ENVI

THE PREMIER SOFTWARE FOR EXTRACTING INFORMATION FROM GEOSPATIAL DATA

HARRIS® TECHNOLOGY TO CONNECT, INFORM AND PROTECT™

HarrisGeospatial.com

IMAGERY BECOMES KNOWLEDGE

Use one solution to work with all your data types

Access a complete suite of analysis tools

Customize to meet your project needs

ENVI SOFTWARE USES PROVEN SCIENTIFIC METHODS AND AUTOMATED PROCESSES TO HELP YOU TURN GEOSPATIAL IMAGERY INTO KNOWLEDGE.

Geospatial imagery is used more and more across industries because it provides up-to-date, accurate information about geographic areas of interest. Imagery is used to evaluate biodiversity, detect and identify targets, plan emergency response efforts, and for a variety of other applications important to understanding the world around you. To meet the growing need for information, there are more imagery sensors available today than ever before, each with their own advantages. Because of this, you need advanced software technology that can effectively exploit the growing number of sensors and the increasingly large datasets they provide.

ENVI software can be deployed and accessed from the desktop, in the cloud, and on mobile devices, making it easy for you and your workforce to extract actionable information from geospatial imagery and make more informed decisions. Regardless of the image or data format you use, ENVI has the latest image processing and analysis tools that help you obtain meaningful information from imagery. And, with an intuitive, customizable interface, ENVI is designed to be used by everyone from GIS professionals to image analysts and image scientists, regardless of prior experience with imagery.

ENVI PROVIDES ADVANCED ANALYTICS TO USERS ACROSS YOUR ORGANIZATION BECAUSE IT CAN BE DEPLOYED AND ACCESSED ON DESKTOPS, IN THE CLOUD, OR ON MOBILE DEVICES.

ONE SOLUTION FOR ALL OF THE DATA TYPES YOU USE

READ AND ANALYZE DIFFERENT DATA FORMATS

ENVI supports over 70 data formats, including scientific formats such as HDF and CDF, and image types like GeoTIFF, and additionally provides JITC compliant NITF support. And, ENVI delivers enterprise capabilities that provide you quick and easy access to imagery from OGC and JPIP compliant servers within your organization or over the internet.

FUSE MULTIPLE DATA MODALITIES

Because you may work with a number of imagery sources, it's important that you can fuse multiple data modalities to get a complete picture of a geographic area. With ENVI, radar, LiDAR, SAR, optical, hyperspectral, multispectral, stereo, thermal, and acoustic can be fused to exploit the strengths of each sensor and create rich geospatial products for informed decision making.

EXPLOIT INFORMATION FROM DIFFERENT SENSOR TYPES

ENVI supports imagery gathered from today's newest and most popular satellite and airborne sensors, including panchromatic, multispectral, hyperspectral, radar, thermal, HDF5, Full Motion Video, Net CDF-4, and LiDAR. These sensors include ASTER, AVIRIS, AVHRR, Landsat 8, NPP VIIRS, Pleiades, QuickBird, RADARSAT, SkySat-1, SPOT, TMS, USGS DEM data, WorldView-3, our own Geiger-mode LiDAR sensor, and more.

EASILY PROCESS LARGE DATA SETS

The data collected by today's sensors contain more information than ever before. In order to effectively read and extract information from these large data sets, you need a software solution without file size limitations. ENVI works with any size data set and has automated tools to quickly and easily prepare big and small imagery for viewing or further analysis.

ENVI SUPPORTS TODAY'S POPULAR SENSORS AND DATA FORMATS SO YOU CAN SEAMLESSLY COLLABORATE WITH COWORKERS, BUSINESS PARTNERS AND CLIENTS.

COMPLETE SUITE OF IMAGE ANALYSIS TOOLS IN ONE SOFTWARE PACKAGE

Automated workflows to quickly get scientific-based results

Spectral information in pixels to detect targets, calculate vegetation   and more

Proven algorithms for fast and comprehensive data analysis

Advanced analysis tools to easily perform highly specialized tasks

Using imagery as a source of scientific information was once reserved for those with extensive knowledge of remote sensing and image analysis methods. ENVI changes this paradigm by offering a complete suite of image processing and analysis tools that enable you to easily extract pertinent information from imagery without expending valuable time and effort learning advanced image analysis techniques. ENVI also includes a robust set of LiDAR analysis tools that let you export results as products or layers that can then be fused with your 2D data to enhance your geospatial analysis and GIS.

