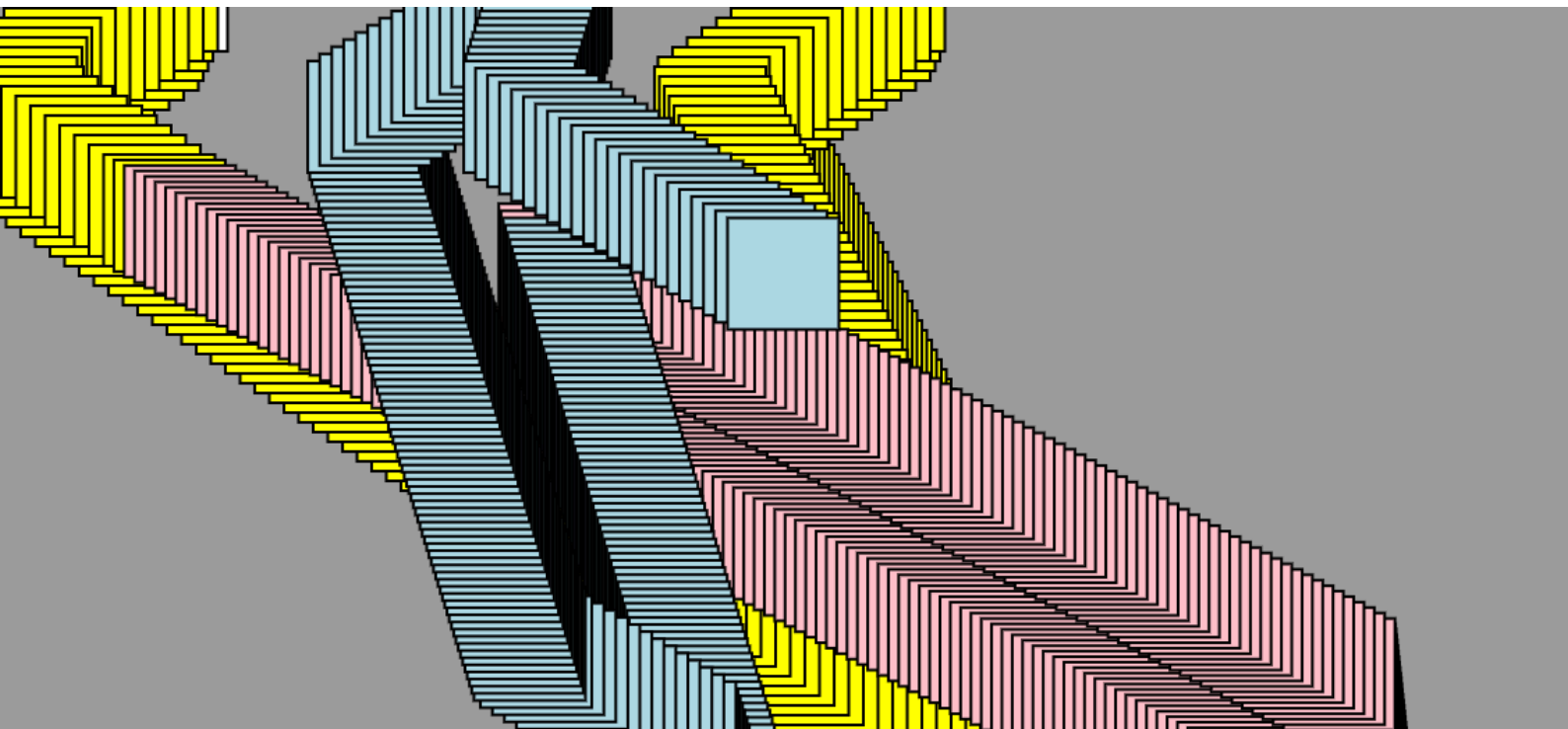


## Interaction building with Learner.js Classifier

Train a model that uses at least one feature transformation to achieve a type of interaction that isn't possible (or easy) using raw features alone.



Still from the classifier in training.

