed pre-mining and post-mining data related to agricultural productivity and water quality to assess the extent of environmental degradation.
- Conducted a paired sample T-Test to analyze changes in access to agricultural land and water quality before and after mining operations.
- Presented results in a detailed written report to inform local authorities and stakeholders about the environmental consequences of mining activities

## PROFESSIONAL EXPERIENCE

**The George Washington University, Washington, DC.**

*Graduate Teaching Assistant | Department of Geography* (August 2023 – Present)

- Facilitating two physical geography lab sessions per week, each accommodating 25+ students, guiding them through homework assignments and supplementary content.
- Creating weekly presentation slides based on the previous week's coursework and the upcoming material.
- Ensuring clarity and effectiveness in conveying complex concepts to students via classroom, and email.

- Assessing and grading homework assignments and examinations promptly, providing constructive feedback to aid student improvement.

### **University of Education Winneba, Ghana.**

*Teaching and Research Assistant | Department of Geography (September 2021 - July 2023)*

- Supported faculty research by collecting field data through surveys, and interviews.
- Conducted literature reviews and analyzed both quantitative and qualitative data.
- Organized lectures, tutorials for undergraduate students, and performing administrative duties.
- Assisted students during practical sessions in the Environmental and Geoscience Laboratory.

### **SKILLS**

- GIS Software: ArcGIS Pro, ArcGIS Online, Survey123, StoryMaps, Field Maps, QGIS, Google Earth
- Geospatial Techniques including spatial analysis, hydrological modeling, predictive modeling, hotspot analysis, land cover change detection and classification.
- Data Visualization: Proficient in creating interactive maps, charts using ArcGIS, Geoda, and Python Libraries (Matplotlib, Seaborn)
- Open Source Tools: PostgreSQL/PostGIS, Open Data Kit, KoboToolBox, OpenDRI, Java OpenStreetMap
- Geospatial Data Management: Experienced in managing large geospatial datasets, integrating physical and social data, and working with shapefiles, raster data, and geodatabases
- Programming: Python (geospatial programming) and R.
- Quantitative and qualitative data analysis, including regression analysis, T-Test, spatial autocorrelation, repeat photography, and ethnography.
- Proficiency in Microsoft Suite(Excel, Word, PowerPoint, Outlook and Teams)
- Other Skills: Clear attention to detail, good writing, strong teamwork and communication skills

### **INVITED TALKS**

- Topic: ***The Ghanaian Youth and Environmental Sustainability.*** Organized by the Geography Student Association of the University of Education Winneba during the 2024 Geography Student Week.
- Topic: ***Wetlands and Water, Inseparable Vitals of Life.*** The 2021 Ghana wetlands sustainability conference. Organized by Youth Legacy Ghana in collaboration with the Wildlife Division of the Forestry Commission of Ghana.

### **CONFERENCES AND SEMINARS ATTENDED**

- American Geographical Society Fall 2024 Symposium (November, 2024)
- Geospatial Mid-atlantic Users Group (GeoMUG) Conference (September, 2024)
- ESRI Federal GIS Conference (January, 2024)
- Race, Ethnicity and Place Conference - AAG Mid-Atlantic Division (October, 2023)
- Ghana Meteorological Agency - World Meteorological Day 2023 Public Lecture on the Theme: *The future of weather, climate and water across generations.* (March, 2023)

### **SCHOLARSHIP, GRANTS AND AWARDS**

- The George Washington University Campbell Summer Research Grant (Summer 2024)
- The George Washington University Fellowship (Global Leaders Scholarship) (August 2023 - Present)
- The George Washington University Department of Geography and Environment Graduate Teaching Assistantship Award (August 2023 - Present)
- 2nd Best Graduating Geography Student at the University of Education Winneba (May, 2020)
- Vice-Chancellor Scholarship Award (August 2016 - May 2020)

### **PROFESSIONAL AFFILIATIONS**

- Association of American Geographers - Graduate Member (November 2023 - Present)
- Ghana Geographers Association - Member (October 2016 - Present)
- Youth Legacy Ghana (January 2021 - Present)
- Ejisu Environmental Sustainability Group - President (May 2019 - Present)