CentraleSupélec

IT4BI

Decision Support and Business Intelligence

Information Technologies for Business Intelligence

Master Thesis

Oky PURWANTININGSIH

Visual Analytics on Human Body Movement Data Applied on Healthcare

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prepared at Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier

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Advisor :	Arnaud SALLABERRY	-	LIRMM	arnaud.sallaberry@lirmm.fr
	Jerômé AZÉ	-	LIRMM	jerome.aze@lirmm.fr
Supervisor :	Nacéra BENNACER	-	Centrale Supélec	nacera.bennacer@supelec.fr

Abstract: The main objective of this Master thesis is to ...
To achieve this goal, we use ...

All this research work has been implemented in ...
Keywords: Keyword1, 2, ...

Acknowledgments

Last thing to do :-)

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Chapter 1

Introduction

1.1 Motivation

Define what is hemiplegic, What rehabilitation they need.

1.2 Thesis Outline

Chapter 2

Domain Problem Characterization

2.1 Hammer and Planks

explain in details about hammer and planks. the purpose of the game development, the story behind the game, how to play the game, rule of the game.

2.2 Current Game Result Visualization

the existing visualization.

2.3 Requirement Analysis

2.3.1 Target User Questions

do motivation well. really convince that this task is very useful for the therapist. list question asked by user here ex: - visualize a number of positive events on an area (high level tasks) - for a given section we want to see the evolution and we want to see the sections where the evolution is the same (high level task)

2.3.2 Visualization Requirements

define tasks for the application after looking at high level question of user, define requirement for the tools (define task).

Chapter 3

Related Works

3.1 Serious Game in Healthcare

explain how serious game is used in healthcare. discuss some example.

3.2 Visualization of serious game result

discuss how the result of serious game are usually presented (couldn't find any specific paper discussing about this, but there are some paper about serious game which has some visualization to analyze the result of the game) Discuss about state of the art game visualization

3.3 Visualization of Time Series Data

discuss visualization paradigm usually use to visualize time series data

3.4 Visualization of Movement Data

discuss paper about movement data visualization, ex: MotionExplorer, Andrienko's paper and book

3.5 Stream Graph

discuss examples of stream graph implementation, how it is used and for which kind of data

3.6 Data Visualization Tool

3.6.1 D3.js

general explanation of d3js and some example of how it is used to visualize time series and movement data.

3.6.2 Three.js

general explanation of three.js and some example.

Chapter 4

Data Abstraction

The data we explore... Our targeted data type is .. collected over... Typically, they containe... Discuss about the input (log file) of the application.

4.1 Game Events Structure

take raw data and then define high level structure we use to deal with enemies, obstacles, obstacles. For each event, we assign a value () => to characterize the event

4.2 Clustering Algorithm

clustering model is also in this part to see what common evolution of section of the game

Chapter 5

Visual Mappings And Interactive Functionality

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define the slice(triplets) here. choices to make the visualization, why stream graph, why there is no second slider, all the interface. when create your structure and visual mapping, write: this part for this requirement. we can put several requirement for one thing. the goal is to show to the reviewer that each time you make a choice in your visual design, it is to answer certain requirement. To show that nothing is random and everything is made to respond to the requirement.

5.1 Theme River

5.2 Heat Map

5.3 Summary Theme River

Chapter 6

Case Studies

write a kind of stories. Looking at this visualization, I see this and that. This correspond to this task and this task. find at least one example for all the task we've defined before. We can say: here, there is a difference between people with pathology and without pathology. for ex: the movement are only in the middle for the people with pathology, while for normal people, there are movement on the side as well. for ex: there are a lot of green in this part. there are less event at the beginning, when there are more event, then there are more red area.

6.1 Normal Player

6.2 Patient

Chapter 7

Conclusion

Appendix A

Appendix Example

A.1 Appendix Example section

And I cite myself to show by bibtex style file (two authors) [1].

This for other bibtex stye file : only one author [3] and many authors [2].

Bibliography

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