AI for Earth

SilviaTerra

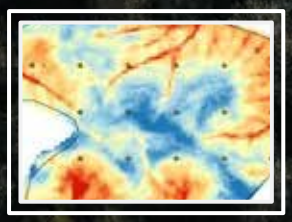
SilviaTerra uses cutting-edge satellite imagery and machine learning to transform how conservationists and landowners inventory forests, producing more accurate data while saving time and money.

1. Satellite imagery

Satellites capture high-resolution images of the entire continental United States.

2. Microsoft Azure

Satellite imagery is stored on Azure, where SilviaTerra pairs it with field data from the USFS Forest Inventory and Analysis program to train machine-learning models for predicting the sizes and species of trees.



3. Detailed forest maps

SilviaTerra uses Azure HDInsight to apply these machine-learning models to terabytes of satellite imagery covering all forests in the United States.

4. Improved insights

This first ever high-resolution, tree-level map of the continental United States provides conservationists, governments, and landowners with unprecedented information about their forests. Better data drives better forest management, helping improve ecological, social, and economic outcomes for America's forest owners.

Challenge

Conservationists and landowners need to inventory forests to understand and make decisions supporting their management goals. This data can help determine the effects climate change has on sustainable land practices, support or improve species habitat, and provide a more sustainable timber harvest. But taking forest inventories is labor-intensive. Foresters must manually count trees across thousands of acres—a slow, costly, and occasionally unreliable process.

Solutions

SilviaTerra is revolutionizing how we inventory forests by combining satellite imagery with machine learning to reduce manual fieldwork while improving data precision and quality. Running on Microsoft Azure, SilviaTerra collects high-resolution satellite images and combines it with pre-existing field data to create detailed maps of forests at a 15-meter resolution. Conservationists, governments, and landowners can use these maps to assess their forests and develop sustainable management plans for a fraction of the time and cost of traditional forest surveys.

Microsoft