

GreenCognition

Munich, Germany

A continuously increasing number of Definiens customers have been working intensively on environmental topics. At least half of our more than two thousand users run eCognition applications for “green purposes”.

Some employ the technology from a legislative perspective, for instance to measure the amount of imperviously vegetated areas in their city in order to judge the degree in which urban sprawl has really diminished vegetation within their city. Others want to get a clearer understanding of how far land erosion has progressed over the years on cultivated land. In other cases, specialists measure the amount of ice melting on glaciers, while marine experts closely investigate changes caused by pollution and water warming in coastal waters.

No doubt, there are thousands – maybe even millions – of environmental applications for our image analysis software. We are convinced that this is directly related to the massive power that images have. The conventional wisdom that “one image is worth a thousand words” fully applies to human understanding of environmental issues. Remember Al Gore’s impressive global tour in 2007? He succeeded in shaking up a large number of people – many of whom may have preferred to ignore the fact that everyone can and should contribute to making our planet a cleaner place. The images Al Gore presented really drove home his “Inconvenient Truth.” And images will continue to guide mankind when it comes to taking the right measures for the future of our planet. Intelligence derived from images is ideal for “green” purposes, let’s call it “GreenCognition” if you like.

Every eCognition user in the environmental community has a story to tell. Some of these stories will help us gain a better understanding of how far the situation has progressed. Some of the findings can already help guiding federal regulations and public opinion. Therefore, understanding those images that are already available is a great step forward.

But we don’t want to stop there. We have already seen in many cases that properly analysed images have a far bigger potential that is yet to be fully explored – namely the capability to network our understanding. What our software does, is provide users with a cognition network to match their images. A cognition network is a detailed representation of all objects and their inter-relationships within the images. With this cognition network, users can recognize and measure practically everything contained in an image – and do so across very large areas and over long stretches of time. In short, the thousands of miniscule facts documented in an image are now becoming available in a standardized way.



Let's now imagine the full resulting potential once environmental experts will be able to correlate and overlay the results in their imagery with the results of other experts in true Web2.0 fashion – rapidly, globally and easily.

Here's a scenario: A forestry expert analyzes image data to study why young forest stands have been more heavily affected by aggressive bugs than older forest stands. A water expert also analyzes the same imagery with a very different intention; to find catchment changes caused by subsidence from an old mine in the vicinity. And a logistics expert may look at the same imagery to evaluate traffic pattern changes caused by a new highway exit created recently in the same area.

Parallel and at the same time, each expert is creating a thematic map for his or her special purpose. Now, an environmental biologist could potentially merge these three thematic maps created by eCognition to build a unified cognition network for the whole area. And he can also include archived imagery – even older, paper-based maps – to obtain a very powerful “dynamic map” of this environment. The result is an intelligent image, which he could never have created otherwise. And no doubt, once we attain a better understanding of the real dynamics of complex environmental systems, all of us will get a far clearer understanding of how far legislators and citizens may have to push for changes that will keep our planet clean enough for future generations.

This is far more than just theory: Definiens already took action to contribute to make this global change happen. When we heard of SpotImage's “PlanetAction” initiative in 2007, we joined to partner the program almost from the very beginning. Today, we are already seeing multiple projects on their way that are using eCognition grants within the PlanetAction framework for better environmental understanding; for example in Nepal, Siberia and Mozambique.

In order to make it as easy as possible for our eCognition users to exchange their rule sets and latest findings, we are hosting a globally available collaboration platform within our new website that is specifically aimed at users in the geo-spatial image analysis community. We are looking forward to a global exchange of information that can potentially involve every environmental expert on the planet, so that the network created by all eCognition users can take image analysis to a new level that we haven't seen before. And we at Definiens are committed to ensure that all those new environmental findings will be used to make a positive contribution to our planet's future.

