

Premise

Given the opportunity to work with high quality satellite imagery, IntelliScience devised a scenario to test the ability to quickly and accurately train a satellite image knowledge set and then apply it to another set of images from a different location.

Scenario

- IntelliScience was provided with satellite images from 4 various regions of the globe. Same type of satellite images produced from different satellites.
- IntelliScience trained a knowledge set of known features on images of Pavia, Italy
- Known feature set included trees, water, roads
- IntelliScience trained the control set of Pavia, Italy images 28 times on a laptop computer. Estimated time of less than 4 hours.
- Training consisted of “painting” identified features in the imagery

IntelliScience Actions

- Once the knowledge set was created using the Pavia control set, IntelliScience applied the knowledge set to images of Boise, ID.
- Total time required – approximately 10 seconds per image
- Results (see figure 1)

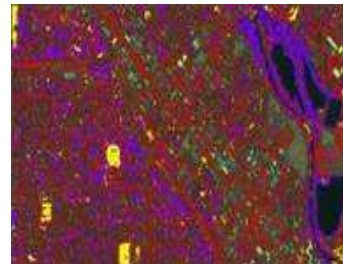
Figure 1



Satellite image of Pavia Italy



ISCI trained image of Pavia
(crops, roads, trees)



ISCI trained knowledge set
applied to Boise ID

Conclusion

IntelliScience software was able to rapidly create a known feature knowledge set using satellite imagery and very quickly apply it to other satellite imagery from a different satellite. Fewer than 30 training sessions were required on a laptop computer to achieve high quality results on the test images. Additionally, no retraining was required on the test images and unknowns in the test images were not highlighted, demonstrating the discrimination and precision of the software.

IntelliScience software works with any type of data to quickly and accurately identify unknowns by creating patterns of data using low computational power. When used in conjunction with satellite imagery, there are numerous applications in defense, security, public safety, search and rescue, archaeology, civil engineering and other areas where automated satellite imagery data analysis can save money, time and perhaps even lives.