

A Game Prototype with Emotional Contagion

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Abstract. Emotional contagion (EC) in games may provide players with an unique experience. We have developed a turn-based role playing prototype game which incorporates a model based on the EC process. While playing, users have the opportunity to observe the effects of emotional events on individual characters and on the group through simulated emotional contagion dynamics.

Keywords: emotional contagion, agents, videogame.

1 Description of the System

Over the years, virtual agents have proved to play a major role in the context of games. In fact, they improve the gaming experience by increasing fun, while immersing players in a more engaging and often emotional manner. Actually, providing artificial agents with emotional behavior increases their perceived realism, and consequently, their believability.

Despite the aforementioned potential of providing games with virtual agents capable of displaying emotion, little research has been devoted to the emotional contagion (EC) process. One of the most insightful works [3] defines EC as: *“the tendency to automatically mimic and synchronize expressions [...] to converge emotionally”*. This process has been known to influence group dynamics on both the individual and group level [3,1]. As such, EC may be especially relevant in a gaming context, and in fact, provide users with an unique game experience.

We have developed a turn-based role playing prototype game which incorporates a model that relies on the underlying principles of the EC process. While playing, users will have the opportunity to observe the effects of emotional events on individual characters and on the group through simulated EC dynamics.

The game is based on a story which describes the journey of three characters that have taken the quest to protect dragons from monsters. The user controls these characters and is initially placed on a map with several challenges. To finish the game he must navigate through the challenges and defeat all the monsters. Challenges range from fighting monsters or finding precious items, to finding a dead dragon, among others. These may have different emotional impacts on characters. In order to represent EC effects in groups and emphasize its game impact, our prototype also displays modifiers to player stats (health, attack and defense), depending on the characters’ emotional state.

2 Technical Content

Our game prototype's EC processes are based on a model which follows the EC paradigm, published in this conference "A Generic Emotional Contagion Computer Model". While focusing on the individual level, the EC behavior emerges from individual interactions among agents.

The agent's emotional state is based on the set of emotions defined in the Emotional Contagion Scale (ECS) [2]: love, happiness, fear, anger and sadness. By using the ECS we are able to parameterize our agents according to measurements done with the ECS scale. Besides this essential feature, the EC process also depends on both relationships among agents and their extroversion.

The EC processes occur at the agent's level and consist of three modules:

Contagion Filter. This module filters other agents' emotional expressions based on the current features of one particular agent. The susceptibility of an agent being affected by a particular emotion is given by both the agent's ECS score regarding that emotion and the agent's relationship with the agent that expresses it, in terms of intimacy and power distance.

Mood Updater. This module updates the agent's emotional state. Every emotion is subject to a natural decay towards the agent's natural mood, except when a particular emotion is retained by the agent's Contagion Filter. In this case, the intensity of the retained emotion is added to the agent's current value regarding the corresponding emotion.

Expression Filter. This module allows the agent to create an emotional expression. The decision of whether to express a particular emotion or not depends on both the agent's extroversion and its power position within the agents' group it belongs to.

3 Links

The web-viewable presentation illustrating the system:

<http://web.ist.utl.pt/gdgp/CA/presentation.pptx>

Acknowledgments. This work was supported by FCT (INESC-ID multiannual funding) through the PIDDAC Program funds and also by FCT scholarship SFRH / BD / 66663 / 2009 .

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