Additional Data

1. Confusion Matrices

We would like to also provide the confusion matrices for the proposed CNN (Figure 2a) and MLP (Figure 2g) models for a better outlook on the per-class performance of the models. Both matrices were generated from the same test/train split a set manual seed. We can see that the MLP provides a little better performance for the class *NoSun*, but sacrifices some performance in detecting the problematic *ShadeFromSun* class. Both models have problems detecting the class.

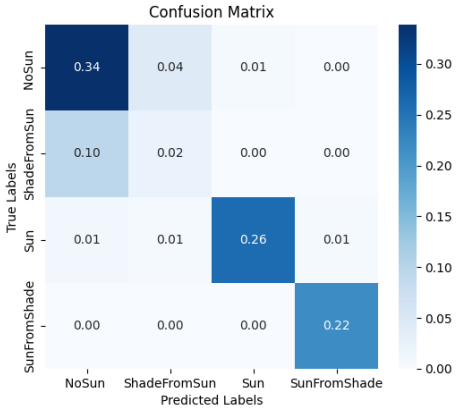
2. Examples of Images

2.1. Good Examples

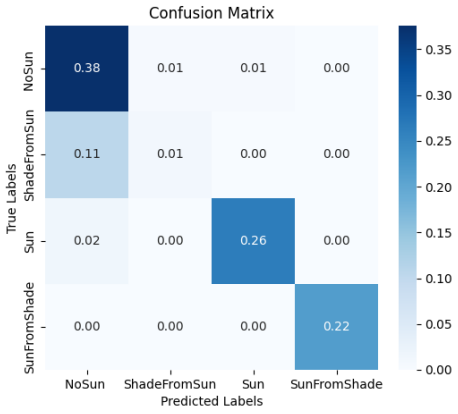
Here we will also give some examples of correctly and incorrectly classified images and elaborate on which this happened. In Figure 2 we show examples of correctly classified images, as it can see the dataset contains examples of different types of colored ground from concrete, to stone pavement and grass. For each of the classes, except *ShadeFromSun* we have multiple examples. The captured EXIF data from these images is given in Table 1.

2.2. Bad Examples

On the other hand examples of images that were misclassified are given in Figure 3. We see that misclassifications are images that would be hard to classify because being very similar to multiple classes or edge case images that were not well represented in the dataset. The same can been seen in the EXIF parameters extracted from these images in Table 2.



(a) CNN



(b) MLP

Figure 1: The confusion matrices for the proposed shallow CNN and MLP models. Both models have problems with the *ShadeFromSun* class and have slightly varying performance.

© 2025 The Author(s).
Proceedings published by Eurographics - The European Association for Computer Graphics.
This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

(a) ShadeFromSun (b) NoSun (c) NoSun

(d) Sun (e) Sun (f) SunFromShade (g) SunFromShade

Figure 2: Examples of correctly classified images with the respective classes. Images have been cropped to fit.

Table 1: Camera EXIF features extracted from the images shown in Figure 2

Photo	ISO	Exposure Time	Shutter Speed	Aperture	Focal Length
a)	50	0.003882	8.008984167	1.69	5.58
b)	320	0.01	6.64385619	1.69	5.58
c)	320	0.01	6.64385619	1.69	5.58
d)	50	0.000569476	10.77807734	1.69	5.54
e)	50	0.000677	10.52855655	1.69	5.58
f)	25	0.005649718	7.46760555	1.69	4
g)	50	0.000132996	12.87632509	1.7	5.54

Table 2: Camera EXIF features extracted from the images shown in Figure 3

Photo	ISO	Exposure Time	Shutter Speed	Aperture	Focal Length
a)	25	0.003134796	8.317412614	1.69	4
b)	25	0.003236246	8.271463028	1.69	4
c)	50	0.000144009	12.76155123	1.7	5.54
d)	100	0.001	9.965784285	1.88	5.59

© 2025 The Author(s).
Proceedings published by Eurographics - The European Association for Computer Graphics.

(a) Sun (b) NoSun (c) SunFromShade (d) ShadeFromSun

Figure 3: Examples of misclassified images - Figure 3a is *Sun* classified as *NoSun*, Figure 3b is *NoSun* classified as *ShadeFromSun*, Figure 3c is *SunFromShade* classified as *Sun*, and Figure 3d is *ShadeFromSun* classified as *NoSun*. Images have been cropped to fit.

© 2025 The Author(s).
Proceedings published by Eurographics - The European Association for Computer Graphics.