ENVI TOOLS ARE BASED ON PROVEN SCIENTIFIC METHODS, MAKING IMAGE ANALYSIS ACCESSIBLE TO USERS OF ALL EXPERIENCE LEVELS.

AUTOMATED WORKFLOWS TO GET ANSWERS – FAST

Anomaly Detection
Search an image for statistical and spectral distinctions from the background landscape

Change Detection
Look for areas of change by comparing two images from different dates using band ratio or feature index techniques

Classification
Classify terrain automatically or with user defined specifications

Thematic Change
Perform change detection between two classification results

Feature Extraction
Find objects of interest using parameters based on spatial, spectral, and textural characteristics

RPC Orthorectification
Correct imagery to account for terrain and sensor distortion

Image Registration
Improve the georeferencing of an image by tying it to an accurate base map

Viewshed Analysis
Perform a line of site analysis

SPEAR Tools
A set of automated workflows designed to take advantage of multispectral imagery

THOR Tools
A set of automated workflows designed to take advantage of hyperspectral imagery

IMAGE ANALYSIS TOOLS

SPECTRAL ANALYSIS TOOLS
Spectral analysis allows you to use pixel responses at different wavelengths to obtain information about the materials within each pixel. ENVI is a leader in spectral image processing and has tools that give you access to established, scientific mapping methods for spectral analysis. These tools allow you to detect targets, calculate vegetation and forest health, map materials of interest, and much more.

DATA ANALYSIS TOOLS
Understanding your imagery often involves discerning information about your image. ENVI includes a comprehensive suite of data analysis tools that allow you to access proven algorithms to quickly, easily, and accurately analyze imagery, such as generate image statistics, measure features, and model topographic characteristics.

ADVANCED IMAGE ANALYSIS TOOLS
Many organizations perform highly specialized tasks that require advanced image analysis tools. With ENVI software, these sorts of tasks can also be accomplished within one software package. From rigorous orthorectification and feature extractio, to atmospheric correction and DEM extraction, ENVI has all the tools you need to get the answers you need from imagery.

