

# CS 279 HW2 Data Analysis

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## 1 Design

We only removed one data point from our analysis, from an in person user test who was observed to take a break in the middle of their ribbons testing.

## 2 Results

We found that the improvement with commandmaps was significant, but there was not a significant difference between trackpad, trackball, and mouse users.

The results in R for the paired T test were:

```
>t.test(data4$avgclicktimecmdmp, data4$avgclicktimeribbons, paired=TRUE)
Paired t-test
data: data4$avgclicktimecmdmp and data4$avgclicktimeribbons
t = -9.1619, df = 70, p-value = 1.336e-13
alternative hypothesis: true difference in means is not equal to 0
95 percent confidence interval:
-724.4809 -465.4468
sample estimates:
mean of the differences
-594.9639
```

The ANOVA between-subjects test showed the results were device-independent.

```
>res = ezANOVA(data=stacked_data, dv=avgclicktime, wid=user, within=which, between=.(dev))
res
$ANOVA
Effect DFn DFd F p p<.05 ges
2 dev 2 68 0.1426021 8.673576e-01 0.003102044
3 which 1 68 88.6188769 6.077302e-14 * 0.251693247
4 dev:which 2 68 2.9509884 5.901972e-02 0.021909980
```

The histogram of the average difference for each user between time spent completing CommandMaps and Ribbons is shown below.

## 3 Discussion

There were no significant differences between lab-based and online data. In fact, the only outlier we were sure of was from a lab-based experiment, because the difference between interfaces was 5095.6667, nearly ten times larger than the average difference. The second-largest differences were in the 2000s, so this was by far the largest outlier.

We had great success publicizing our experiment on social media. A couple of our friends re-posted our experiment to their own Facebook pages, and our posts had many likes and lively comment sections, in which people compared statistics or discussed whether or not they liked the music. Shown below are some pages from Google Analytics showing overall traffic to our page.

