Mandatory Assignment 2: Experimental research and statistical analysis

Due: Oct. 10th 2021, at 23:59

With the spread of Covid-19, the world of interaction technology research has completely changed. The pandemic introduced various challenges across fields, while specifically in the field of human-computer interaction, new ways of interaction and communication emerged. For instance, the need for touchless technologies became prevalent and safety considerations forced us to rethink our interactions.

You can take inspiration from the impact of the pandemic in your interactions with computing systems. Choose among interaction types, styles and user interfaces to examine problems in the design, development, and adoption of computing technologies.

Examples of interaction types: instructing, conversing, manipulating, exploring.

Examples of interaction styles: menu selection, form filling, direct manipulation.

Examples of user interfaces: GUI, mobile, web, speech, augmented and virtual reality.

Some examples of topics to research could be comparing different online shops and relevant user metrics, usage of streaming services, transportation services with an end-user app, et cetera. Anything you think might be interesting which could relate to differences in interactions and technology use during Covid-19.

Part A - Experimental design

Design and conduct an experiment with a sample of 5-10 participants.

- A1: Identify and write the problem statement/ research gap of your chosen topic. Why is there a need to conduct an experiment for this topic? Justify your choice.
- A2: Formulate a research question that targets to solve the identified problem.
- A3: Choose an experimental design: between group, within group or split-plot. Justify your choice.
- A4: Formulate a null and an alternative hypothesis.
- A5: Define your variables (independent, dependent, other)
- A6: What are the component of your experiment?
- A7: Describe your participants, the selected apparatus and other important details of your study design.
- A8: What are the major issues that need to be considered when designing experiments?

Part B - Statistical analysis

Collect the data for statistical analysis and use a software tool of your choice (e.g., SPSS, excel, R) to perform statistical analysis. **The use of images, diagrams, charts and tables is suggested to explain your choices.**

- B1: Discuss the major steps to prepare your data for statistical analysis.

- B2: Calculate basic descriptive statistics for your data (mean, median, mode, range, variance and standard deviation).
- B3: Based on your experimental design, choose and apply the appropriate statistical significance test for analysing your data. Justify your choice.
- B4: Discuss the results of your experiment (e.g., which hypothesis is supported/ rejected, how the findings answer the research question, potential limitations, what could be a future study, final remarks)

Notes:

The deliverable of this assignment is a report (max. 10 pages).

Please submit the report using Devilry, as a .pdf file and include your assigned group number. Example: Group1_ Assignment2

Language of the assignment: the report could be either in English or Norwegian.