TE IT 2018-19
Project Based Seminar

Satellite Image Application
Abstract

1. Wild fire detection based on priori and latter stage can be conducted via sattelite imagings of forest with pseudo color and heat map processing.In order to detect the edge of the forest-fire image, divide the image into two regions: the foreground of the image, including flames, some of fire, areas covered by smoke, and the background. The gray values of the foreground concentrate between 0 and 128,change the gray value of pixels into the values between white and yellow, the smaller of the grey value, the more light-colored, the greater of the grey value, the more darken-colored.
   Histogram statistical analysis is carried out, and based on the gray value distribution, we divide it into different local histograms.
   We analyze the rates of local histogram of the gray changing and its corresponding gray-scale, do partial equilibrium to the histogram the gray value of which is at around 128, because the gray value around 128 is the division of the area covered by smoke and background; the transformation function is:
   $s = T(r) = \int_0^r Pr(w)dw$
2. The proliferation of satellite imagery has given us a radically improved understanding of our planet. It has enabled us to better achieve everything from mobilizing resources during disasters, monitoring effects of global warming , better surveillance over country borders and oceans etc.

   Train an eye in the sky - Using Defence Science and Technology Laboratory (Dstl) Satellite imagery dataset in which the 3-band images are the traditional RGB natural color images and the 16-band images contain spectral information by capturing wider wavelength channels. This multi-band imagery is taken from the multispectral (400 – 1040nm) and short-wave infrared (SWIR) (1195-2365nm) range .Using this we can extract the required features in the real time satellite images.
3. With the improvement of satellite resolution and the object-oriented detection method in satellite images, traffic data can be more quickly and widely acquired in large area satellite images compared with the traditional data acquired method. In the process, three classification decision trees for vehicles in different situations have been summed up. At last, the paper has achieved the empirical research using the remote sensing images of typical regions in the urban road from Worldview-2 and the GeoEye-1. Based on the precision analysis of the experimental results, it shows that the average accuracy is more than 90%
4. During a crisis, it is important to map the entire affected area comprehensively, which is very difficult and time-consuming to do manually. This method could get important disaster mapping information into the hands of rescue and relief workers in significantly less time. Quickly and accurately identifying which areas are most affected allows aid organizations to deliver supplies and aid where they are needed most. In the future, this could be extended to quantify disaster impact on natural features like farmlands and forests, and to assess damage from other disasters, such as earthquakes.
   The proposed social media crisis mapping platform for natural disasters uses locations from gazetteer, street map, and volunteered geographic information (VGI) sources for areas at risk of disaster and matches them to geoparsed real-time tweet data streams.

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