

Feature Analyst

LGGI User Forum Schweiz
 4/10/06
 Pierre Terretaz

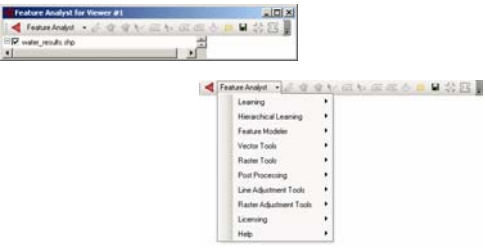
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Feature Analyst

- Feature Analyst
 - The Feature Analyst for ERDAS IMAGINE add-on provides geospatial professionals with a comprehensive automated feature extraction toolset for collecting 2D and 3D geospatial features from earth imagery and scanned maps

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Feature Analyst

- Feature Analyst for Imagine
 - 
- Feature Analyst for ArcGIS

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Classification in Imagine

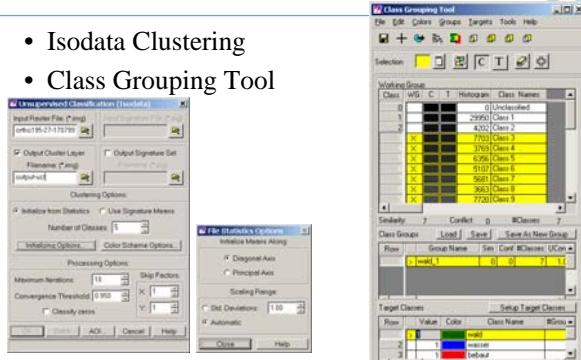
- Unsupervised Classification
- Supervised Classification
- Expert Classification
- Subpixel Classifier



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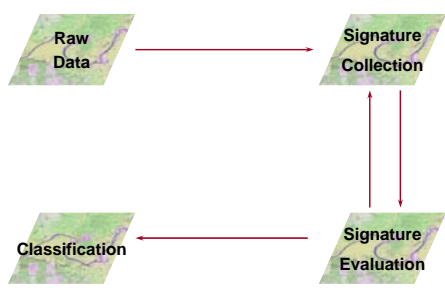
Unsupervised Classification

- Isodata Clustering
- Class Grouping Tool



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Supervised classification



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Supervised Classification

Class #	Signature Name	Color	Red	Green	Blue	Value	Order
1	Water		0.000	0.000	1.000	1	1
2	Vegetation		0.675	0.414	0.298	2	2
3	Urban		0.420	1.000	1.000	3	3

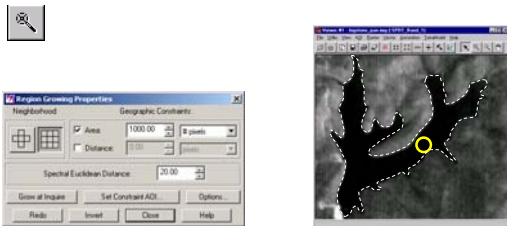
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Expert Classifier

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Feature Collection

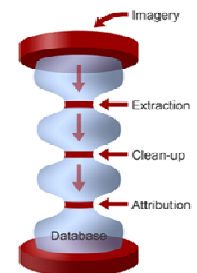
- Region Growing Tool (semi-automatic)



Feature Analyst

- Why use the Feature Analyst Solution?

Feature Analyst is designed to accurately interpret high resolution imagery
Hand digitizing is slow and expensive



Feature Analyst

- Why use the Feature Analyst Solution?

Feature Analyst offers you the following capabilities:

- Automated Feature Extraction
- Modification Tools
- Sophisticated Processing Tools
- 3-D Feature Creation Tools
- Cleanup Tools
- Editing Tools

This ELIMINATES the bottleneck in your production capacity



Feature Analyst

- Why Does Feature Analyst Excel at Extraction?

