

Abena Boatemaa Asare-Ansah

PHD STUDENT · GEOGRAPHICAL SCIENCES

University of Maryland, Dept. of Geographical Sciences, 4600 River Road, Suite 309, Riverdale Park, MD, 20737

✉ abaansah@umd.edu | 📷 MsPixels | 📄 Abena Boatemaa Asare-Ansah

Education

University of Maryland

PH.D. GEOGRAPHICAL SCIENCES

College Park, MD

August 2023 - present

Southern University and A and M College

MS URBAN FORESTRY

Baton Rouge, LA

Jan 2021 - July 2022

Kwame Nkrumah University of Science and Technology (KNUST)

BS GEOMATIC ENGINEERING

Kumasi, Ghana

Sept 2012 - May 2016

Professional Experience

Faculty Assistant, NASA Harvest, University of Maryland, Sept. 2022 - July 2023

Developed a Google Earth Engine graphical user interface to support the collection of training data for the data pipeline; Utilized AI and machine learning models to generate cropland maps for pilot countries in Africa

Geospatial Intern, NASA DEVELOP, Georgia, June 2021 - Aug 2021

Leveraged NASA Earth observations to analyze crop phenology data and weather conditions; Developed a Google Earth Engine GUI to visualise the outputs to support the expansion of small grain crops in the Midwest

Graduate Research Assistant, Southern University and A and M College, Jan 2021 - July 2022

Conducted literature review, processed and analyzed satellite imagery, and produced maps to support the publication of fifteen papers

GIS and Remote Sensing Analyst, CERSGIS, University of Ghana, Accra, Oct 2017 - Dec 2020

Identified charcoal production sites in Northern Ghana using visual interpretation techniques; Utilized machine learning and AI models to detect illegal mining areas in Southern Ghana; Supervised a team of national service personnels to develop a national Land Use Land Cover product for Ghana using the Rapid Land Cover Mapper (RLCM) tool; Supported community mapping efforts to identify potential forest restoration opportunities in Ghana; Restructured baseline data into a GIS readable format and mapped the spatial distribution of water infrastructure and indicators at the national level

Undergraduate Teaching Assistant, Kwame Nkrumah University of Science and Technology, Sept 2016 - Aug 2017

Organized field surveying practicals for undergraduate students in the departments of Agricultural and Natural Resources and Architectural and Development Planning respectively; Organized tutorial sessions in Photogrammetry for undergraduate students; Assisted in mapping boreholes and water tanks on the University campus

GIS Intern, Rudan Engineering Limited, May 2015 - July 2015

Prepared cadastral maps for farm owners in the Western Region of Ghana; Digitized land features such as buildings and roads on high-resolution satellite imagery using the Photogrammetry Professional Summit software

Publications

Opong, Judith and Namwamba, John Bosco and Twumasi, Yaw A and Ning, Zhu H and **Asare-Ansah, Abena Boatemaa** and Akinrinwoye, Caroline and Antwi, Raymond and Osimbo, Benir M and Loh, Priscilla and Frimpong, Diana B and others. 2023. Urbanization and urban forest loss: a spatial analysis of five metropolitan districts in Ghana. *Geology, Ecology, and Landscapes*, 1–10

Asare-Ansah, AB and Twumasi, YA and Ning, ZH and Ansah, PB and Frimpong, DB and Owusu, F and Apraku, CY and Anokye, M and Loh, PM and Armah, RND and others. 2022. Tracking the Godzilla Dust Plume Using Google Earth Engine Platform. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 46: 33–38.

