

Evaluating affective interaction in gaming

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Abstract

Gaming is a highly relevant application area for Intelligent Agents and Human Computer Interaction (HCI). Computer games bring us a full set of new gaming experiences where synthetic characters take on the main role. Using affective input in the interaction with a game and in particular with a character is a recent and fairly unexplored dimension. This video presents a study of a tangible interaction device for affective input and its use in a role-playing game where emotions are part of the game logic.

1 The FantasyA game and the SenToy input device

SenToy is an affective physical interface, a doll with sensors in its limbs that are sensitive to movement and acceleration, inspired by work on tangible user interfaces (Ishii and Ullmer 1997). It is used to control and influence synthetic characters that inhabit a 3D role-playing game named FantasyA (Höök et al. 2003). The FantasyA demonstrator, produced within the EU-IST Safira project, supports a duel between mages, with the two mages fighting it out, taking turns to either attack their opponent or to defend themselves.



Figure 1: The players' view of the game Figure 2: Using SenToy to interact with the game

1.1 Gesturing with SenToy

The SenToy doll was used to influence emotional behaviour in the FantasyA game (see Figure 2). After a pre-study where the players were asked to express six emotions with SenToy (having no prior knowledge of the doll or gestures), they were taught how to provide input to FantasyA using SenToy, a previous Wizard of Oz study (Andersson et al. 2002) having identified gestures corresponding to six emotions; happiness, sadness, anger, fear, surprise and gloating (see Figure 3). The actions and gestures performed by players on SenToy were interpreted (using signal processing) and the inferred emotion from the recognised gesture was used to make their avatar change emotional state in FantasyA when it was their turn.

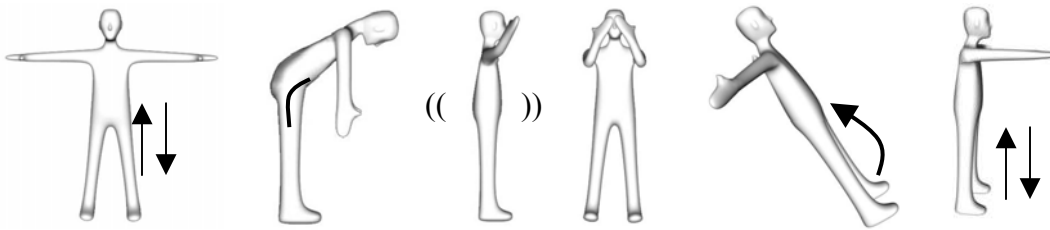


Figure 3: Gestures used for expressing happiness, sadness, anger, fear, surprise and gloating

2 The study

In our study users played the game in pairs, and we assessed the success of both the FantasyA game with its emotional content and the SenToy control device with its gestural input. Video cameras, a microphone, questionnaires and open interviews were used to capture data. The game play in FantasyA is a duel, and players were able to influence their character's actions during the duel through SenToy and the emotion they chose to express with it.

3 Evaluation results

3.1 The SenToy doll

The pre-study showed that users could easily express the emotions happiness, anger and sadness, but that they had some trouble expressing the other emotions. However, after training in how to perform the gestures the users were able to express all six emotions with relative ease. Most users liked the doll as an input mechanism for playing the game, one player saying afterwards, *"A few days after having played, I still like the doll very much. I really appreciated his direct contact to give commands, even if in that case, the commands were not that obvious and their result a bit fuzzy"*.

3.2 The FantasyA game

Although training was provided for SenToy, our subjects were told very little about the FantasyA game, other than that it was a turn-taking duel, and interaction would be via SenToy. Players did discuss strategies between themselves while playing, linking SenToy gestures to avatar actions, and while this worked most of the time sometimes the behaviour of their avatar was not what they expected, and this confused them. Hardly any of the players paid any attention to the emotional behaviour of their own avatar or their opponent's avatar during the duel. Despite this lack of understanding, identified in the interviews, the majority of players enjoyed themselves greatly, with some child subjects even inquiring about the commercial availability of the game!

References

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