

EXPLORING AVATAR FACIAL FIDELITY AND EMOTIONAL EXPRESSIONS ON
OBSERVER PERCEPTIONS OF THE UNCANNY VALLEY

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ABSTRACT

Avatars have been a traditional mainstay of game based interactive entertainment, where they aim to enhance story-based interaction and player engagement. However, there has been an increase in avatar roles in fields such as serious gaming and simulation training, where accurate and cost-effective avatar development and ability to convey human emotional expressions is of interest. The area of emotional expression in avatars is not well understood, and *uncanniness* in avatars can pose issues that may impact on training outcomes.

There are two aims of this research, firstly to explore how avatar fidelity or realism influences the emotional experience of interactions between humans and computer-generated avatars. Secondly, to examine how the emotional expressions displayed by avatar facial features affect participants perceived valence or the intrinsic attractiveness of the avatar. In order to test these affects, this research uses a combination of survey and experimental methodologies. Utilising a Godspeed survey to measure the perception of an avatars '*humanness*', '*eeriness*' and '*attractiveness*', and a three-part experiment measuring participant startle reflex responses to differing fidelity and emotional expression avatars, human-avatar interaction was explored.

The analysis of results indicated that participant gender played a role in the perception of avatars. In addition, the avatars themselves appear to have a significant impact on the responses from participants. The emotional expressions displayed indicated that sad expressions are less unpleasant and possibly less uncanny, than smiling.

In conclusion, this research represents an entry point into a broad, cross-disciplinary research area. While there are important findings and contributions made, the significant amount of data generated through the experiments will pose questions for future work in this research area.

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