Creating Networks Example - Landcover Classification

Landcover Labels

In the following sections, you will classify the land use of satellite images.
There are six categories in this data set.

 barren land

 building

 grassland

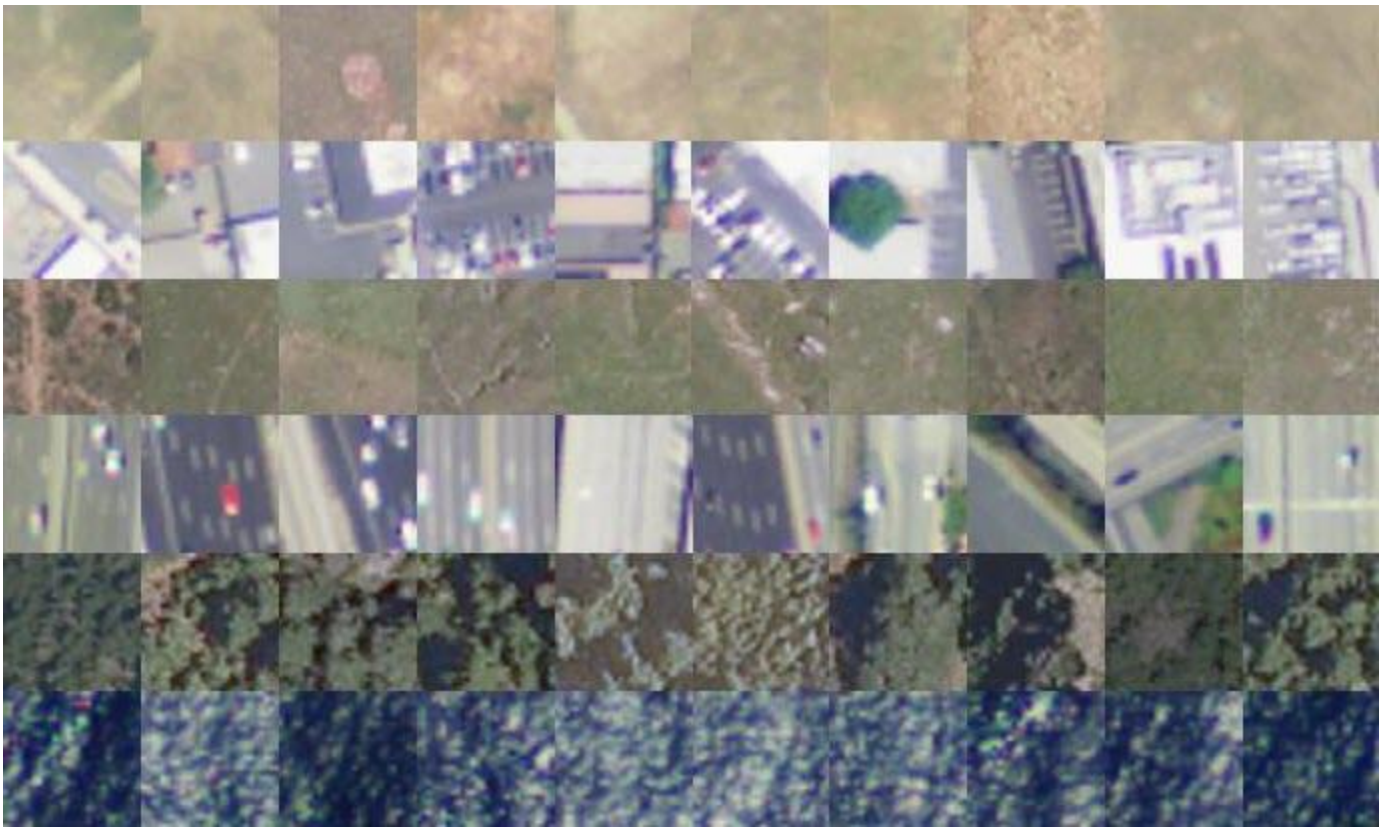
 road

 trees

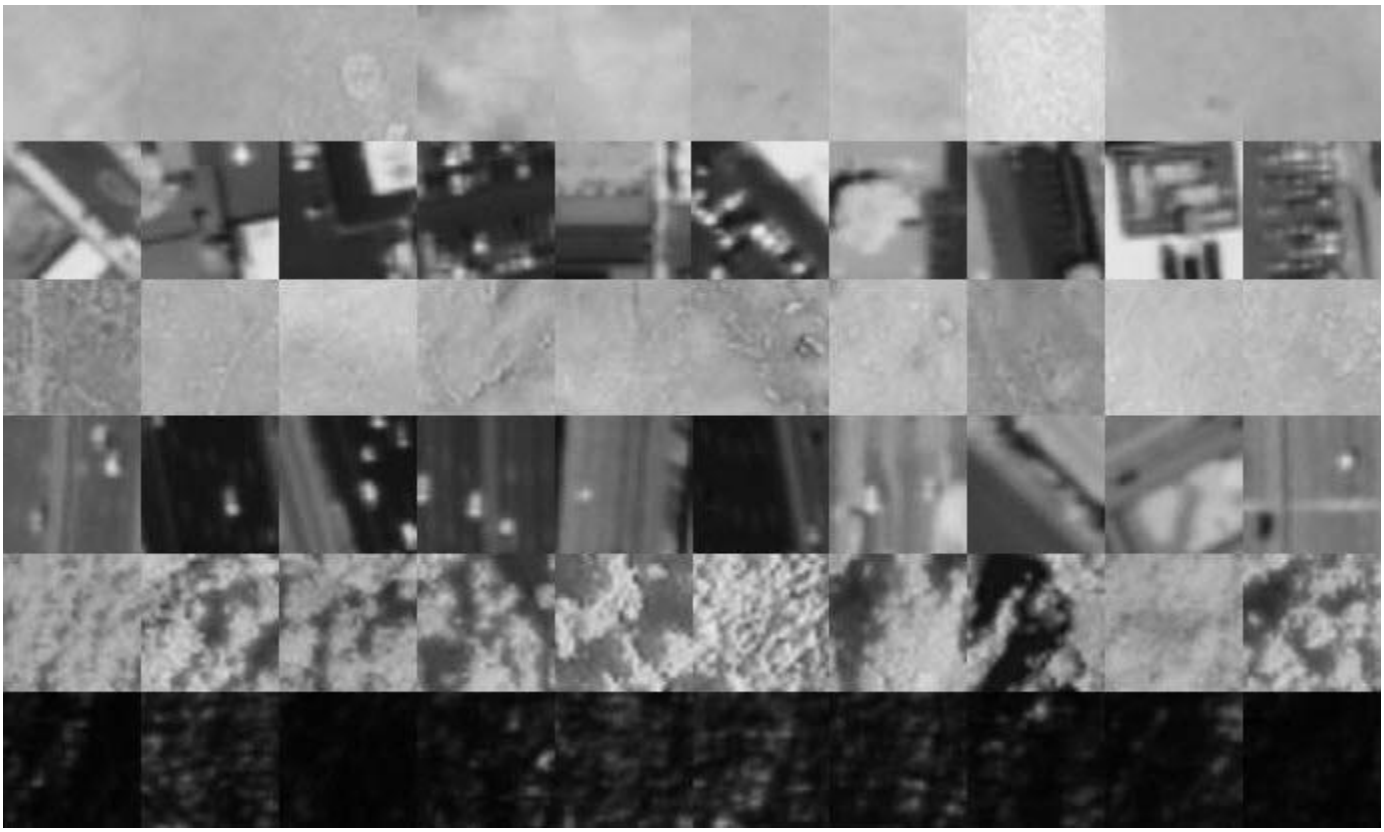
 water

Displaying Satellite Images

Each row of this montage shows one of the six classes listed above. Each individual image is size 28-by-28-by-4. You can't visualize all four channels as an image, but you can view the first three together and the fourth separately.



The first three channels are red, green, and blue.



The fourth channel is near infrared (NIR). This channel primarily captures vegetation, and can be viewed as a grayscale image.

Custom Architecture

To classify these images with a pretrained network like GoogLeNet, you would resize the images to 224-by-224 and remove the fourth channel. This would remove valuable information and significantly increase the training time. Instead, you can solve this problem with a simple custom architecture.

SAT-6 Data

Image datastores are commonly used when your images are stored in folders. Another popular way of storing image data is using a 4-D array. This format works well with this data set since the images have four channels. You can use 4-D arrays as input to the `trainNetwork` function.