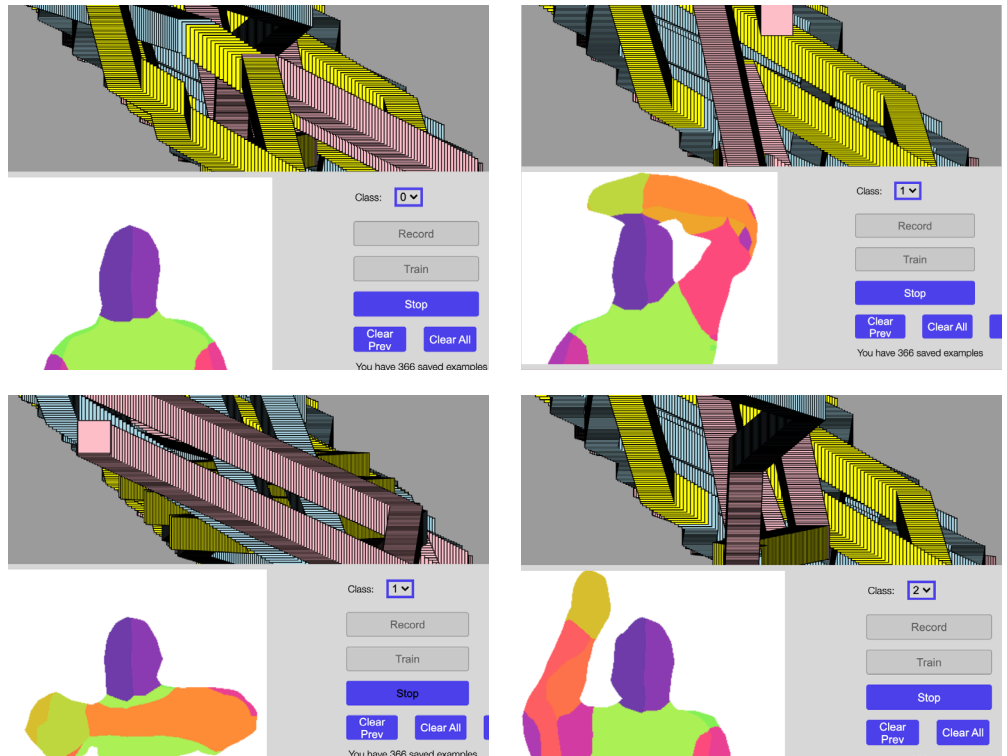
**What feature transformation(s) and body parts did you ultimately use in Learner.js?**

I chose to use the left and right wrists and elbows to create input for a classifier. As for feature transformation I chose Standard Deviation for the neutral position (class 0) and Velocity for the hand gestures (classes 1 and 2).

**Why did you choose these? For instance, what type of actions did these transformations allow you to recognise?**

The reason I chose the wrists was for the waving motions. However, through trial and error I found that using the elbows was necessary as they are also used for the waving gesture. Using them I was able to get a more accurate classifier. I chose Standard Deviation features for the neutral position as it reduces noise and ignores slight movements that occur even when you are sat still. Velocity was a good fit for the other gesture as it is well suited to movements that vary in speed.

**Selecting Body parts  
and picking features.**



**How well did these feature transformations work in allowing you to build your desired interaction?**

Since I wanted to be able to move between positions without losing the connection to the class allocated to that gesture, I found that using these features worked much better than using raw features.

**In what type of creative context(s) could you envision using this type of interaction?**

I can see this being used in interactive systems customised to the user experience (e.g. participation in an interactive exhibition). By using the classifier or regression model in design interaction it would include user capability for movement and participation. I would like to see this being used for sketching or drawing using your whole body. As noted by Klemmer and colleagues gesturing is not only for communicating but also an important factor in the creative flow and thinking of the communication, whether in design or verbally. They maintain that physical movement is directly connected to the ability to think and the hands are the easiest body part to gesture with (Klemmer, et al, 2006).

**Were there actions you still could not accurately recognise/use? Or were there any other problems you encountered?**

Although I did not have problems with the gesturing, I did have difficulty putting forward that images that I had initially visualised. My original plan was to create a regression model that could map my movement around the movement of a virtual object. I wanted to make a cube that would stretch and bend according to the gestures made or create a dot that would allow the background colour to change with a wrist movement.

**How have you updated the code and how does this relate to your actions?**

I change the code in p5.js since my original plan was in relation to the cube as mentioned above. I also enjoyed seeing how things changed. As well as this I also changed the features as described above.

**References:**

Klemmer, Scott R., Hartmann, Björn, Takayama, Leila (2006). How Bodies Matter: Five Themes for Interaction Design. *DIS 2006*. Page 140–149.

McCallum, Louis (unknown date). Source code. <https://mimicproject.com/code/725e26d3-d2be-96fb-0ed1-7e715a13a270>