

REGIONAL WINNER

QUINTESENS Pty Ltd

Regular monitoring of land cover issues by ANN analysis of large satellite series, at the service of the population of the Pacific

What was the problem?

Classification of land cover has many uses and has always been a problem which is extremely complex and time consuming. Scientists have been mapping these changes in the landscape but datasets are either incomplete or out-of-date, especially because land cover in pacific regions is especially subject to rapid change.

How did you address it?

Using Artificial Neural Networks (ANNs), the issue of identifying and processing environmental attributes can be solved much faster and completely automated. ANNs are different to using regular computer systems because they process information in a similar way the human brain does, learning by example. The main challenge with ANNs is the fact that the more output classes they have to memorize (forest, water etc..) the less accurate they are. This was solved by using a series of ANNs feeding into each other, greatly reducing the margin for error in data.

What were the key outcomes?

A high scale land cover classification is intricate because there is a massive amount of data to process in a single satellite image and multiple satellite images are required to describe a whole country. The use of ANNs has highly streamlined the generation of this data, which will assist greatly in understanding the various aspects of vegetation and preserve it. The colossal amount of data generated had various practical applications across a wide range of environmental sciences.

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