SteadyHand

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The Experiment

For this experiment we collected data of individuals attempting to hold a laser steady. With the help of a Motion-Logger, we were able to track the movement of the laser. The MotionLogger has the ability to track and log the position of objects in a video. The individuals took turns holding the laser at a fixed point at two distances. Each student held the laser at a distance of 5 meters for approximately 15 seconds and again at a distance of 10 meters for the same amount of time. The data was collected and made into text files. From there we were able to construct scripts that processed the data to determine who had the steadiest hand.

Results

Filename	x-avg	y-avg	x-dev	y-dev	total-dev
data-201745135431.txt	497.375	577.75	3.52288437019	12.9117886334	13.3837588143
data-20174513521.txt	495.666666667	587.333333333	8.41130192063	11.0707949127	13.9036865614
data-201745135328.txt	491.375	572.4375	4.69612302102	13.2326368714	14.0412339201
data-201745135111.txt	498.1875	589.8125	10.7833784131	13.9333554055	17.6187298877
data-201745135246.txt	492.25	563.0	15.0665191733	29.8005273204	33.3926852555

Table 1: Table of the rankings from the short distance for one second.

Filename	x-avg	y-avg	x-dev	y-dev	total-dev
data-201745135944.txt	506.125	574.1875	5.53398590529	13.6144290579	14.6961790467
data-20174513577.txt	472.666666667	579.5	16.2480768093	27.3450178278	31.8080178572
data-201745135616.txt	474.8125	589.375	13.1799021783	30.6416499929	33.3559670182
data-201745135851.txt	491.625	596.9375	24.9596102305	32.24619302	40.7774337978
data-20174513581.txt	524.9375	598.5625	23.0688991316	34.5950424813	41.5811384094

Table 2: Table of the rankings from the long distance for one second.

Filename	x-avg	y-avg	x-dev	y-dev	total-dev
data-201745135431.txt	499.927631579	572.401315789	6.92372922028	12.6198308855	14.3943793855
data-201745135111.txt	493.39375	576.40625	8.66890768454	15.7136346805	17.9462607614
data-20174513521.txt	492.327160494	577.561728395	8.09481334475	18.5242042198	20.2156410995
data-201745135246.txt	485.550632911	574.772151899	14.9941430738	23.5635797676	27.9296727153
data-201745135328.txt	479.344155844	580.733766234	25.7276039217	33.0980982535	41.9212799369

Table 3: Table of the rankings from the short distance for ten seconds.

Filename	x-avg	y-avg	x-dev	y-dev	total-dev
data-201745135944.txt	502.820512821	541.25	9.98179328258	22.1089025379	24.2577774861
data-20174513577.txt	489.301282051	586.121794872	17.3981898864	28.1099633279	33.0585397382
data-201745135851.txt	494.953947368	586.526315789	20.7981053034	28.0834345878	34.9462513363
data-201745135616.txt	487.681818182	590.5	19.1543091707	34.9811039217	39.8818905192
data-20174513581.txt	475.126582278	593.981012658	41.8862522849	55.4329950711	69.4785943512

Table 4: Table of the rankings from the long distance for ten seconds.

Figure 1: A graph that shows the count for the distance from average for each data file.
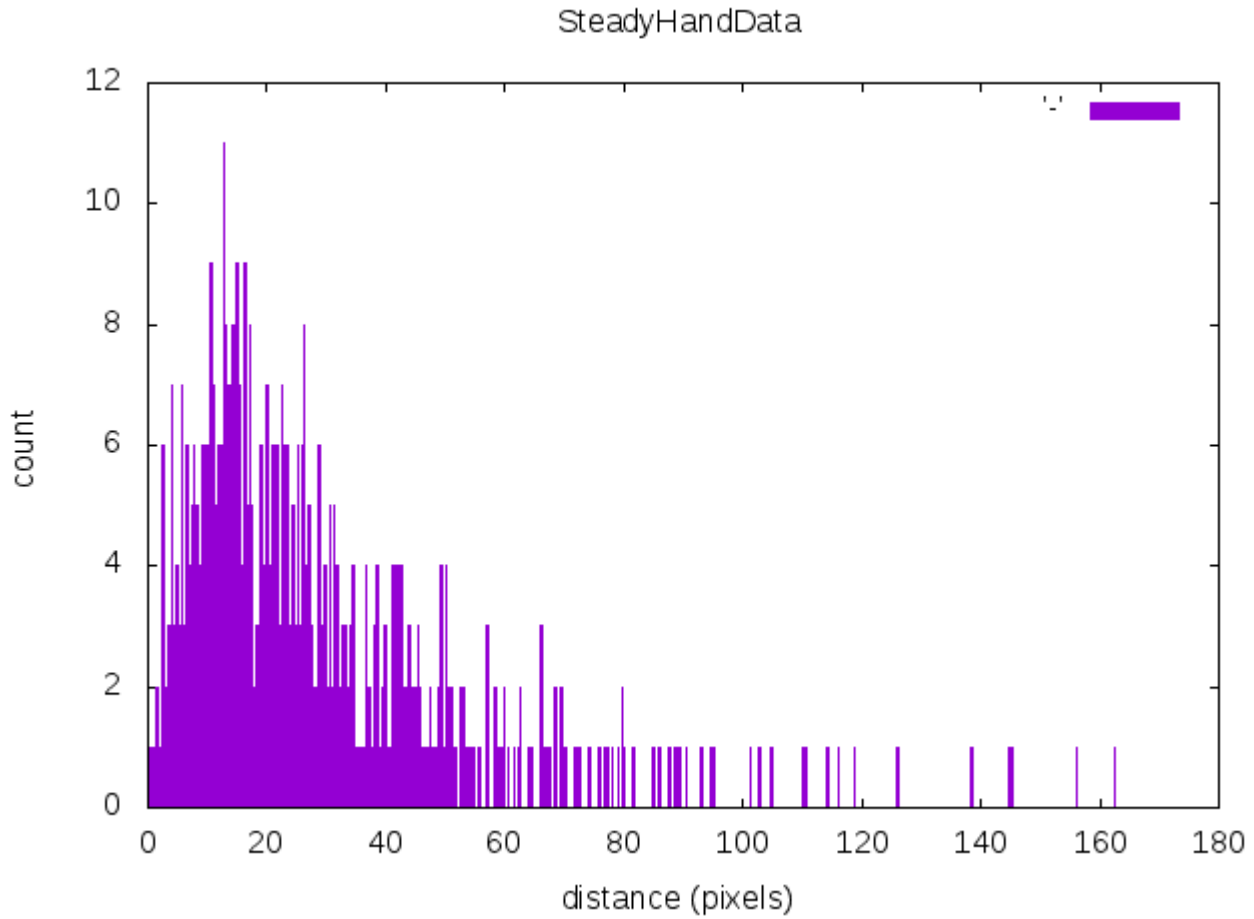
Histogram

We were able to create a script that calculated the distance from each points position to the average position for each file. We then generated a histogram that used the first ten seconds of all data files. Our histogram shows the count for these distances.