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INTEGRATIVE MODELING OF EMOTIONS IN VIRTUAL AGENTS

Ghazanfar Farooq Siddiqui

In recent years, researchers have become increasingly interested in the application of intelligent virtual agents in various domains. Intelligent virtual agents (IVAs) are autonomous, graphically embodied agents in a virtual environment that are able to interact intelligently with the environment, other IVAs, or with human users.

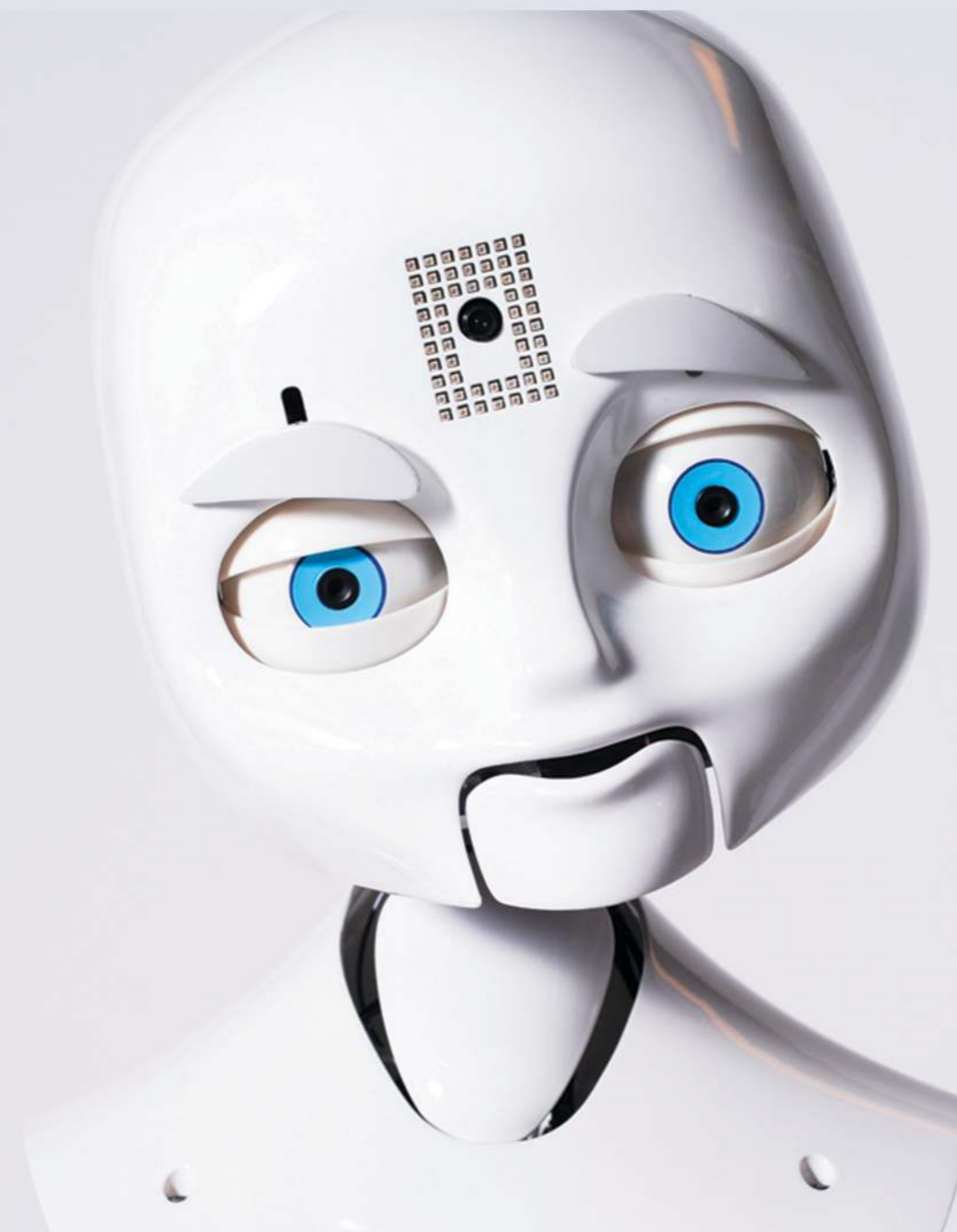
Several studies in Social Sciences have shown that believability is an important prerequisite for an agent to increase human involvement in a virtual environment. Therefore, existing systems based on IVAs are not as effective as they could be. Properties that they typically lack are the ability to show emotions (not only in terms of facial expression, but also in terms of behavior), in relation to insight in each other's and humans' cognitive and affective states. To deal with this problem, some authors propose to increase the affective properties of interactive software agents by using knowledge from psychology and cognitive science as a basis for computational modeling of the cognitive and affective processes involved.

The main research goal of this thesis is to explore how computational models of affect can be integrated within virtual agents. To this end, different theories were taken from different fields (e.g., Social Sciences, Psychology, Economics and Finance) and have been combined to develop integrative models of affect. Most of these models have first been used for simulation, to test whether their overall behavior was satisfactory. For this, various modeling environments have been used, such as LEADSTO and C++. Next, these models have been incorporated within applications related to health care, games and business context. These applications have been developed using JavaScript, in combination with the Vizard toolkit. Finally, for some applications, user tests have been performed. The preliminary results of these tests show that through the developed models, users are more involved in the applications.

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INVITATION

To the public defense
of my Ph.D. thesis
entitled

INTEGRATIVE MODELING OF EMOTIONS IN VIRTUAL AGENTS

on Tuesday,
September 28, 2010
at 13.45 in the Aula of
VU University
Amsterdam
De Boelelaan 1105

You are cordially
invited to the
reception after the
ceremony

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