

CART451 - Exercise 1

PART A: The construction of a model with only your data.

1. Please provide a description of the initial data set you brought to class. What were the objects, how many ... and why you chose those specific objects. Provide an image of each distinct object.

I used three objects for this experiment: a pokemon figurine, a Bluetooth speaker, and a stack of dice.



Here are all three objects in their respective order. The reason I chose the pokemon figurine is that it contains intricate details and I was curious to see how the AI would analyze it. I chose the speaker because it seemed like a simple and safe shape. Finally, I selected the stack of dice to find out whether numbers could affect AI.

2. What was the purpose of the task you were asked to do in class?

To train an AI program into recognizing physical objects.

3. Describe in a series of steps what you did to complete the initial task in class

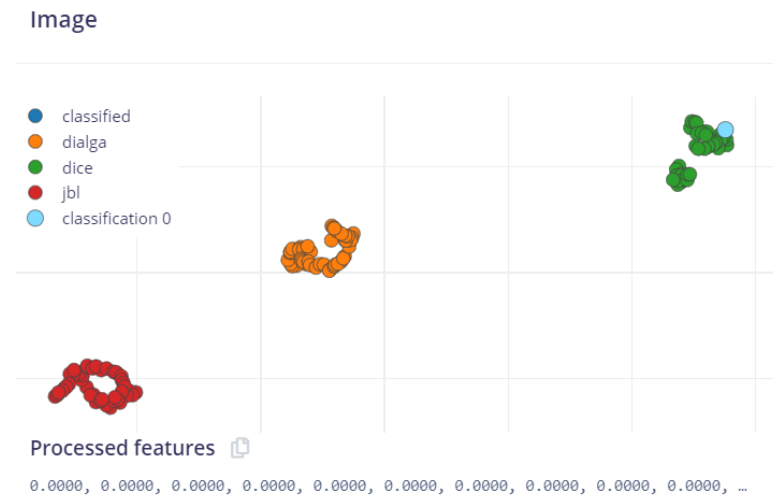
In short:

1. Create an Edge Impulse project
2. Upload images under certain labels
3. Select image parameters
4. Train the program
5. Test the program
6. Deploy the program!

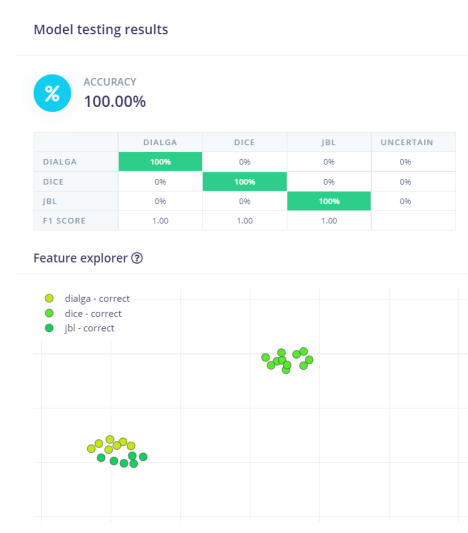
4. How well did your dataset do in terms of Accuracy, Precision and Recall?

Nearly had perfect results in every category. No image was separated from its cluster.

5. Take screen grabs of the graphs available through the Feature Explorer for both the training and test/ live classification sets. Discuss the graphs in detail.



This is the screengrab from my Live classification. It demonstrates condensed clusters of data. This means the images that I uploaded per label are very similar to each other. The AI can determine with high certainty the difference between each label.



This is a screengrab from my Model testing. The Accuracy is 100%, which means every image is clearly labeled & identified by the AI. If I had an ambiguous-looking image, my accuracy score would have gone down.

6. Provide brief postulations for how you think you could get your model to perform better. What does better mean?

I believe that I took a safe approach while taking pictures. I never took bizarrely angled pictures of my objects. This granted me a high accuracy score in training the AI. However, when it comes

to deploying the program, the AI did not recognize the objects from certain angles. If I were to do the process again, I would try to take pictures from various angles and distances.

PART B: The construction of a model with one of your objects and one of someone else's objects:

Sadly, I could not make it to class and therefore could not use someone else's object. I am not sure I understand this step, as it seems the same as PART A.

PART C: Think of how to integrate this task: Provide a written scenario: (not necessarily useful nor functional) – meaning you can dream up what you wish... without constraint... - for how and when such a task (Object Detection) could be used or embedded in ... what, why, where, with whom.

And provide a storyboard describing the scenario above as well.

If I had full control over Object Detection technology, I would create software that could identify used objects and identify their value. This could help reuse goods that would otherwise be discarded. It would also help the users make money (my primary intention). I will call this software *Handy Scan*.

Imagine you are clearing out your basement. You end up with multiple items you do not need anymore, such as furniture, decorations, and electronics. Using *Handy Scan*, you may assert the value of each item and list them on secondhand websites like Ebay or Kijiji. If the item is valuable enough, you may even refurbish it. Sometimes, we dismiss the value of our older items that are gathering dust. Aside from identifying item values, *Handy Scan* makes users more conscious of the utility of their old goods.

Storyboard - How to use Handy Scan

1. Create an Account. Perhaps a subscription fee would be added.
2. Scan any object. The software will scan the web for its market value. If none exist, it will give the values of similar objects.
3. *Handy Scan* would ideally have a shop feature that allows users to list their items directly, just like on Facebook Marketplace. If not, users will be able to list their items at a fair price.