INTEGRATION WITH YOUR EXISTING GEOSPATIAL WORKFLOW

ADD RICH CONTEXTUAL INFORMATION TO YOUR GIS MAPPING APPLICATIONS

Image analysis is just part of your overall geospatial workflow, which is why you need image analysis software that seamlessly integrates with your existing tools and streamlines the overall process. ENVI makes it easy for you to customize its features and functionality to fit your image analysis and geospatial workflow, update a GIS with valuable information from imagery, and collaborate and share results with others.
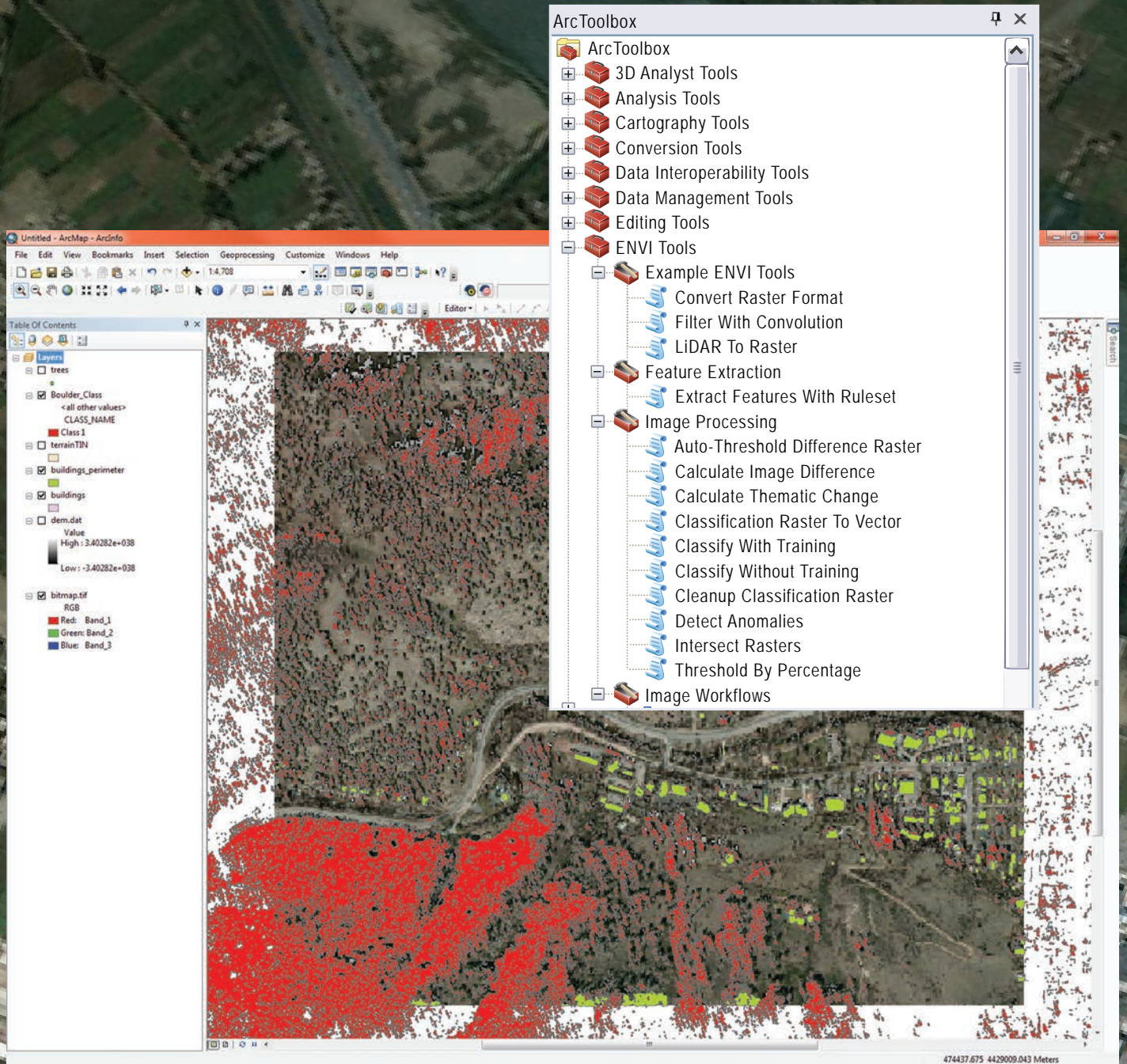
INTEGRATION WITH ARCGIS®

Updating a GIS with valuable information from geospatial imagery increases your knowledge about the world around you and allows you to deliver a rich set of geospatial information to GIS maps and other GIS applications. ENVI image analysis capabilities are fully integrated with ArcGIS® for desktop and ArcGIS® for Server from Esri, eliminating the need to switch between software packages. You can easily access ENVI image analysis tools directly from the ArcGIS environment, send results from ENVI to a geodatabase, or push information from ENVI directly into ArcMap™.

SHARE WITH OTHERS

Sharing your image analysis results with colleagues and customers is important. With ENVI, you can easily share maps, reports, presentations, and other geospatial products in virtually any environment. Information extracted from imagery with ENVI is easily saved directly to a local file, a geodatabase, or to another server environment as image files, shape files, or Microsoft® PowerPoint® files.

ENVI FOR ARCGIS® ALLOWS YOU TO ANALYZE ALL TYPES OF GEOSPATIAL IMAGERY SUCH AS HYPERSPECTRAL, MULTISPECTRAL, PANCHROMATIC, LIDAR AND SAR WITHIN ANY ARCGIS ENVIRONMENT.

ArcToolbox

ArcToolbox
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Editor

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# CUSTOMIZE ENVI FOR YOUR UNIQUE GEOSPATIAL NEEDS

Many off-the-shelf image analysis software packages cannot be customized, requiring you to work around the capabilities of the software. Your image analysis workflow should be based upon your project requirements and not software limitations. ENVI is developed using IDL, a powerful development language that allows you to extend or customize ENVI features and functionality to fit your image analysis requirements and specific project needs.