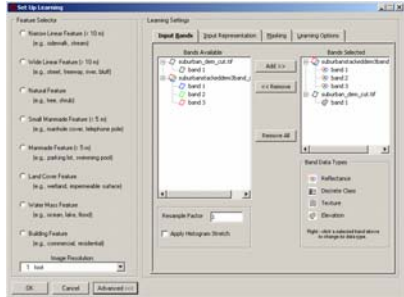
During extraction, Feature Analyst uses:

- Color
- Size
- Shape
- Texture
- Pattern
- Shadow
- Spatial Association



Feature Analyst

- Radiometry – Texture – Elevation - Mask

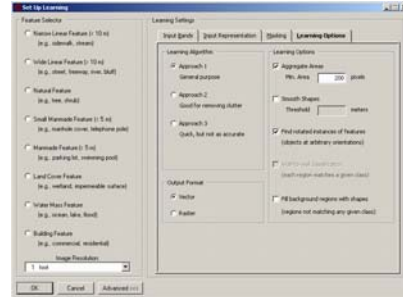


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Feature Analyst

- Size - Orientation



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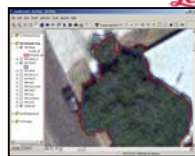
Feature Analyst

NGA ADE Accuracy Test Results

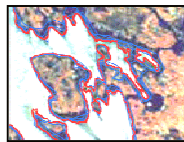
“Feature Analyst provides highly accurate, consistent delineation of area features.”
O'Brien 2004 (NGA)

Manual Digitizing in Blue Line
(4 Analysts)

Feature Analyst in Red Line
(4 Analysts)



Land Cover



Drainage

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Feature Analyst

- Key Concepts

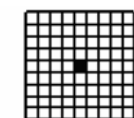
- The Feature Analyst is an intelligent software agent that learns feature extraction concepts by example
- The better the training examples, the better the results. As ‘they’ say, “Garbage In = Garbage Out”.
- Spatially distributed training examples improve the Learner’s ability to adapt to changes in a target feature across the image.
- **Hierarchical learning** involves a sequence of learning passes to remove clutter and add missed features in an extraction problem.
- **The spatial context** of the target features can be very important to the Learner’s performance. Make appropriate adjustments to the input representation on any subsequent hierarchical learning passes.
- **Post Processing** (automatic and semi-automatic)

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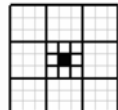
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Feature Analyst – Spatial Context

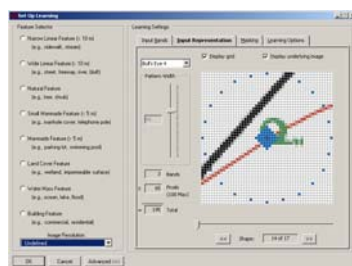
- Spatial Data and Feature Analyst Input Representation



Traditional Representation



Focal Representation

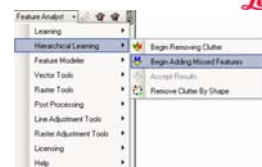


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Feature Analyst - Learning

- Hierarchical Learning
 - Remove Clutter
 - Add Missed Features
 - Remove Clutter by Shape

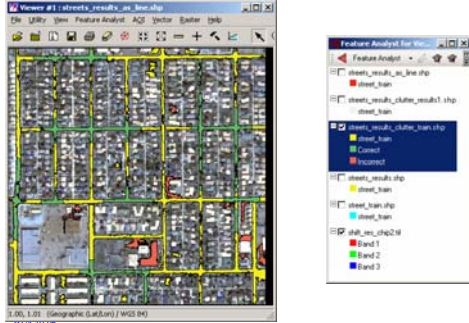


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Feature Analyst - Learning

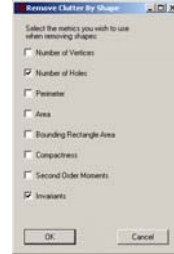
- Remove Clutter



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Feature Analyst - Learning

- Remove Clutter by Shape



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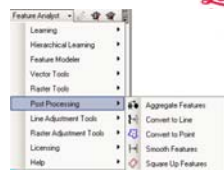
Feature Analyst – Post Processing

- Post Processing (auto)

- Aggregate
- Smooth
- Convert to line
- Square Up

- Post Processing (semi-automatic)

- Polygon Reshape Deluxe
- Intersection Repair Tool



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Feature Analyst – Post Processing

