

TI2806 Contextproject

Virtual Humans - Group 4

<https://github.com/tygron-virtual-humans>

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June 18, 2015

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1 Introduction

This report is the final project report for Group 4 of the Virtual Humans for Serious Gaming Contextproject. The main goal of this project was to make a virtual human that could replace an actual human in the Tygron (Tygron, 2015) urban planning game. This virtual human should be able to play the game like it is a real human, this includes making rational choices as well as making choices based on emotions. For an in-depth description of our customers and their requirements, please read our Product Vision (Contextgroups, 2015).

The focus of our group was on making the emotion part of the virtual human. In this report you can find how we made this emotional part, you can also find a description of the software engineering aspect as well as the interaction design, the failure analysis and an outlook in what is next.

2 Overview

Our final product is a GAMYGDALA (Popescu et al., 2013) plug-in for the GOAL programming language (Hindriks, 2014). The final product can be split into two separate parts: the GAMYGDALA port and the GOAL plug-in.

2.1 GAMYGDALA port

“GAMYGDALA is an emotional appraisal engine that enables game developers to easily add emotions to their Non-Player Characters (NPC).” (Popescu et al., 2013).

GAMYGDALA is written in Javascript, but for it to properly work with GOAL, which is written in Java, we needed to port GAMYGDALA to Java. This GAMYGDALA port is our biggest software product. When we finished our initial port, we noticed that the Java code did not follow the Software Engineering principles. This is why we decided to do a total code refactor.

Our final version of the port is far better than the original port on account of the Software Engineering principles and it behaves in the same way as the original GAMYGDALA code. You can read more about this refactor in the Emergent Architecture Design (VH4, 2015) and in next chapter.

2.2 GOAL plug-in

The other part of our software product is the GOAL plug-in. We had to alter the GOAL source code to enable the usage of GAMYGDALA in GOAL. We now have a fully working plug-in that developers can use in their GOAL programs. The full GAMYGDALA functionality can be used within the GOAL environment.

3 Reflection from a software engineering perspective

4 Developed functionalities

5 Interaction Design

6 Evaluation and failure analysis

7 Outlook

References

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