Because ENVI is customizable, you can add image analysis capabilities to your existing tools and models, combine multiple tools that include image analysis functionality, and create new custom image analysis tools based on your desired outcomes. ENVI also allows you to easily string together discrete pieces of analytic functionality and create customized workflows that can be enabled within a cloud environment.

ENVI ANALYTICS CAN EASILY BE DEPLOYED TO THE CLOUD FOR USER-FRIENDLY, ONE-BUTTON RESULTS.
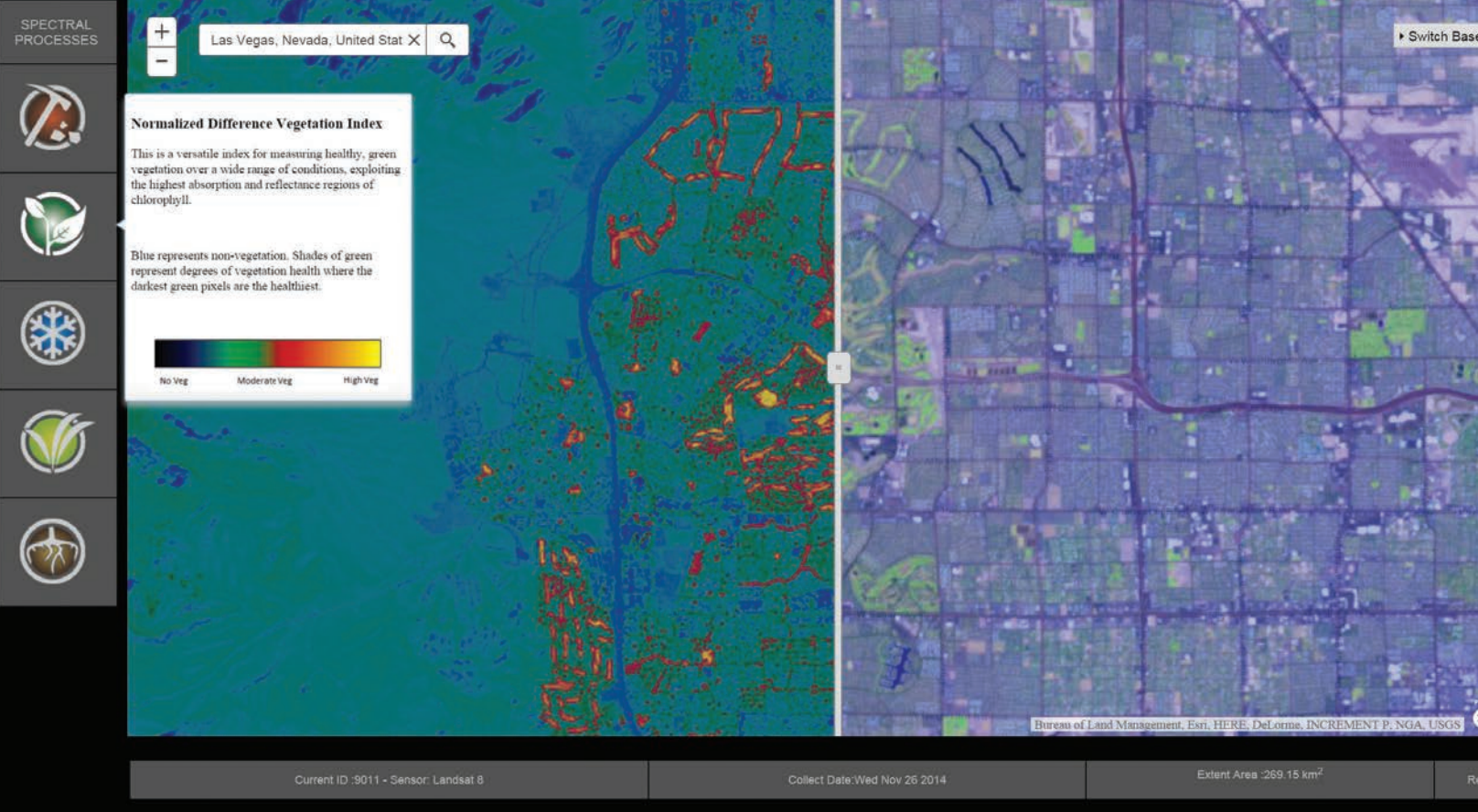
This cloud deployment of ENVI shows a one-button NDVI analysis.

