

Building Table-Talk Agents that Create a Pleasant Atmosphere

Masahide Yuasa

Department of Information Environment,
Tokyo Denki University
Inzai, Japan
yuasa@sie.dendai.ac.jp

Abstract— We propose table-talk agents and robots that can create a pleasant and natural atmosphere. We investigate appropriate expressions of nonverbal behavior and their timing for use by these table-talk agents. Using appropriate behavior, table-talk agents may be able to enhance our enjoyment of talking and eating at mealtimes. In the far future, when conversational agents and robots are required to be high-quality communication partners able to create a pleasant atmosphere or a sense of unity, these findings will be useful for improving such robots.

Index Terms—Animated agent, avatar, nonverbal behavior, conversation, table-talk, atmosphere

I. INTRODUCTION

Mealtimes are an important moment of reflection for shared memories and shared experiences. During a meal, families have the chance to catch up on what is happening in each other's lives and to strengthen the bonds of the family. Recently, however, our busy lifestyles have seen an increasing number of families living apart, with relatives in different cities. Thus, the opportunities for a family to have a meal together are decreasing, and such a situation may lead older people to live independently and eat alone. To solve this problem, several researchers have focused on developing a conversational agent for supporting elderly people [1][2]. However, talking with a conversational agent is not sufficient to create a pleasant atmosphere—agents must become not only conversational partners, but also communication partners that can create a sense of unity, just like human beings.

Therefore, we propose a table-talk agent that can enjoy talking and eating with us and create a pleasant atmosphere. The purpose of our research is to investigate understandable and appropriate nonverbal behavior and its timing in order to develop table-talk agents and robots. Using appropriate behavior, these agents may be able to help us enjoy talking and eating and create a pleasant atmosphere.

II. OVERVIEW OF TABLE-TALK AGENTS

We developed embodied agents that can use a synthetic voice, hand gestures, and chopsticks using the TVML tool kit [3]. Cameras set around a display in front of the participant allow

our system to detect the head orientation (right/left), and the height of the human's hand (high/middle/low) is detected using a colored marker attached to a finger or chopstick. Fig. 1 shows that the system can be arranged such that when a participant puts up his/her chopstick, the agent also puts up his chopstick and starts to speak [4].

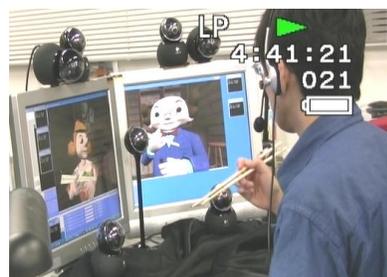


Fig. 1. Table-Talk Agent

III. DISCUSSION

We conducted preliminary tests using limited agent behaviors. Even though we only used gaze behaviors (gaze/not gaze at participant) and hand movement (put up/down chopstick), the changing behavior was found to affect the participants' impression and behavior. These results may be related to the creation of a pleasant atmosphere. Additional experiments are required to elicit more appropriate interactions, based on research into nonverbal behavior, in order to create a pleasant atmosphere.

References

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