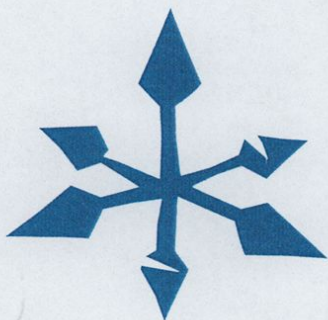




conference abstracts and applications



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Interactive Poem is a new type of poetry in which a participant and a computer-generated poet (Muse) create a poem by exchanging short poetic phrases. The basic idea comes from Renga, an old Japanese poetic form that is generated by several people as a combination of short Japanese poems such as Waka or Haiku. This combination has been used since ancient times to express spiritual emotions.

Interaction

The face of the Greek goddess Muse appears on a large screen and speaks short, emotional poetic phrases. Hearing these words, the participant is able to enter the world of the poem and, at the same time speak to Muse. Through this process of exchanging poetic words, the interactive system allows the user and the computer to work together to build the world of an improvised poem filled with inspiration, feeling, and emotion.

Interactive Poem System

The basic form of Interactive Poem is expressed through a simple transition network. To introduce improvisational interaction into the system, we modified the simple transition network and prepared many phrases that can be linked to phrases uttered by the computer to achieve a higher degree of conversation. These phrases are carefully considered and constructed to have phonemic and meaningful relations with the computer phrases. This transition network is put into the database and used to control all processes.

To recognize the meanings of phrases uttered by a user, the system adopts speaker-independent speech recognition technologies based on the Hidden Markov Model algorithm. In addition, the system recognizes emotions. As the basic architecture for the emotional recognition component, the system uses a neural network technology.

Generation of Muse's Reaction

The reaction of the computer character to the phrases uttered by the user is expressed through voice and images. For each phrase to be uttered by Muse, multiple utterances with different emotional expressions are stored in the system. By combining the speech-recognition result and the emotion-recognition result, an utterance with specific meaning and emotional expression is selected and spoken by Muse.

In the same way, various kinds of Muse facial images are stored and, based on the recognition results, an appropriate image is selected and displayed. To create natural transitions from one Muse expression to another, 3D morphing animation technique is used. In addition, to express the atmosphere of the world of a poem, the system contains a number of background scenes and displays them depending on the process of dialogue between the participant and Muse.

