1. **Definitions of columns**

**Class**

A: <1mm overbite

B: 1-2 mm

C: 2-3 mm

D: 3-4 mm

E: More than 4 mm

**Overbite (upper jaw only)**

A random number expressing the degree of overbite (in pixels) e.g. for class B this will be a random number between 13 and 24 pixels. I excluded distances that are right at the border between categories e.g. there is no ’25’ value since that would be 2 mm.

**X, Y**

The coordinates of the keypoint in each image’s own coordinate space

**Y\_target (upper jaw only)**

The Y-coordinate for the upper jaw keypoint when transferring it to the same coordinate space as the corresponding lower jaw. !!! Assumes Y=0 is the top of the image.

**Y\_flipped (upper jaw only)**

The flipped Y-coordinate of the upper jaw keypoint (=1023-Y)

**Y\_vertical\_translate**

= Y\_flipped – Y\_target

1. **How to convert Y-coordinates for upper jaw to same coordinate space as lower jaw**

When your neural network provides a coordinate Y for one of the upper jaw images in the test set, in order to assess the presence of overbite, it has to be converted to the same coordinate space as the matching lower jaw image. This is done as follows:

* Invert the coordinate (Y’=1023-Y)
* Find the Y\_vertical\_translate value for that particular image and subtract this value from Y’. We will call this result Y\*

1. **How to classify the images for different degrees of overbite**

* After calculating Y\* for an upper jaw image subtract the Y-coordinate for the corresponding lower jaw from it. Multiply the result by 0.08 to get the distance in mm
* Apply the classification system above to determine the class for that pair of upper-lower jaw images
* Compare the class with the ground truth class in the XLSX file (the ’Class’ value listed for the upper jaw image). You can use metrics such as accuracy and weighted kappa to assess the classification performance.