Twumasi, Yaw A and Ning, Zhu H and Namwamba, John B and **Asare-Ansah, Abena B** and Merem, Edmund C and Yeboah, Harriet B and Opong, Judith and Anokye, Matilda and Frimpong, Diana B and Loh, Priscilla M and others. 2022. Bioen-

- ergy Crops as a Promising Alternative to Fossil Fuels in Louisiana: A Geographic Information System (GIS) Perspective. *Journal of Sustainable Bioenergy Systems*, 12(4): 57–81.
- Frimpong, Diana B and Twumasi, Yaw A and Ning, Zhu H and **Asare-Ansah, Abena B**, and Anokye, Matilda and Loh, Priscilla M and Owusu, Faustina and Apraku, Caroline Y and Armah, Recheal ND and Oppong, Judith and others. 2022. Assessing the Impact of Land Use and Land Cover Change on Air Quality in East Baton Rouge—Louisiana Using Earth Observation Techniques. *Advances in Remote Sensing*, 11(3): 106–119.
- Twumasi, Yaw A and Merem, Edmund C and Namwamba, John B and **Asare-Ansah, Abena B** and Annan, Jacob B and Ning, Zhu H and Armah, Rechael ND and Apraku, Caroline Y and Yeboah, Harriet B and Atayi, Julia and others. 2022. Flood Mapping in Mozambique Using Copernicus Sentinel-2 Satellite Data. *Advances in Remote Sensing*, 11(3): 80–105.
- Twumasi, Yaw Adu and **Asare-Ansah, Abena Boatemaa** and Merem, Edmund Chukwudi and Loh, Priscilla Mawuena and Namwamba, John Bosco and Ning, Zhu Hua and Yeboah, Harriet Boatemaa and Anokye, Matilda and Armah, Rechael Naa Dedei and Apraku, Caroline Yeboaa and others. 2022. Fusion of Landsat 8 OLI and PlanetScope Images for Urban Forest Management in Baton Rouge, Louisiana. *Journal of Geographic Information System*, 14(5): 444–461.
- Twumasi, Yaw A and Ning, Zhu H and Namwamba, John B and Merem, Edmund C and **Asare-Ansah, Abena B** and Yeboah, Harriet B and Anokye, Matilda and Frimpong, Diana B and Loh, Priscilla M and Atayi, Julia and others. 2022. An Assessment of the Potential Use of Forest Residues for the Production of Bio-Oils in the Urban-Rural Interface of Louisiana. *Open Journal of Forestry*, 12(4): 479–502.
- Twumasi, Yaw A and Namwamba, John B and Ning, Zhu H and Merem, Edmund C and Loh, Priscilla M and **Asare-Ansah, Abena B** and Annan, Jacob B and Okwemba, Ronald and Yeboah, Harriet B and Apraku, Caroline Y and others. 2022. Analysis of Precipitation Trends and Prediction in Selected Cities in the Southeast Louisiana. *Atmospheric and Climate Sciences*, 12(4): 698–727.
- Apraku, CY and Twumasi, YA and Ning, ZH and Owusu, F and Anokye, M and Loh, PM and **Asare-Ansah, AB** and Frimpong, DB and Armah, RND and Oppong, J. 2022. Assessment of Wetland Dynamics and Loss in Terrebonne Parish Using Remote Sensing. *ISPRS-International Archives of the Photogrammetry, Remote Sensing and Spatial Information Sciences*, 46: 21–26.
- Armah, RND and Twumasi, YA and Ning, ZH and Apraku, CY and Anokye, M and Frimpong, DB and **Asare-Ansah, AB** and Loh, PM and Owusu, F. 2022. Application of Remote Sensing in Monitoring Forest Cover Change and Carbon Dioxide Levels at Kisatchie National Forest of Louisiana. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 46: 27–32.
- Atayi, Julia and Twumasi, Yaw A and Ning, ZH and **Asare-Ansah, Abena Boatemaa**. 2022. A Study on the Shoreline Changes and Land Use/land Cover Along the Keta Coastal Zone. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 46: 39–45.
- Anokye, M and Twumasi, YA and Ning, ZH and Apraku, CY and Armah, RND and Frimpong, DB and **Asare-Ansah, AB** and Loh, PM and Owusu, F. 2022. Assessing Land Cover Change around Bayou Perot-Little Lake, New Orleans Using Sentinel 2 Satellite Imagery. *The International Archives of Photogrammetry, Remote Sensing and Spatial Information Sciences*, 46: 15–20.
- Anim, Desmond Ofori and Gaisie, Eric and **Asare-Ansah, Abena Boatemaa**. 2021. 6 Towards Sustainable and Resilient Urban Development: Rethinking Stormwater Management in Sub-Saharan African Cities. *Sustainable Urban Futures in Africa*, 107.
- Twumasi, Yaw Adu and Merem, Edmund Chukwudi and Namwamba, John Bosco and Annan, Jacob Banafo and Ayala-Silva, Tomas and **Asare-Ansah, Abena Boatemaa**, and Ning, Zhu Hua and Oppong, Judith and Loh, Priscilla Mawuena and Frimpong, Diana Botchway and others. 2021. Land Resource Areas and Spatial Analysis of Potential Location of Bioenergy Crops Production in Mississippi. *Journal of Sustainable Bioenergy Systems*, 11(4): 187–214.
- Twumasi, Yaw A and Merem, Edmund C and Namwamba, John B and Mwakimi, Olipa S and Ayala-Silva, Tomas and Frimpong, Diana B and Ning, Zhu H and **Asare-Ansah, Abena B** and Annan, Jacob B and Oppong, Judith and others. 2021. Estimation of Land Surface Temperature from Landsat-8 OLI Thermal Infrared Satellite Data. A Comparative Analysis of Two Cities in Ghana. *Advances in Remote Sensing*, 10(4): 131–149.
- Twumasi, Yaw A and Annan, Jacob B and Merem, Edmund C and Namwamba, John B and Ayala-Silva, Tomas and Ning, Zhu H and **Asare-Ansah, Abena B**, and Oppong, Judith and Frimpong, Diana B and Loh, Priscilla M and others. 2021. Time series analysis on selected rainfall stations data in Louisiana using ARIMA approach. *Open Journal of Statistics*, 11(5): 655–672.

