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Intelligent Virtual Agents

Helmut Prendinger
James Lester
Mitsuru Ishizuka (Eds.)

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Intelligent Virtual Agents

8th International Conference, IVA 2008
Tokyo, Japan, September 2008
Proceedings

Helmut Prendinger James Lester
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Intelligent Virtual Agents

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Proceedings

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Preface

Welcome to the Proceedings of the 8th International Conference on Intelligent Virtual Agents, which was held on September 1–3, 2008 in Tokyo, Japan. Intelligent virtual agents (IVAs) are autonomous, graphically embodied agents in a virtual environment that are able to interact intelligently with human users, other IVAs, and their environment. The IVA conference series is the major annual meeting of the intelligent virtual agents community, attracting interdisciplinary minded researchers and practitioners from embodied cognitive modeling, artificial intelligence, computer graphics, animation, virtual worlds, games, natural language processing, and human–computer interaction.

The origin of the IVA conferences dates from a successful workshop on Intelligent Virtual Environments held in Brighton, UK, at the 13th European Conference on Artificial Intelligence (ECAI 2008). This workshop was followed by a second one held in Salford in Manchester, UK in 1999. Subsequent events took place in Madrid, Spain in 2001, Irsee, Germany 2003 and Kos, Greece in 2005. Starting in 2006, IVA moved from being a biennial to an annual event and became a full-fledged international conference, held in Marina del Rey, California, USA in 2006, and Paris, France in 2007. From 2005, IVA also hosted the Gathering of Animated Lifelike Agents (GALA), an annual festival to showcase the latest animated lifelike agents created by university students and academic or industrial research groups.

IVA 2008 was the first time that IVA was organized in Asia and we are happy to report that a large number of papers were submitted. IVA 2008 received 99 submissions from Europe, the Americas, and Asia. Out of 71 long paper submissions, only 18 were accepted, and an additional 22 were accepted as short papers, or as posters (30). Out of 23 short paper submissions, we could only accept 6. A further 15 were accepted as posters. In total, there were 28 short papers and 42 poster papers accepted.

IVA 2008 was hosted by the National Institute of Informatics, Tokyo. We would like to thank the members of the Program Committee for providing insightful reviews; and the members of the Senior Program Committee for selecting the best papers. We thank Hugo Hernault for preparing the IVA 2008 website and Ulrich Apel for providing the content on Tokyo and the institute. A special thanks goes to two people: Shigeko Tokuda for her excellent work in preparing and running the conference, and Boris Brandherm for his superb and efficient management of the submitted papers and preparation of the proceedings. We would also like to mention that the continued and active support of the IVA Steering Committee at each stage of the conference preparation process is greatly appreciated.

Last but not least, we would like to thank the authors for submitting their high-quality work to IVA 2008. We hope the readers will enjoy the papers in this volume, and look forward to future IVA conferences.

June 2008

Helmut Prendinger
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Using Virtual Agents for the Teaching of Requirements Elicitation in GSD

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Abstract. Requirements elicitation is particularly difficult in Global Software Development (GSD) environments owing principally to cultural differences and communication problems derived from the geographical distance that separates stakeholders. For this reason it is necessary to train professionals in the skills needed to confront a requirements elicitation in GSD. We have, therefore, designed a simulator which, by using virtual agents, will enable students and professionals to acquire a subset of the skills necessary for requirements elicitation in GSD.

Keywords: Requirements Elicitation training, Global Software Development, Educational Environment, virtual agents.

1 Introduction

Requirements elicitation is the first stage in the process of developing a software product and the most critical of all the phases in software development, because the mistakes made at this stage are more expensive and difficult to resolve owing to their impact upon the other stages. Unfortunately, professionals who have recently graduated from universities lack the skills and abilities necessary to carry out this task correctly since during their degree course little time is usually spent on training in this phase of software engineering, they often do not carry out professional practices, their teaching is centered on theory, and students rarely get involved in real projects. In addition, the current trends of software development and their effect upon requirements elicitation are not generally considered. Global Software Development (GSD) [1] is one of the current challenges of teaching and training in the requirements elicitation process. GSD is characterized by stakeholders who are geographically distributed around the World. Those GSD issues which affect a requirements elicitation process are: Cultural, language and time differences; inadequate communication, difficulties in knowledge management, and trust [2]. In order to confront the challenge of training professionals capable of developing a requirements elicitation process

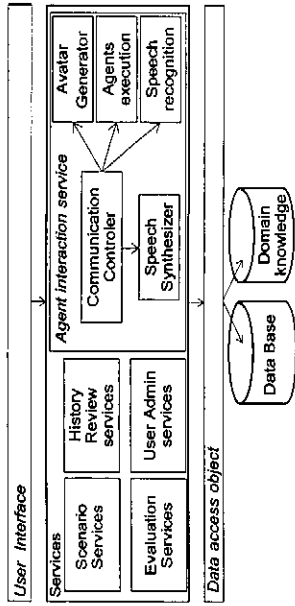


Fig. 1. Architecture of the Simulator

in GSD, we propose a simulator environment which, by using virtual agents, will enable students and professionals to acquire a subset of the skills necessary for requirements elicitation in GSD, such as: elicitation of real requirements based on stakeholder's need using an interview technique and computer mediated communications, or an understanding of the cultures and customs of other countries. The student interacts with various stakeholders which will be virtual humans and/or real humans, in order for them to obtain the functional and non-functional requirements of the software to be developed. Figure 1 shows the architecture of our simulator.

The Agent interaction service, which is the main component of our architecture, is where input from the user during conversations with a virtual stakeholder (virtual agents) is interpreted. This component is made up of the following component: the *Communication controller* is the link between the communication interface between the user and the virtual agent; *Agents Execution* provides a particular agent's answers to questions from the user, and the input and output is a text; the *Avatar Generator* generates a graphical representation of the virtual agent; The *Speech Recognition and Synthesizer* convert audio to text and text to audio, respectively.

This simulator may be an initial step towards students' participation in real projects developed between universities and the GSD industry, which would diminish the risk of non-qualified people being involved in real projects.

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