



# INDIANAVIEW 2021 - 2022

**AmericaView**<sup>SM</sup>  
Empowering Earth Observation Education  
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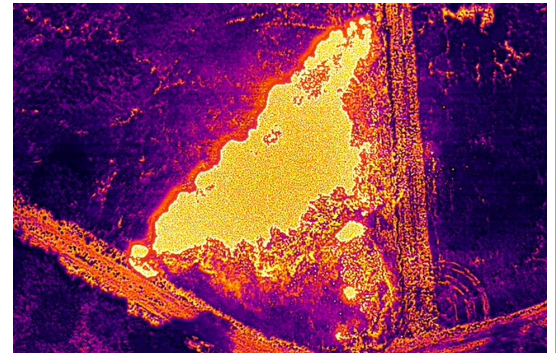
## INDIANAVIEW 2021 - 2022 ACTIVITIES

### 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: Deep learning-based tree detection and species identification; Using UAVs to Complete Large Area Tree Mapping; Extracting tree trunks from backpack Lidar point cloud data by combining geometric features and deep learning; Multi-temporal UAS imagery collection for monitoring natural disturbance based management practices; Potential streamflow response to policy-induced wetland change in the White River Watershed, Indiana; and Integrating aerial photography and photogrammetry for interactive map-making.

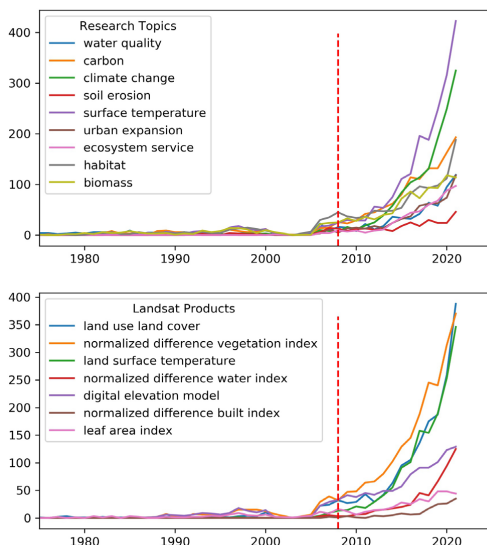
Students' testimonials show that the scholarship opportunity motivated them to apply remote sensing data in their disciplinary studies, opened opportunities for their data collection and analysis, and improved their confidence in using cutting edge technology in field data collection.



*High resolution thermal imagery that was captured during a prescribed burn event in a natural grassland.*



*A Digital Terrain Model of a portion of Martell Forest populated by the individual trees extracted from terrestrial laser scans.*



*The annual trend of Landsat research publications by research topics and Landsat products from 1975 to 2021*

### 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 2022. One mini-grant project conducted a mega literature review on Landsat products based scientific publications in the past fifty years. Major research topics, study areas, research techniques/methodology, and products were identified for the more than thirty thousand articles using Natural Language Processing and computational text analysis. The second mini-grant was to support the research about the impact of low-head dam removal in Logansport, Indiana. The project supported UAS data collection (RGB and Lidar) before and after the low head dam removal, as well as setting up the web services to visualize the UAS data. The 3D point cloud [before the removal](#) and [after the removal](#) are available online.

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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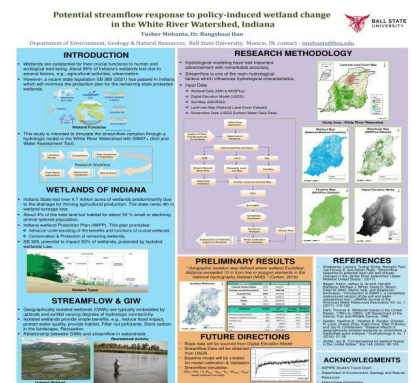
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## BENEFITS TO INDIANA

- The student scholarship program has greatly encouraged students across Indiana educational institutions to apply geospatial information in their specific research areas. Supported by the scholarship, students have presented at several national and regional conferences. Several manuscripts are also ready to be submitted.
- The scholarship program expanded the digital forestry initiative at Purdue University. Four of the students scholars research are in the forestry and natural resources area for Indiana, which helped Indiana to secure two larger scale grants from the USDA NIFA Sustainable Agricultural Systems, and the USDA Climate-Smart Commodities project.
- The dataset collected by the IndianaView support were shared publicly from the digital forestry data portal (<https://hub.digitalforestry.org/>) for collaboration.
- The mini-grant project has collected year-long monitoring image in both RGB and Lidar to learn about the consequence of low-head dam removal in Eel River, Logansport, Indiana.
- One student scholar project studied the streamflow change in response to the recent state legislation (SB 389, passed in 2021) which minimizes the protection plan for the remaining state protected wetlands.
- Led by IndianaView PI, the post-bachelor certificate program in geospatial information science has graduated six students in its first year launch. Twenty-six students were admitted into the program including majors in agriculture, civil engineering, earth science, and business.



Collected dataset from a natural forest environment pre-controlled burn



Student's poster at the American Water Resources Association Conference.

## INDIANAView CONSORTIUM MEMBERSHIP



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

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