Awards, Fellowships, & Grants

- 2023 **Dean's Fellowship**, University of Maryland, College Park
- 2023 **Graduate Research Assistantship**, University of Maryland, College Park
- 2021 **Graduate Research Assistantship**, Southern University and A and M College, Baton Rouge

Presentations

INVITED TALKS

- July 2023. Open GEE Fireside Talk. Invited Talk: Google Earth Engine Community Nairobi, Virtual
- May 2023. SERVIR Tensorflow Working Group. Invited Talk: Leveraging Deep Neural Network and PlanetScope Satellite Imagery to Monitor Baton Rouge's Urban Forest, Virtual
- October 2022. Geo for Good Summit. Panel Discussion: An Inclusive Future for the Geo for Good Community, Google Event Center, USA
- October 2022. DevFest Baton Rouge. Invited Talk: Viewing Earth Through the Cloud: An Introduction to Google Earth Engine, Baton Rouge, USA
- March 2021. SERVIR Annual Global Exchange (SAGE). Panel Discussion: The Value of Mentoring, Virtual
- December 2020. Google Earth Engine Virtual Meetup. Invited Talk: Tracking the Godzilla Dust Plume Using Google Earth Engine, Virtual
- October 2020. Geo for Good Summit. Panel Discussion: Journeys of Women in Geospatial+, Virtual
- September 2019. Geo for Good Summit. Invited Talk: Illegal Mining Detection using Remote Sensing and Machine Learning Techniques, Mountain View, Google, USA
- November 2018. National Forum on Biosphere Reserves. Panel Discussion: Monitoring Biosphere Reserves using Earth Observation Technology, Accra, Ghana

