A screenshot of a graph

Description automatically generated with low confidence

Figure 4.9 Visualization of cluster 0 for DCNN Kmeans clustering.

Cluster 0 has the lowest predicted GVI values. There are 292 spots where GVI is in the lowest range of 0.01 and 0.17. Their average and median GVI are as low as 0.09. From the map plot, we can observe that there are certain characteristics to where these low GVI spots are located.

For instance, they are often located on highways and main roads without any observable vegetation. Figure 4.10 highlights the vehicular roads where spots with low predicted GVI values from cluster 0 are located and Figure 4.11 illustrates sample GSV taken from these locations.

A map of a city

Description automatically generated with medium confidence



Figure 4.10 Roads that intersect with or adjacent to spots from cluster 0.

From Figure 4.10, we can notice that there are very few ……. While it is a lot harder to plant trees in these areas due to maintenance and arrangements issues, the presence of a lot of such spots can represent a problem in urban design as it creates too much very uncomfortable space for its users.

A picture containing outdoor, sky, cloud, tower block

Description automatically generated A picture containing outdoor, building, sky, commercial building

Description automatically generated A building on the side of a road

Description automatically generated with low confidence

Figure 4.11 Sample GSV images taken from highways and main roads with very little observable vegetation.

While it is a lot harder to plant trees in these areas due to maintenance and arrangements issues, the presence of a lot of such spots can represent a problem in urban design as it creates too much very uncomfortable space for its users.

Other than highways and large vehicular roads, there are also certain zones, especially at the Southeast part of the site with dense commercial zones as shown in Figure 4.12, with sample GSV images illustrated in Figure 4.13. Due to the high density of these areas and the lack of green space planning, these places have very low GVI in result.

A map of a city

Description automatically generated with medium confidence



Figure 4.12 Highlights the city center area with coarse grain where buildings take up relatively large areas.

A street with cars and buildings

Description automatically generated with low confidence A picture containing sky, outdoor, building, land vehicle

Description automatically generated A street with cars parked on it

Description automatically generated with low confidence

Figure 4.13 Sample GSV images taken from areas highlighted in Figure 4.12.

### 4.3.2 Cluster 1

A screenshot of a map

Description automatically generated with low confidence



Figure 4.14 Visualization of cluster 1 for DCNN Kmeans clustering.

Cluster 1 has higher predicted GVI values than Cluster 0. There are 310 spots where GVI is in the lowest range of 0.17 and 0.33. Their average and median GVI are both 0.25. From the map plot, we can observe Cluster 1 is much more evenly scattered compared with Cluster 0. This shows that the GVI values in Cluster 1 is more commonly experienced in the Johor Bahru City Center.



In fact, by inspecting the GSV images in Cluster 1, we can observe that the spots in Cluster 1 are mostly in active commercial and residential areas that makes up a very big part of our experience in a place. In Figure 4.15 and Figure 4.16, GSV from commercial areas and residential marked in Figure 4.14 are illustrated respectively.

A picture containing outdoor, sky, land vehicle, vehicle

Description automatically generated A picture containing outdoor, cloud, sky, building

Description automatically generated A street with cars and buildings in the background

Description automatically generated with low confidence

Figure 4.15 Sample GSV images from residential marked in Figure 4.14.

A picture containing outdoor, cloud, sky, tree

Description automatically generated A crowd of people on a street

Description automatically generated with low confidence A picture containing outdoor, cloud, sky, building

Description automatically generated

Figure 4.16 Sample GSV images from residential marked in Figure 4.15.