

Fast automatic deforestation detection

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Abstract

The aim of this thesis is to create algorithms for automatic deforestation detection. The detection of forests, or the lack thereof, is interesting in many ways. Presumably everyone is aware of the ongoing climate crisis and our forests role in mitigating it. It may also be of interest to land owners managing crop portfolios, cities measuring percentages of park areas in the city or detection of natural disasters such as wildfires. In this thesis we propose two algorithms using high altitude images for this purpose. The two algorithms include one parametric and one non parametric. The parametric model assumes independent stable distributions for the color intensities of the pixels of forest images. It uses the Cramér-von Mises test statistic and obtained 96.7% accuracy when separating forest and non forest in the test set. The non parametric model uses the squared Mahalanobis distance and obtained an accuracy of 98.4% on the test set. The thesis is also accompanied by a small R package including the proposed algorithms.

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