Using a neural interface for interaction in Virtual Reality

Julius Neudecker
Bachelor of Science
julius.neudecker@haw-hamburg.de

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Contents

Modern technology evolved to pick up the eletric signals emitted from the human brain in order to generate user input to eletronic equipment. This study aims to evaluate a demo use-case by using a neural interface from nextmind to control user interactions in Virtual Reality.

1 Introduction

1.1 Neural Interfaces

This section will be a general Introduction to elaborate the topic and putting it into context of the state of research

- Picking up brain activity
- Invasive vs non-invasive
- Usage for interacting with eletronic equipment

1.2 Related work

Whats state of the art, what has been done so far in research and where is my study in context?

- State of research
- Applications in the medical domain
- Applications in the HCI domain
- other...

1.3 Use case "Neural Interface in VR"

I don't have a certain use-case in mind at this stage. Therefore this section is still very generic at the moment.

- Use Case description
- Research goals

1.4 Hypothesis

- definition of research goals
- hypothesis

2 Technological challenges

Due to being non-invasive there must exist certain drawbacks with this technology. I want to examine the shortcomings and possible ways to overcome these. A valuable resource of information might be nextminds homepage [1].

2.1 Resolution of the Interface

- definition of the resolution parameter
- input taxonomy diagram
- how to examine with survey

2.2 Constraints

As far as I understood, the interface allows for four different interaction goals. It would be interesting to see, which kinds of interaction are possible.

- Interaction objects
- interaction types in regard to input taxonomy
- evaluation in user survey

3 Survey Structure and layout

3.1 Considerations

- Which topics do I want to evaluate in detail
- what are my tools
- Who is my audience
- how to I operationalize the values for context
- What are my performance indicators

3.2 Survey structure

Based on the findings, I want to define the survey in this section.

- item 1
- ...

3.3 Survey

How is the survey carried out. This depends largely on the outcome of section survey structure.

- item 1
- ...

4 Survey results

Once the study has been structured and carried out, I can write down the results.

5 Findings

This section also depends on the outcomes in context to the resarch question.

6 Conclusion

6.1 Results

Summarizing the results and findings of the study briefly.

6.2 Future Work

Based on the findings and new devices on the horizon, this should give a brief outlook on how to continue this research.

6.3 Acknowledgements

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References

[1] "Nextmind — let your mind take control — order your dev kit."