Lab 8 - Haptics

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1 Two Point Discrimination Test

1.1 Static Data

Unable to be found

1.2 Dynamic Data

Unable to be found

1.3 Data Analysis

1.3.1 Compute the mean distance for the two–point discriminant at each point.

Unable to receive data from classmate

1.3.2 Perform a student's t-test to find any differences between the static and dynamic points at each site.

Unable to receive data from classmate

2 Dexterity Test (Dominant hand)

Table 1: Simple Peg

Team Member	Without Gloves (sec)	With Gloves (sec)
Jonah	63	75
Dorsa	66	79
Karsten	64	76

Table 2: Grooved Peg

Team Member	Without Gloves (sec)	With Gloves (sec)
Jonah	68	90
Dorsa	72	96
Karsten	71	92

3 Data Analysis - Compute the mean times for all peg insertion tasks

- Simple Peg without Gloves: 64.3 seconds

- Simple Peg with Gloves: 76.6 seconds

- Grooved Peg without Gloves: 70.3 seconds

- Grooved Peg with Gloves: 92.6 seconds

3.1 Perform a Student's t-test to find any differences among tasks. There should be 2 comparisons

t-Test: Paired Two Sample for Means

	Variable 1	Variable 2
Mean	65	77.5
Variance	2	4.5
Observations	2	2
Pearson Correla	1	
Hypothesized M	0	
df	1	
t Stat	-25	
P(T<=t) one-tail	0.012725611	
t Critical one-tail	6.313751515	
P(T<=t) two-tail	0.025451223	
t Critical two-tail	12.70620474	

Figure 1: Station 1

t-Test: Paired Two Sample for Means

	Variable 1	Variable 2
Mean	71.5	94
Variance	0.5	8
Observations	2	2
Pearson Correla	1	
Hypothesized M	0	
df	1	
t Stat	-15	
P(T<=t) one-tail	0.021189305	
t Critical one-tail	6.313751515	
P(T<=t) two-tail	0.042378609	
t Critical two-tail	12.70620474	

Figure 2: Station 2

4 Lab Questions

4.1 Which task (pegboard or slotted peg) was most difficult to complete without gloves

Response - The task that was the most difficult without gloves was performing was the peg board with the different shapes at the end

4.2 Which condition, with or without gloves, did you find more difficult to complete? Was this expected? Did the analysis show a significant difference?

Response - When wearing the gloves during the task, we found it more difficult and there was a correlation on our recorded data

4.3 Did you expect these results based on your readings? Briefly explain why or why not.

Response - We did expect the data to be different from using the gloves due to the initial feeling of how hard it was to grip the peg

4.4 4. Based on Figure 1 - Partial Mfg Grip Taxonomy – which grip were you using to do the insertion task?

Response - We identified that we utilized a precision grip that was prismatic, and this matches the 9th picture on the chart

4.5 5. Give a real-life example where the results of this lab section can impact you each personally.

Response - An example that we thought of while doing this lab was the thought of what parts of our day to day routine could be optimized to save time if we did our tasks differently.

5 Question to Answer:

5.1 What is the predicted relationship between the number of hits in set A versus set B

The group initial prediction is that set A would be easier to go from back and fourth due to the size of the square target, the other factor would be the notable distance in set B. Set B might encounter more taps due to the travel distance as it is dramatically less

6   Data Set 1

(s/hit)

Table 3:

	Member 1	Member 2	Member 3	Mean
Target set A	0.93	0.99	1.00	0.97
Target set B	0.84	0.89	0.72	0.81
Target set C	1.27	1.44	1.28	1.33
Target set D	0.62	0.70	0.58	0.63

6.1

Use this data to plot a Fitts' law function with ID as the abscissa and mean movement time as the ordinate. [Response - We were using google sheets to chart the data we gathered, and unfortunately we could not get the table to come out correctly]

7   Final Data Sheet

Complete this Data Sheet. Record the data asked for in the online in the collaborative sheet for our lecture. Slope = sec/bit and... 1/Slope = bits/sec

Table 4:

Target Set	D(cm)	W(cm)	ID(bits)	MT(sec)	Number of hits	Mean MT/Hit
Target set A	14.2	1.3	4.5	20	22	0.97
Target set B	6.3	0.6	4.3	20	23	0.81
Target set C	24.1	0.6	6.3	24.6	22	1.33
Target set D	6.3	2.5	2.32	15.67	23	0.63