Satellite imagery analysis of urban infrastructure and economic development in Africa

Faculty Member: Karen Seto

Proposal Description:

Urbanization reshapes economic activities. This project utilizes satellite remote sensing and machine learning to characterize urban infrastructure in 2- and 3- dimensions and estimate associated economic activities.

The RA will gather data on 3-D urban infrastructure attributes and economic activities. The RAs will use high-resolution images on Google Earth to label housing types and gather public datasets with building height and density information. The RAs will also collect recently published economic indicators and sub-national level GDP and its alternative proxies for economic activities (e.g., house price, income, etc.). The work requires detailed searching of datasets from the literature and official sources internationally and cautious documentation of the definition of each dataset. The main goal of the RA work is to collect training and testing data for building attributes and economic indicators across Africa. These datasets will be integrated with our satellite image analysis and deep learning work to characterize urban infrastructure and economic development.

Requisite Skills and Qualifications:

The work requires a large number of web searches, data management, and geospatial processing. Experience in GIS software (ArcGIS or QGIS) is required. High level of attention to detail and data collection is crucial. Interest in remote sensing and programming (python or R) is also helpful.

Award: Ben Christensen
Tobin Application Link: Tobin Application
Project Type: Tobin RA
Project Year: 2022
Term: Spring 2022