- Aggregate

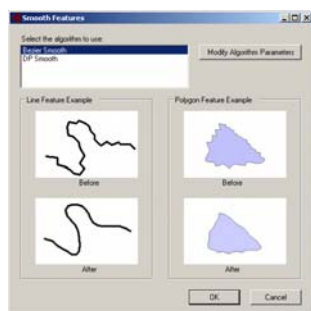


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Feature Analyst – Post Processing

- Smooth

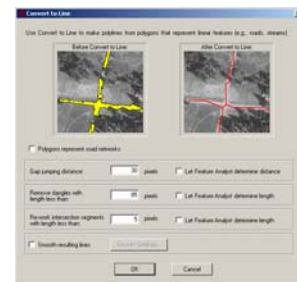


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Feature Analyst – Post Processing

- Convert to Line
 - Gap
 - Remove Dangle
 - Intersection
 - Smooth



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Feature Analyst – Post Processing

- Square Up

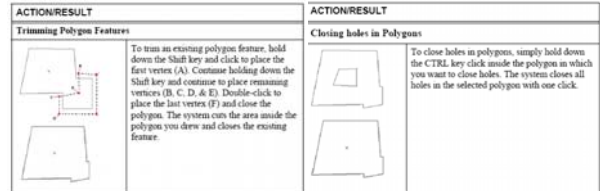


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Feature Analyst – Post Processing

- Polygon Reshape Deluxe

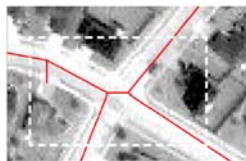


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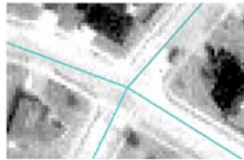
Feature Analyst – Post Processing

- Intersection Repair Tool



Draw a stretchy box around the lines you want to repair.

Once you have drawn your stretchy box, click at the point where you want the intersecting vertices to appear.

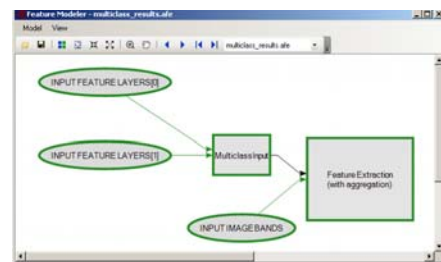


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Feature Analyst - Batch

- AFE Model

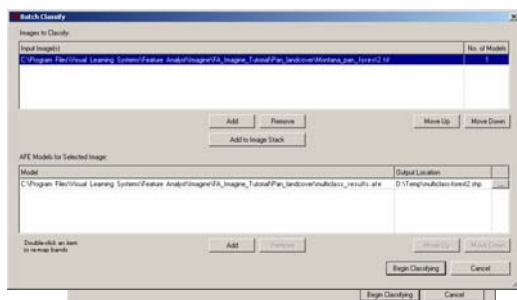


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Feature Analyst - Batch

- Batch

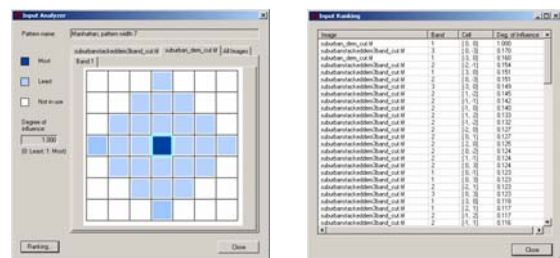


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Feature Analyst - AFE

- Input Analyser



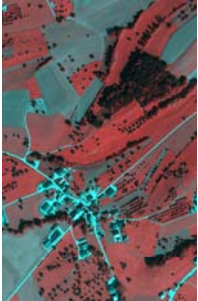
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Feature Analyst and ADS40

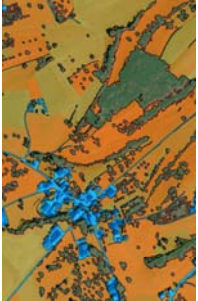


Pan+NIR



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Komplexes Model



Einfaches Model



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