特　集

◇ヒューマンインタフェース・教育支援・コミュニケーション支援

Designing Conversational Interfaces for Facilitating Conversation using User's Gaze Behaviors

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概　要：In human face-to-face communication, gaze behavior plays an important role in transferring the speaking turn, encouraging speech, and conveying attitudes and interests. However, it cannot be said that previous conversational interfaces use the function of gaze behavior effectively to facilitate smooth communication. This thesis describes my attempts to design conversational interfaces that allow human gaze behavior to be transmitted and the attitudes expressed by that activity to be understood in order to facilitate conversation in voice chat, video communication, and conversational agent systems. In voice chat, focusing on the conversation promotion and speaking turn transfer functions of gaze in multiple-user voice chat system, I propose a method for automatically controlling the gaze behavior of an avatar based on voice sound to encourage the user to speak. For a video communication system, I propose MoPaCo（Motion Parallax Communication），a window interface that displays video images as if the display were a window connecting two remote spaces, in an attempt to realize smooth communication through the correct transmission of gaze direction and pointing gestures. For a conversational agent system, I introduce a method for estimating the user's conversational engagement using gaze behavior and a conversational agent that can adjust to the user's engagement.

I implemented these systems and evaluated their effectiveness in facilitating smooth communication. The evaluation results show that these systems can facilitate smooth communication. The results of this study provide guidelines for actively taking advantage of gaze behavior in the design of future conversational interfaces.

主な公表論文：Ishii, R., Nakano, Y. I. and Nishida, T.: Gaze awareness in conversational agents: Estimating a user's conversational engagement from eye gaze, *ACM Trans. on Interactive Intelligent Systems*（*TiiS*），Vol. 3, No. 2, p. 11（2013）

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抱　負：I will demonstrate mechanisms for smooth human communication in more detail. On the basis of the results, I will design an advanced conversational interface. As a researcher at NTT, I hope that my results will find practical applications in fields ranging from science to commerce or industry.