



Oscar Pérez Cruz

Senior

Polytechnic University of Puerto Rico

Major: Computer Engineering

Faculty Advisor: Eng. Luis Ortiz Ortiz,

Dr. Othoniel Rodriguez and Dr. Houssain Kettani

Program: Research Alliance in Math & Science

E-mail: op3@ornl.gov

Home: oscar_alejandro@onelinkpr.net

Research Area: Computational Sciences and Engineering

Increasing number of satellite products with varying spatial, spectral, and temporal resolutions makes the data management a difficult task. Oak Ridge National Laboratory (ORNL) has been acquiring large amounts of satellite imagery over large geographic regions for last few decades. These images are used in many applications ranging from the creation of high-resolution population databases to monitoring biomass over large geographic regions. Complexity of managing such an amount of images for efficient search and data discovery is increasingly becoming a problem. In this research, we propose to create an efficient spatiotemporal tile indexing scheme that will allow for an efficient search and data discovery. This scheme is automatically created by harvesting the metadata directly from the satellite image header and ancillary data. Once the satellite image header and ancillary data from the image is obtained, it will go into a database where other users can access the data through the ORNL network. To allow other users the use of this system, a web page will be developed where they can search for data by spatial and temporal extents. This proposed system will be easy to use, it can drastically reduce the search and retrieval of satellite data and it can be further extended with additional query constraints (e.g., percent cloud coverage).

Research Mentor:

Dr. Ranga Raju Vatsavai

Computational Sciences and Engineering Division

Oak Ridge National Laboratory

r7v@ornl.gov

865-576-3569