MUSA 550 Final Project Proposal

Topic: Assessing relationship between urban form and walkability in Kisumu, Kenya (Studio Project MCP '24)

Individual: Kamya Khandelwal (kkamya@design.upenn.edu)

Outline:

Using scikit-learn for k-means clustering to classify Landsat 8 imagery for understanding urban landscapes in Kisumu. Then, applying OSMnx for street network analysis in Kisumu to evaluate urban walkability, focusing on factors like street density and accessibility to amenities. This approach will allow me to assess the relationship between urban form and walkability in Kisumu.

Process:

1. Satellite Image Analysis: Using rasterio for land use classification.
2. Walkability Analysis: Network Analysis using OSMnx and Pandana, and city-wide routing analysis to assess accessibility of urban features.
3. Clustering Analysis: Applying k-means clustering with scikit-learn for identifying patterns in land use and walkability.

Requirements:

1. Data is collected through a means more sophisticated than downloading (e.g. scraping, API).
2. It combines data collected from 3 or more different sources.
3. You analyze raster data using rasterio, rasterstats, or xarray.
4. You perform a machine learning analysis with scikit-learn as part of the analysis.
5. You analyze raster data using rasterio, rasterstats, or xarray.
6. The project includes multiple interactive visualizations that include a significant interactive component.

Potential Data Sources:

1. ESRI World Imagery Wayback Satellite Data
2. Google Earth Engine
3. OSM Street Maps Data