CONTRIBUTED PRESENTATIONS

- Asare-Ansah, AB**, Y.A. Twumasi, Z.H. Ning, D.B. Frimpong, P.M. Loh, F. Owusu, J. Opong, M. Anokye, C.Y. Apraku, R.N.D. Armah and J. Namwamba. 2022. Assessing Urban Forests in Baton Rouge: A Case Study of LSU AgCenter Botanic Gardens, Louisiana. Oral Presentation at Association of Research Directors (ARD) Symposium, Atlanta, Georgia
- Asare-Ansah, A.**, D. Frimpong, S. Amankwah, A., Yeboah, P. Loh, F. Owusu, Y. Twumasi, J, and Bosco Namwamba. 2021. Monitoring aerosol concentrations in the Sahara Desert using Google Earth Engine. Oral presentation at Louisiana Academy of Sciences, Virtual
- John B. Namwamba, Yaw A. Twumasi, Zhu H. Ning, Benir Osimbo, Caroline O. Akinrinwoye, Judith Opong, **Abena B. Asare-Ansah**, Diana B. Frimpong, Priscilla M. Loh, Ronald Okwemba, Faustina Owusu, 2021. A Study and Modeling of Global Water Availability and the Importance of Vegetation Land Cover. Oral presentation at Society of American Foresters (SAF) 2021 National Convention, Virtual
- Levine Cameron, Barrowman Sophie, **Asare-Ansah Abena**, Liu Julianne, McClure Joel. 2021. Leveraging NASA Earth Observations to Analyze and Display Crop Phenology Data and Weather Conditions to Support Expansion of Small Grain Crops in the Midwest. Oral presentation at American Geophysical Union (AGU) Conference, New Orleans, Louisiana

BLOGS

- Asare-Ansah, Abena**. May 2023. Africa, See Through the Green Lens. Reseau Consulting
- Asare-Ansah, Abena**. April 2023. Why Urban Forestry Matters. Reseau Consulting

Teaching Experience

- Jan 2017 **Photogrammetry**, Teaching Assistant KNUST
- Jan 2017 **Basic Surveying Principles**, Teaching Assistant KNUST

Mentoring

- 2023 **Carla Cruz Medina**, Mentee, California State University, Sacramento
- 2022 **Akua Oparebea Asare-Ansah**, Mentee, University of Tartu, Estonia
- 2021 **Faustina Lina Yeboah**, Mentee, University of Gavle, Sweden

Skills

COMPUTER SKILLS

ArcGIS (ArcMap, ArcGIS Online, ArcGIS Pro, ESRI StoryMap), QGIS, ERDAS, Google Earth Pro, Google Cloud Console, Google Earth Engine, Python, RStudio (basic), GitHub, Tensorflow, i-Tree Eco Model, Rapid Land Cover Mapper(RLCM), Collect Earth Online, MS Office Suite

TECHNICAL SKILLS

Image processing, Data analysis, Photo interpretation, Data visualization, Mapping, Field data collection

LANGUAGES

English (fluent); French (basic); Akan (fluent)

Outreach & Professional Development

SERVICE

- 2023 **Reseau Consulting**, Writer
- 2022 **Google Developer Expert, Earth Engine**, Volunteer
- 2020 **IBISA Network**, Watcher
- 2020 **African Women in GIS**, Twitter Content Lead

DEVELOPMENT

i-Tree 2023 (Summer) Open Academy, on-going. An online course organized by the US Forest Service and collaborators to introduce the i-Tree suite used to estimate the ecosystem services of trees including carbon storage and sequestration, air pollution removal, storm water management

Nature in the City: Turning Knowledge into Urban Forestry Practice, from November 2022 - May 2023. A MOOC on Urban Forestry that explained the principles of planning and design, described the ecosystem services and disservices, and demonstrated the use of geospatial techniques for mapping urban trees and green spaces. It was hosted by Polimi Open Knowledge, Milan, Italy

North American Agroforestry Conference (NAAC), from June 28 - July 2, 2021, on “Scaling up Agroforestry for Carbon Drawdown.” This conference brought together farmers, landowners, researchers, climate scientists, investors and international leaders to discuss the solutions and actions to climate change through conference sessions and presentations. It was an online conference hosted by Savannah Institute, Wisconsin, USA

TensorFlow Exchange on Artificial Intelligence for Earth Science Applications, from September 23 – 25th, 2019. During this training, the SERVIR team was introduced to Tensorflow and Keras by specialists from Google. It was hosted by SERVIR GLOBAL at the University of San Francisco, Pleasanton, USA

PROFESSIONAL MEMBERSHIPS

American Society of Photogrammetry and Remote Sensing
International Society of Arboriculture