



INDIANAVIEW 2022 - 2023

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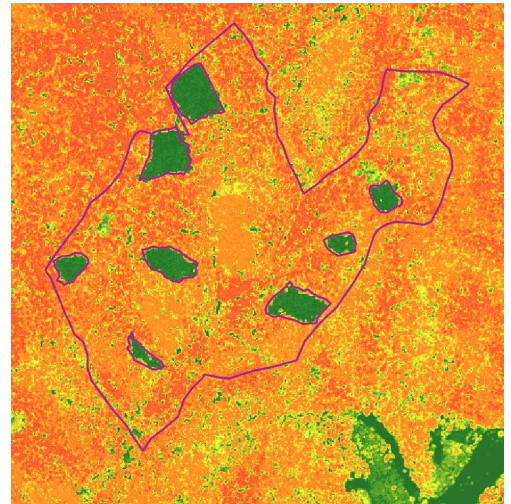
INDIANAVIEW 2022 - 2023 ACTIVITIES

IndianaView Student Scholarship Program

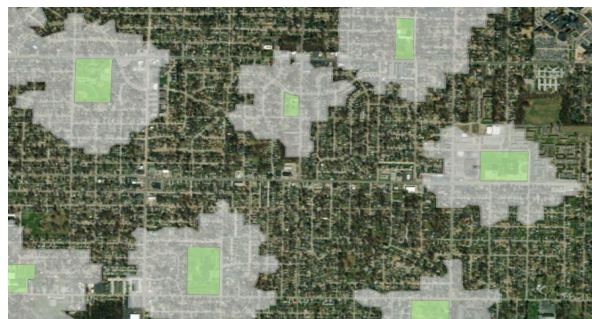
IndianaView provided scholarships for six students (five graduate and one undergraduate) from the member educational institutions to participate in remote sensing and geospatial projects. Each of the student provided a fact sheet about their project and a testimonial on how the scholarship assisted them.

Completed students' projects include: Shoreline Sensing Using High-Resolution Multispectral Satellite Images; Tree Species Identification from UAV Canopy Images Using Deep Learning Techniques; Using LiDAR to Estimate Aboveground Carbon Storage in Indiana State Forests; Regional variability evaluation of TRENDY Dynamic Vegetation Model Estimates of Dryland Productivity; and Accuracy and Precision Evaluation of DBH Forest Measurements from Images.

Students' testimonials show that the scholarship opportunity motivated them to apply remote sensing data in their disciplinary studies, opened opportunities for their data collection and analysis, and improved their confidence in using cutting edge technology in field data collection.



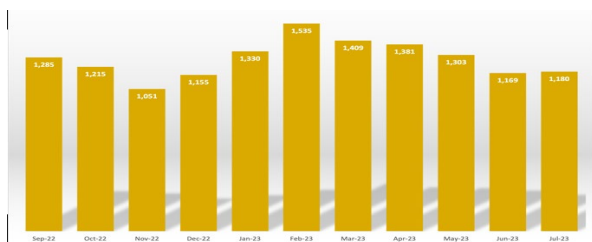
Using LiDAR to Estimate Aboveground Carbon Storage in Indiana State Forests: this is an aboveground carbon map of a management site at Yellowwood State Forest using 3DEP LiDAR



An example of public greenspaces (green) and their service areas (gray). Only one-third of Evansville's buildings in Indiana are within 300m of a public greenspace.

IndianaView mini-grant Program

IndianaView provided a means for partner institution to participate in IndianaView via geospatial projects relative to the state of Indiana. Two mini-grants were funded during 2023. One mini-grant project examined the 3-30-300 rule for urban greenspace in Evansville, Indiana, using publicly available LiDAR data and other geospatial data. The results showed that most of the buildings meet the rule of having a view of at least three trees, but very limited neighborhoods meet the rule of having 30% tree canopy cover and 300m to nearest public greenspace. Another mini-grant project further developed the Indiana Statewide LiDAR data portal with a QGIS plugin for both the LiDAR data products (such as Digital Terrain Model, Digital Surface Model, and Normalized Digital Hight Model), and the Ortho Imageries. It attracted over 1,000 average monthly visitors to the web service, and over 1 TB data download volume on a monthly basis.



Monthly visit counts for Indiana Statewide LiDAR data portal.

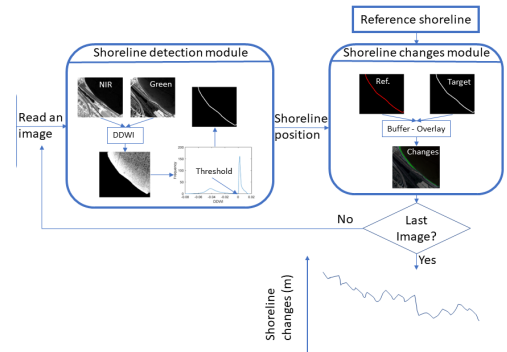
IndianaView is a member of the AmericaView Consortium, a nationally coordinated network of academic, agency, non-profit, and industry partners and cooperators that share the vision of promoting and supporting the use of remote sensing data and technology within each state. AmericaView is funded by USGS grant agreement G18AP00077.

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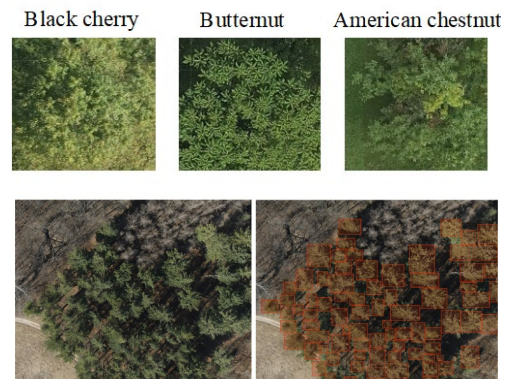
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BENEFITS TO INDIANA

- The student scholarship program has greatly encouraged students across Indiana educational institutions to apply geospatial information in their specific research areas. This year, we have received many scholarship applications including a few from high school and undergraduate students.
- The student scholar project for shoreline change detection contributed to the development of the Great Lakes Shoreline Model (GLSM), incorporating water level as a modulating factor for wave energy effects on shoreline changes, which was applied to predict the shoreline changes in Lake Michigan.
- The student scholar project for tree species identification has trained five deep-learning models on eight species of RGB images captured during the summer, fall, and early spring seasons. All models achieved great performance on datasets from all seasons, with the best performance observed on summer images.
- Led by IndianaView PI, the post-bachelor certificate program in geospatial information science has graduated nine students in its second year. Twenty-eight students were admitted into the program including majors in agriculture, civil engineering, anthropology, earth science, and business.



Schematic diagram showing the shoreline change detection using high resolution multispectral images.



Tree species identification from UAS images.

INDIANAVIEW CONSORTIUM MEMBERSHIP



Federal consortium members identified above do not receive funding from AmericaView.

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