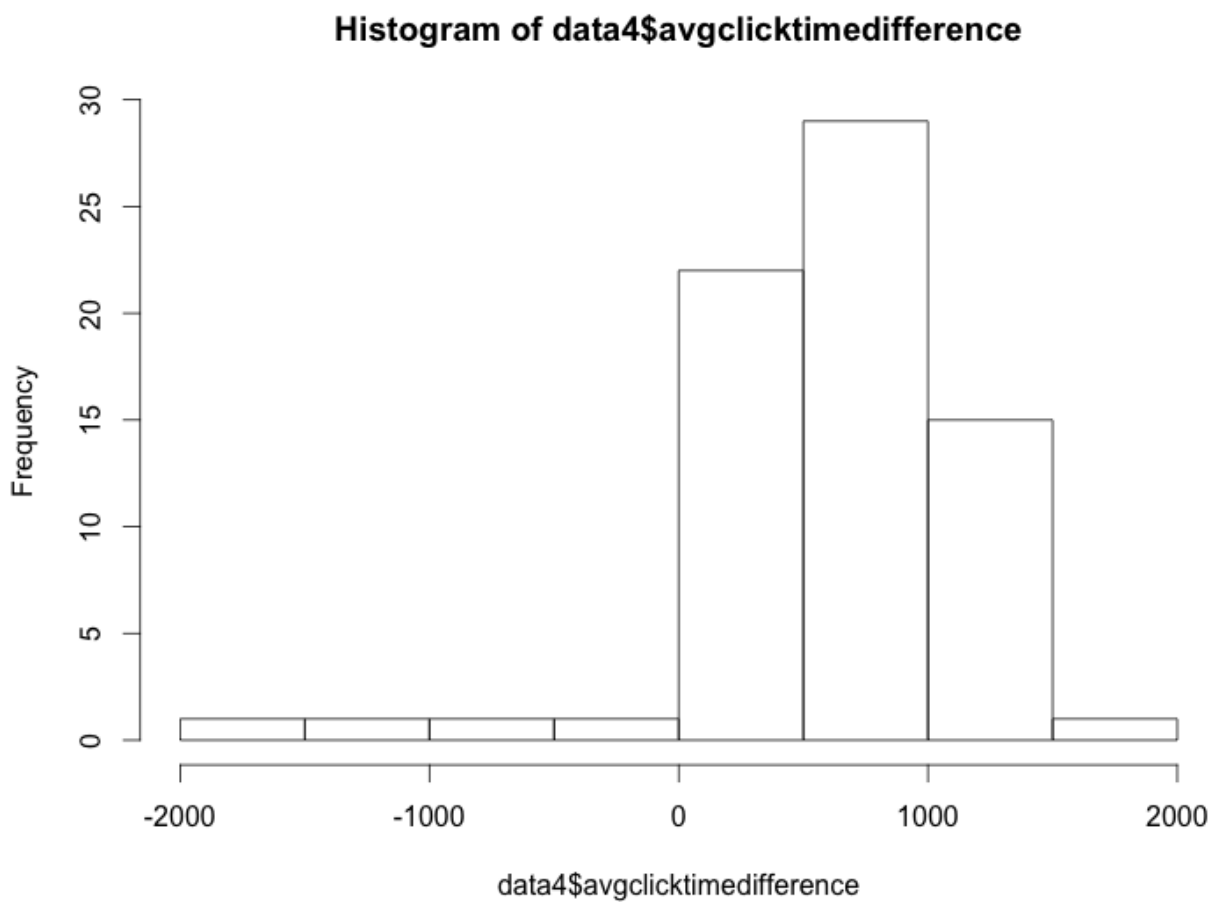


Figure 1: Click time differences

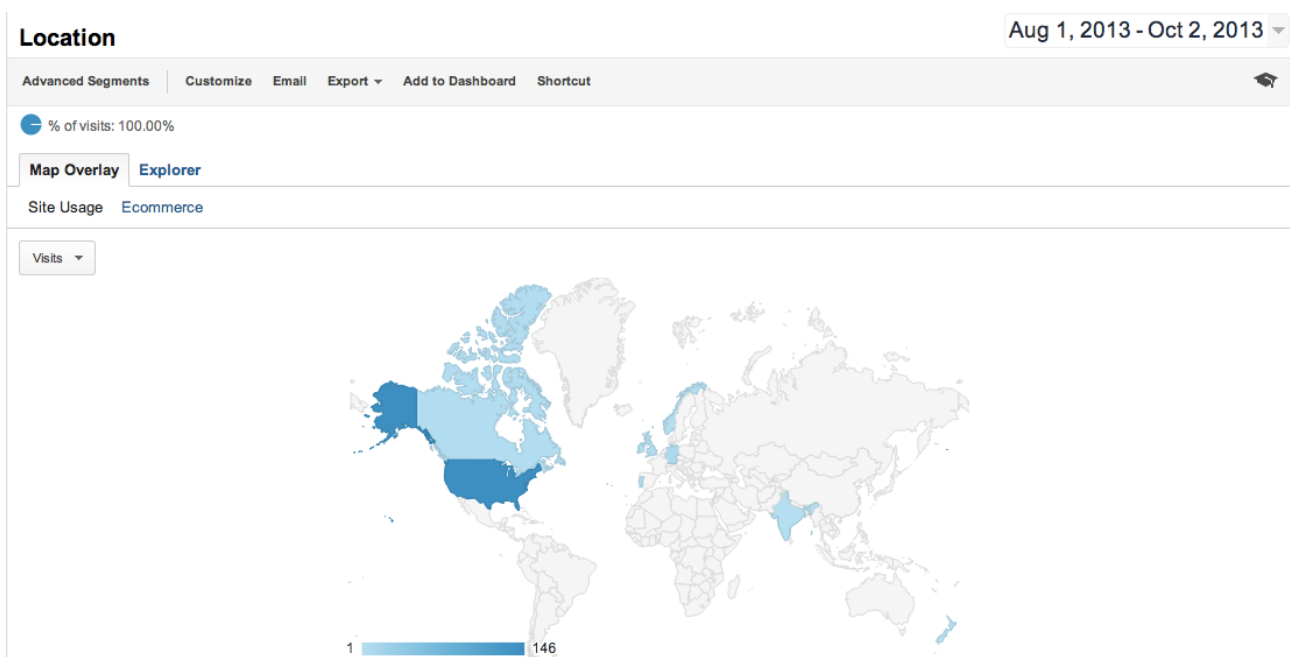


Figure 2: Locations of study participants

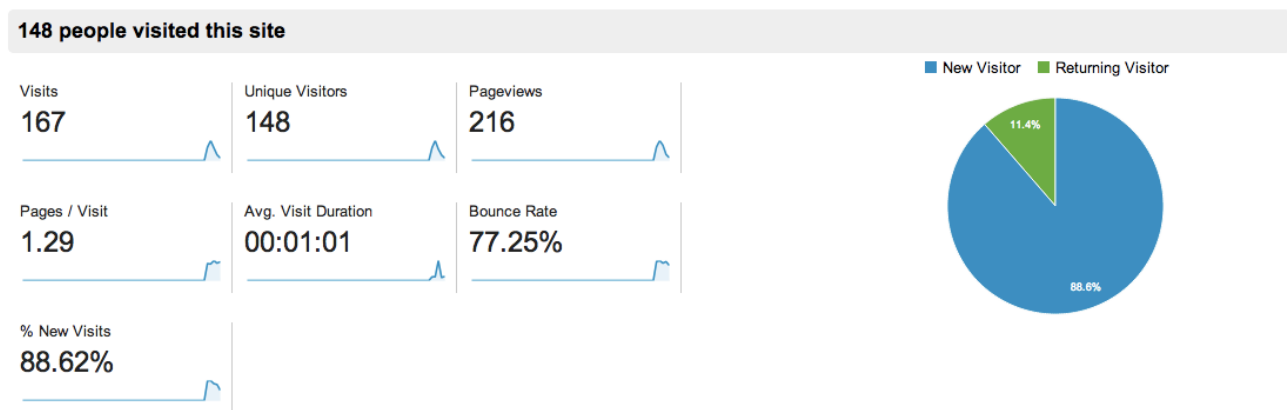


Figure 3: Website traffic statistics

## What's your Reaction Time?

How fast can you click with the aid of **concentration** music?

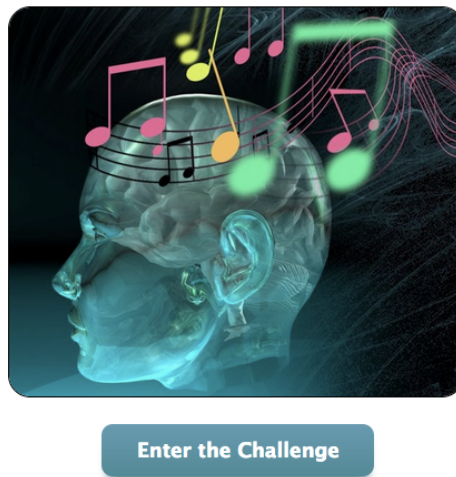


Figure 4: The first page of our website

To ensure that our users had the sound turned on for maximum scariness at the end, we claimed that the study was an examination of the effect of music on concentration. Once they had completed the study, we offered them a link to share the website on Facebook to give their friends a similar fright.

**Thank you for participating in our study! We really appreciate your help.**

**You were SSSSCCAAARRYYYY fast!!!**

**Ranking: #10 out of 64, avg. clicktime 2300ms (best: 1267ms)**

**Now scare your friends! Send them this link: <http://tinyurl.com/focusmusic> or**



Figure 5: The last page of our website