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Thomas Rist, Elisabeth André, Stephan Baldes

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Building Applications with Life-Like Characters — the MIAU Platform

Thomas Rist
DFKI, IUI Lab
Saarbrücken, Germany
rist@dfki.de

Elisabeth André
Augsburg University, CS Dept.
Augsburg, Germany
andre@informatik.uni-augsburg.de

Stephan Baldes
DFKI, IUI Lab
Saarbrücken, Germany
baldes@dfki.de

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User interfaces of a broad range of applications are getting increasingly populated with life-like animated characters. The choice of domain, tasks, and conversational setting impose constraints on any prototype development. For instance, in the area of animated presenters we observe an ongoing evolution of systems as shown in Fig. 1.

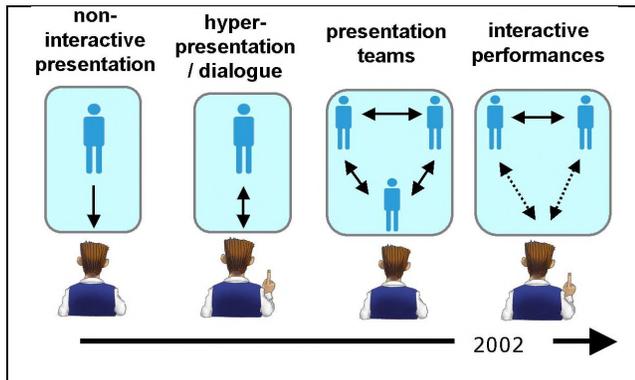


Fig. 1. Character applications with different conversational settings that can be realized with the MIAU platform.

The first setting refers to applications in which a single character is deployed to present information. From the point of view of the user a generated presentation appears quite similar to the display of a video clip because no interaction is foreseen at display time. In contrast, the second setting is typical for applications with characters that are able to converse with a user in some sort of a dialogue (e.g., via spoken or typed natural language, or based on dynamically configured menus). Moving on to the third setting actually means a shift from a face-to-face character-user setting to a user-as-observer setting. That is, two or more characters talk to each other on the screen in order to convey information to the observing audience. However, no user intervention is foreseen during a performance. This is in

contrast to the fourth scenario where we have an open multi-party dialogue setting which allows for both reactive and proactive user participation. From a technical point of view the fourth scenario is certainly most challenging as one has to resolve on an operational level the conflict between predestination and freedom of interaction.

Most systems that deploy life-like characters make a concrete commitment to one of the illustrated conversational settings and reflect this decision in a particular system architecture. However, if later on the desire emerges to support other conversational settings as well, an almost complete re-implementation of the application often becomes unavoidable. In contrast, the development of the MIAU platform shows that it is indeed possible to develop a single platform which (a) can be used to construct a broad range of character applications, (b) even allows to switch on-the-fly between director- vs. character-centred scripting approaches, and (c) supports a clear separation between the specification of scripting knowledge (being a knowledge-engineering task), and the required computational machinery for behaviour generation (being an implementation task). MIAU can be conceived as a multi-agent platform that has been tailored to applications with conversational characters. See the accompanying IUI'03 paper [1] for details on the MIAU architecture.

The BMBF-funded MIAU platform is currently being tested in a number of different projects dealing with life-like characters including the EU projects Magicster and NECA. Applications include Avatar Arena and the so-called eShowroom. In Avatar Arena users have their avatars negotiate on meeting appointments. The eShowroom is an electronic car showroom in which either a single character or a team of characters are deployed to inform a user about the features of a certain car. Likewise, users can also take part in a “car-talk” with one or more characters. The MIAU approach is highly flexible since it allows to switch within a single session back and forth between the conversational settings depicted in Fig.1.

REFERENCES

1. Rist, T., André, E., Baldes, S. 2003. A Flexible Platform for Building Applications with Life-Like Characters. Proc. of IUI 03, ACM Press (this volume).