Chapter 74
Training of Avatar Moderator in Sliding Mode Control Environment for Virtual Project Management

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ABSTRACT

This chapter describes a development of algorithms, software, and hardware for avatar management and avatar moderator training systems, using the principle of practical tendency in sliding mode control environment and illustrating its applicability in virtual communications project management. The avatar is a computer-synthesized animated three-dimensional model, acting as a virtual representation of a real person, or as a visualization of the communication system of artificial intelligence. It is required to develop and evaluate realistic avatar interfaces as portals to intelligent software capable of relaying knowledge and skills in various subject areas. The chapter focuses on integrating speaker-independent continuous speech recognition, context technology of intelligent dialogue system in real-time, graphics rendering based on motion capture (motion capture is used by avatar to accompany the verbal information with gestures), and the development of applied information systems with avatar technology for different subject areas. Thus, created algorithms, software, and hardware are now use in collaboration works at the Astrakhan State University (Russian Federation) and at HHH University (Australian Federation and the Republic of Armenia) for the development of avatars for project management in design of real virtual control systems.

INTRODUCTION

Teaching is a process of conveying ideas to the students. Good teaching means, mostly, more effective communication between learners. The prerequisite has been due to the fact that because teachers "maybe" have studied ideas longer, they understand them better and are therefore better able to communicate them. Other requirements, which are important to control, are that the strategies and methods used by us are empirically based and validated.

Whatever, the level of the distance education or teaching organization, many factors make teaching a distance education course different from the teaching in traditional classroom. When using the technology tools the material should be developed from the good point of learning theories. Our work experience in virtual classroom explains what intelligent avatars or computer characters could be used to support or even to replace teachers in the classroom. The devotee is the human that makes sure the avatar and the student are properly matched.

Virtual classroom is a social network service environment focuses on building and reflecting of social networks or social relations among people, e.g., who shares interest and/or activities. A social network service essentially consists of the representation of every user (often a profile), his/her social connections, and a variety of additional services. Most social network services are web based and provide means for users to interact over the internet, such as e-mail and instant messaging. Although online community services are sometimes considered as a social network service in a broader sense, social network service usually means an individual-centered service whereas online community services are group-centered. Social networking sites allow users to share ideas, activities, events, and interests within their individual networks.

Information- and communication technology (ICT) provides us with a better prerequisite for open distance learning. Now although the industry has yet to fully tap the immense learning potential of a 3D virtual environment, educators believe it's the only matter of time. HHH University's latest release Avatar has made online virtual worlds such as the Second Life (SL) more popular than ever as audiences sit up and take notice of the possibilities of these sites. Users are currently using these sites to socialize and to connect using free voice and the text chat through personalized avatars or computerized self-representations. However, these sites also hold out the possibility to become places where educators are discovering academic possibilities. SL, for example, provides virtual homes for some of the world's most prestigious universities such as Harvard and Stanford who have bought virtual land with Linden Dollars. Although this seems to be somewhat of a trend in the West it has yet to catch on in the Russia, South Caucasus and Asia.

There is a widely accepted view that information systems entail a multitude of assumptions and claims, and that they serve some interest at the others expense. Therefore, discussions among all stakeholders for reaching mutual understanding about the desired features of systems are viewed as essential. For example, by regarding an information system in principle as a complex communication tool, several authors in the Language-Action Perspective used the notion of meta-communication to refer to communications about system's communication concepts. They emphasized that many areas of information systems from specification to design, implementation and use involve meta-communications. Others, without using the notion of meta-communication, emphasized the importance of discourses and reflections conceptual framework theoretically provides wider discursive concepts for reflective practice. Still others suggested further extensions of discursive approaches in order to deal with global challenges. The purpose of this chapter is to take the conceptual development of the research on reflective practice in information

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