DISCOVER THE NEXT DIMENSION OF YOUR DATA

Rapidly ingest LiDAR data to quickly identify features and analyze results

Automatically identify and extract entire point clouds or user-defined subsets

Easily edit or refine results to improve accuracy by smoothing and reclassifying points, or modifying features

The accuracy of LiDAR technology has made it possible to map large geographic areas with a level of detail that was previously only possible with time-consuming and expensive ground surveys. These benefits have led organizations to use LiDAR data as a source of information when mapping and making critical business decisions.

With ENVI, a user can exploit the large datasets associated with LiDAR collects to create realistic 3D visualizations, extract 3D features from a scene and produce 3D geomorphologic products such as digital elevation models (DEMs) and digital surface models (DSMs). These products are used in downstream analysis to generate elevation data commonly used in complex modeling applications.

By analyzing the elevation information in LiDAR, it's possible to determine a safe helicopter landing zone based on not only the hill slope but also by mapping the height and location of trees, buildings, and power lines. Additionally, you can increase the accuracy of your right-of-way analyses, forest inventories, and watershed-based drainage planning by utilizing LiDAR.
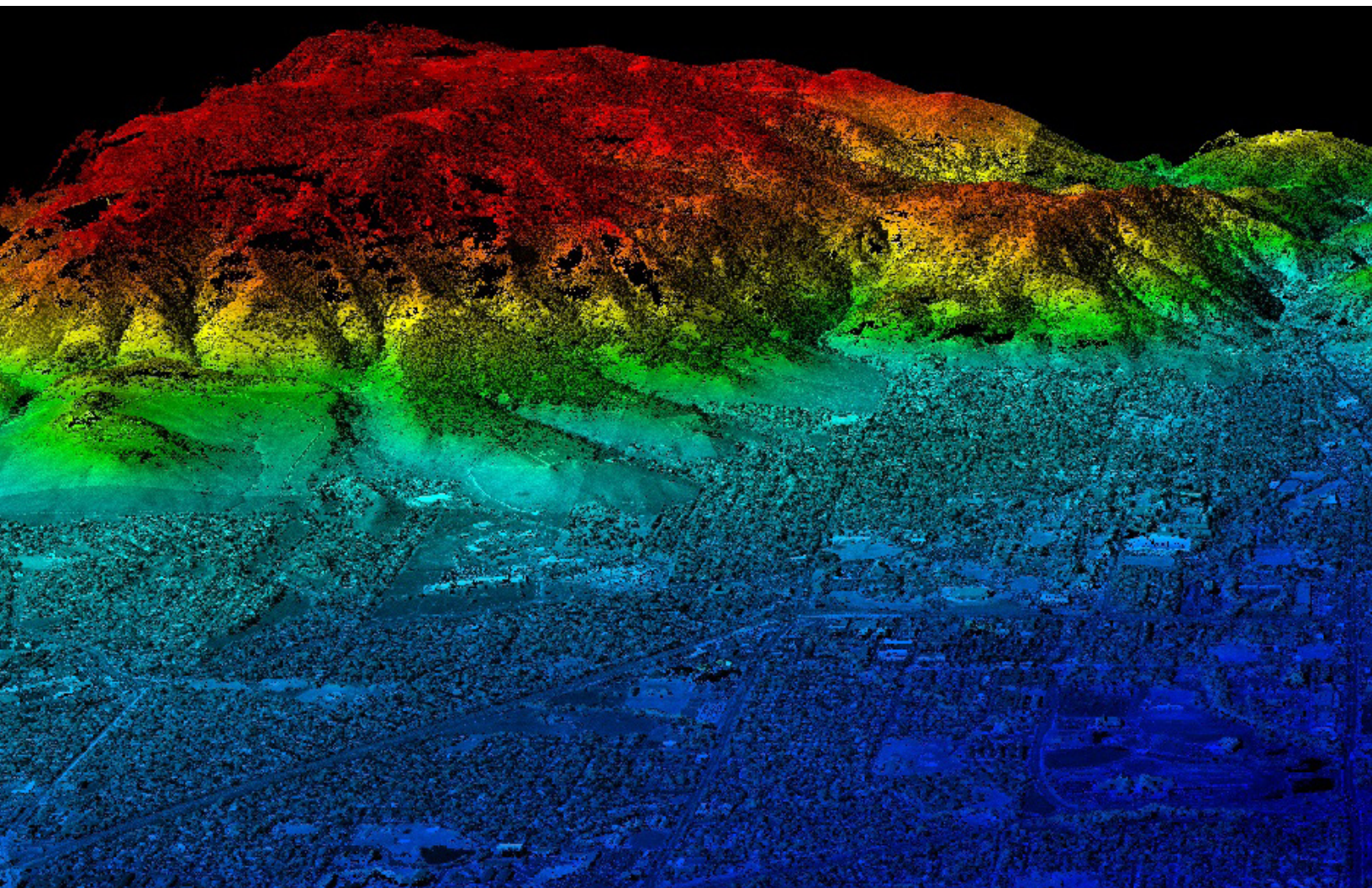
IDENTIFY AND EXTRACT 3D INFORMATION FROM LIDAR DATA

