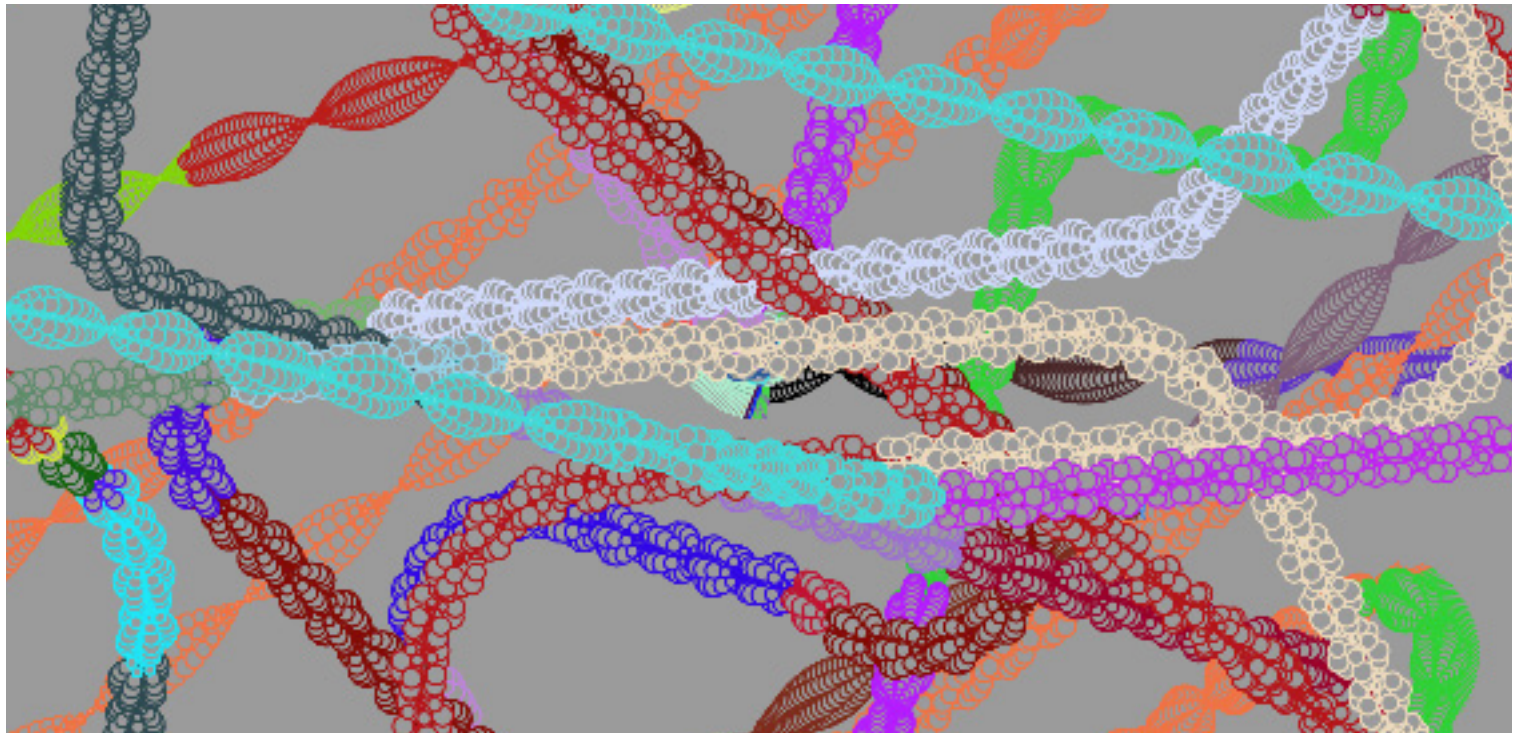


Artificial Intelligence for the Media Practical Exam

The task is to use a classifier with at least 6 classes to make an interactive sketch controlled by the model.



Link to the Project: <https://mim-icproject.com/code/7a890435-8666-4a8f-0098-e26a450b7697>

1. How well does your controller work (with reference to all 6 classes)?

The model seemed to work well finding and keeping classes but tended to jump to class 4 (grapes / colours) on occasion. Surprisingly, it was difficult at first for the model to identify the real apple even though it identified the image of the apple well. Possibly the white background being a latent variable or my hand around the apple is the reason for the difficulties in the identification.

2. Why did you choose these classes / mappings? Consider how MobileNet represents the camera input, model performance, transitions between classes and their relation to the interaction in the sketch in this response.

After having skimmed the MobileNet 1000 label list and printed out images of simple objects that it was trained to identify since it works well for things that are in the original object dataset (ImageNet). I chose to use images of fruit for all classes except for the neutral class as their form is simple but each one is very different from the next. But mainly because it is an object that MobileNet should more easily recognise than other objects so that the transformation between classes should be smooth. Also, by having only images of the objects I wanted to see how the model would then react to one of the real objects even though it had never been trained on the real object, only on images.

3. What were your tactics for improving your model's performance?

I kept my goals realistic and specific and knew what I wanted to train the model to do before I started. Using a total of 1329 input examples, I made sure that my input examples were balanced between all classes for I wanted the model to generalise well to new data. This amount of input examples made it easier for the model to identify the differences between classes. I also tried to ensure that there were no latent variables or anything else that may affect the model's performance. In the case of the apple, where there appeared to be an identification error, I added more input examples. This seemed to improve the identification of the real apple.

4. What was the biggest challenge when completing this task?

I found programming the extra two behaviours the most challenging. Even though I found designing the behaviours themselves easy, it was more difficult to figure out what to add to the code for it to behave as I had envisaged. Deciding on the right steps to make my interactive system work as I had imagined it was also challenging.

5. How has using machine learning benefitted or obstructed your development the interactivity in this sketch?

The benefits included being able to more easily move between classes without having to think of every detail as if the code was handcrafted. What machine learning does is formulate the algorithm automatically and use the data to create the rules. Not having to spend time doing this by hand means more time and space to explore the actual theories and ideas related to interaction and how it applies to my work.

References:

McCallum, Louis (unknown date). Source code. <https://mimicproject.com/code/9924b493-bcff-5325-5357-22226e91e1aa>