

Minecraft Block Identification  
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Level of Interest: 8/10

### Description

I want to see if it is possible to infer the identity of a given block in Minecraft based on a 2D array of pixels. Each block has a unique color palette and pattern. I am curious if these features can be used to identify blocks regardless of lighting, viewing angle, viewing distance, surrounding blocks, and the like.

### Data

I hypothesize that we can look at the pixels near the crosshair rather than all of the pixels in an image. This means that we will want to use a 2D-array-of-pixels approach to generate the features. The 2D-array-of-pixels method simply uses the RGB values of each pixel in the 2D array. This means that the data would take the following form:

coord	x=958	x=959	x=960	x=961	x=962
y=538	R:82, G:105, B:53	R:99, G:127, B:64	R:82, G:105, B:53	R:99, G:127, B:64	R:82, G:105, B:53
y=539	R:146, G:108, B:77	R:146, G:108, B:77	R:255, G:255, B:255	R:173, G:159, B:142	R:146, G:108, B:77
y=540	R:173, G:159, B:142	R:255, G:255, B:255	R:255, G:255, B:255	R:255, G:255, B:255	R:146, G:108, B:77
y=541	R:146, G:108, B:77	R:146, G:108, B:77	R:255, G:255, B:255	R:146, G:108, B:77	R:146, G:108, B:77
y=542	R:146, G:108, B:77	R:173, G:159, B:142	R:146, G:108, B:77	R:146, G:108, B:77	R:173, G:159, B:142

Target: Block-Identity: grass\_block

For the problem we would be trying to solve, pixel RGB values would be the low-level features, decal patterns would be the high-level features, and the block identity would be the label. I can already tell we will need to ignore common pixels like the ones that make up the crosshair, because presumably all of the images are going to include them. We will also need to add some hidden layers for the high-level features.

### Gathering the Data

The game of Minecraft is publicly available for download by using the following URL:  
<https://www.minecraft.net/en-us/download>.

Additionally, many Minecraft tutorials/playthroughs are publicly available on Youtube:  
<https://www.youtube.com/>.

To get this data in-game, we will need to take screenshots of each block in multiple different settings. For gathering the data via Youtube, we will need to convert the videos into image sequences. For both of these options, we will then need to label each image with its corresponding block identity.