ENVI uses automated feature identification that quickly lets you find features of interest such as building footprints, trees, power lines, and power poles through automated feature identification. Feature identification can be performed on an entire point cloud scene or a user-defined subset of a scene.

Programmers can implement new algorithms through the ENVI API to perform custom processing such as road characterization, determination of rail centerlines, and vegetation encroachment on power lines. The ENVI API can also be used to bring other data sources and web content into LiDAR analysis. Context and content systems such as ArcGIS Online and Google can be accessed through API extensions to enhance analysis within an area of interest.

ENHANCE YOUR GEOSPATIAL ANALYSIS AND GIS WITH INFORMATION FROM LIDAR DATA

ENVI and ArcGIS provide an automated solution that lets you push LiDAR-derived products to your image analysis and GIS workflows. This one-button process lets you easily do the following:

- Add additional content like building footprints, tree crown height, or power pole locations to GIS mapping applications.

- Include 3D information such as bare earth surface models, building polygons, or canopy density models in your geospatial image analysis.

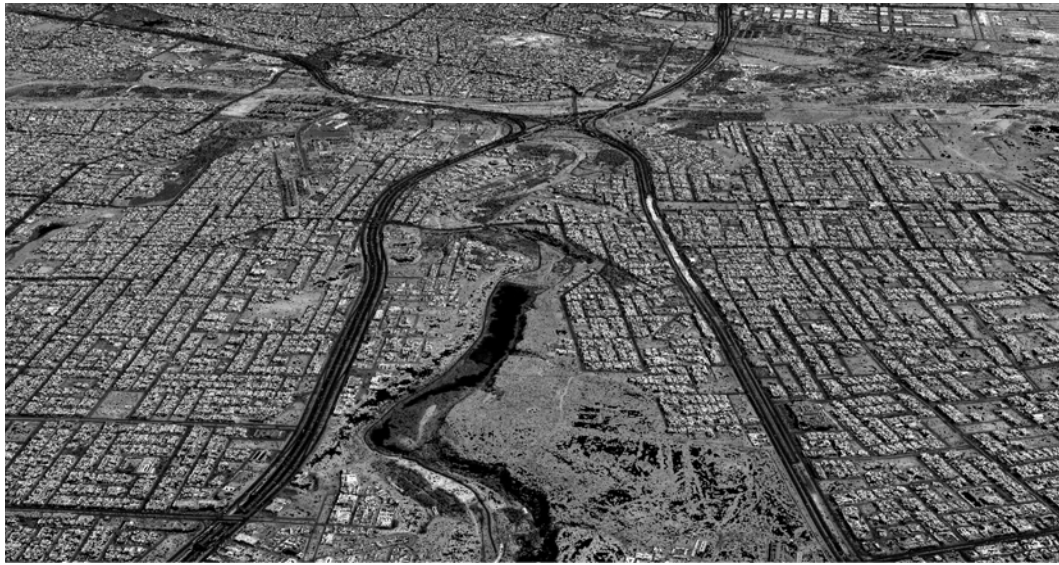## 3D PRODUCTS HELP YOU UNDERSTAND MORE ABOUT THE WORLD AROUND YOU.
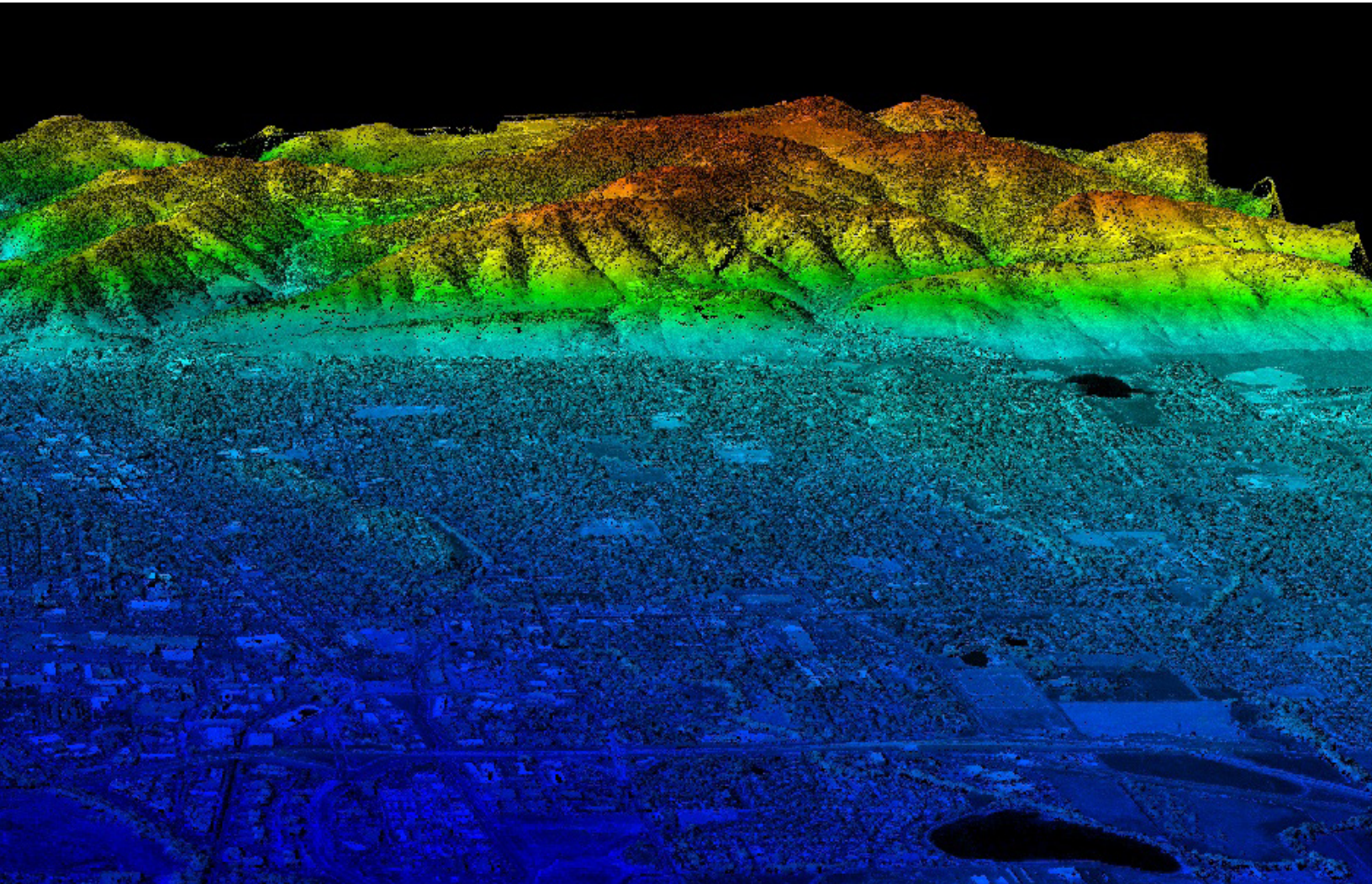
STAY CONNECTED

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