**Crowdsourcing Gaze Data Collection Character Chart Design and Implementation**

The character charts in our experiment were constructed based on a similar procedure to those in the Goldman, et al. 2012 paper. Character combinations of size 3 were utilized as triplet codes that users would enter for gaze tracking purposes. The triplet codes were constructed in the format of letter-digit-digit, where the letters “I” and “O” were excluded to prevent potential confusions with the digits “1” and “0”. Following the 2012 paper, an Arial font, a 20px font size, a gray font color, and a black background color were utilized for easy readability. Additionally, the triplet codes were jittered in order to add irregularity to the grid. Fig. 1 shows all the parameters with their corresponding values used to construct the character chart.

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| Meaning | Variable Name | Value |
| image width | *image\_width* | 1920px |
| image height | *image\_height* | 1080px |
| font size | *font\_size* | 20px |
| pixel to point ratio | *px\_pt\_ratio* | 20px/29pt |
| max triplet width | *max\_triplet\_width* | 60px |
| max triplet height | *max\_triplet\_height* | 20px |
| vertical step size between triplets | *d\_v* | 80px |
| horizontal step size between triplets | *d\_h* | 120px |
| min buffer between triplets | *post\_jitter\_buffer* | 6px |
| max vertical jitter up/down for triplet | *j\_v* | 8px |
| maxi horizontal jitter right/left for triplet | *j\_h* | 34px |

Our image width and image height values were chosen based on image data of that size for which we already had gaze tracking data for. Font size was chosen based on the Goldman et al. 2012 paper. Pixel to point ratio was calculated based on personal trials of displaying triplet codes in images by feeding in point values and utilizing a connected components algorithm to measure a 20px height size. Max triplet width was calculated using connected components as well based on the widest triplet code possible “W88”. Max triplet height was set to the same value as font size because that is the maximum height a triplet can ever be. Vertical step size represented the distance between writing one triplet code to writing the next vertically. This was set to four times the max triplet height to create a wide distance between triplets to maintain readability. Horizontal step size was set to twice the max triplet width for the same reason just described, but for a horizontal fashion. Min buffer between triplets accounted for edge cases where if triplets were jittered to their complete max, then there would be some minimum buffer between them to ease readability. This was set to 6px based on personal testing of readability. Max vertical jitter up/down for a triplet represented the maximum distance a triplet could be drawn onto the image either up or down from its original (x,y) coordinate. Max horizontal jitter right/left for a triplet represented the maximum distance a triplet could be drawn onto the image either right or left from its original (x,y) coordinate. Both of these values were calculated using the following formulas:

This formula ensures that jittered triplets do not overlap each other and maintain readability of the chart.