M1 Computer Science – UE Project

Logbook : behind the scenes of documentary research

The items you entered in this booklet will be scored

Full name and specialty :

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Topic :

Interaction Gestuelle

Instruction :

1. **Introduction (5-10 lines):** Briefly describe your research topic, its various aspects and issues, and the angle from which you have decided to address it.

The purpose of this project is to compare gestural interaction with keyboard input. We will compare the two primarily on execution speed and learning speed. In order to do that, we will make an interactive survey to record and gather input data from users and perform analysis based on that data.

The research phase will primarily be about gestural and keyboard input, how to execute surveys for human computer interaction, and how to analyze the collected data.

2. **Selected keywords:** List the keywords you used for your bibliographic research. Organize them in the form of a mind-map.

Human Computer Interaction:
    Keyboard Input:
        Shortcuts
        Hotkeys
    Gestural Interaction:
        Gesture
        Stroke
    Analysis:
        ANOVA
        Post Hoc
    Toolkit
    TouchStone

3. **Description of the documentary research (10-15 lines):** Describe your use of the different research tools (search engines, database, catalogs, bounce search, etc.). Then compare the tools to each other. What sources did they allow you to access ? What are their specificities ? What is the level of specialization?

We've primarily used Google Scholar as it contains the biggest database. However, we've run into resources that require payment many times. To get around this, we've tried searching the paid articles on Primo.

Primo is the search engine offered by Sorbonne Univeristé, it allows us to search through resources for free from many scientific websites such as ACM and Springer, which then redirects us to some otherwise paid resources. It has less resources than Google Scholar, but since the articles are published on official scientific websites. The authority is more guaranteed.

The professor has also given us some articles to start with, thanks to his help, we were able to derive some keywords from the articles in order to deepen our research. We've also included the documentation of a software we are supposed to use as it provides introductions to the domain as well as instructions to the software.

4. **Produced bibliography within the framework of the project:** Use the ACM standard.

Caroline Appert and Shumin Zhai. 2009. Using strokes as command shortcuts: cognitive benefits and toolkit support. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, Boston MA USA, 2289–2298. DOI:https://doi.org/10.1145/1518701.1519052

Alexander Eiselmayer, Chat Wacharamanotham, Michel Beaudouin-Lafon, and Wendy E. Mackay. 2019. *Touchstone2*: An Interactive Environment for Exploring Trade-offs in HCI Experiment Design. In *Proceedings of the 2019 CHI Conference on Human Factors in Computing Systems*, ACM, Glasgow Scotland Uk, 1–11. DOI:https://doi.org/10.1145/3290605.3300447

Tovi Grossman, Pierre Dragicevic, and Ravin Balakrishnan. 2007. Strategies for accelerating on-line learning of hotkeys. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, ACM, San Jose California USA, 1591–1600. DOI:https://doi.org/10.1145/1240624.1240865

[1]

Frederic Kaplan. 2009. Are gesture-based interfaces the future of human computer interaction? In Proceedings of the 2009 international conference on Multimodal interfaces (ICMI-MLMI '09), Association for Computing Machinery, New York, NY, USA, 239–240. DOI:https://doi.org/10.1145/1647314.1647365

5. **Evaluation of sources (5 lines minimum per source)**: Choose 3 sources from your bibliography, describe how you found them, and critically evaluate them using the criteria seen on the TD materials.

Using Strokes as Command Shortcuts: Cognitive Benefits and Toolkit Support
Provided by the professor.
Date: 2009, keyboard and gestural input were already in use in that era
Relevance: This paper is very useful for our project as it provides the information on how to implement the recognition of the gestural and how to design good input. Furthermore, as it compares gestural shortcuts and keyboard shortcuts, our project could very much base on the result drawn by the paper.
Provenance: One of the authors is a researcher in Paris Saclay, the other one is a research scientist at Google. The paper is sponsored and published by ACM.
Content rigor: All the references have been verified by the links to other papers.
Aim: The paper is from the proceedings of the SIGCHI conference in 2019. The intention of this paper is clearly to promote the use of gestural input.

Touchstone2: An Interactive Environment for Exploring Trade-offs in HCI Experiment Design
Documentation of the software.
Date: 2019, the tool is very recent
Relevance: The paper helps use Touchstone to generate user profiles and tests, it also helps us understand the general obstacles while doing tests in public.
Provenance: The authors are researchers from Paris Saclay, and University of Zurich.The paper is sponsored and published by ACM.
Content rigor:All the references have been verified by the links to other papers.
Aim: The paper aims to inform on the utilization of Touchstone.

Strategies for Accelerating On-line Learning of Hotkeys

Found by Primo in the database of ACM.
Date: 2007, keyboard and hotkeys were already popular in 2007
Relevance: The paper analyzes why hotkeys are not widely used by the general public and proposes alternative implementations in order to motivate and encourage users to learn and master hotkeys. The subject will also be discussed in our own project.
Provenance: All the authors are researchers from University of Toronto.The paper is sponsored and published by ACM.
Content rigor: All the references have been verified by the links to other papers.
Aim: The paper aims to promote keyboard shortcuts, but it does not mention the attitude toward gestural input.

You logbook must be sent at:
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Reminder : the TD materials are available at the following address:
http://www.pearltrees.com/formationbsu/master-info/id23514400