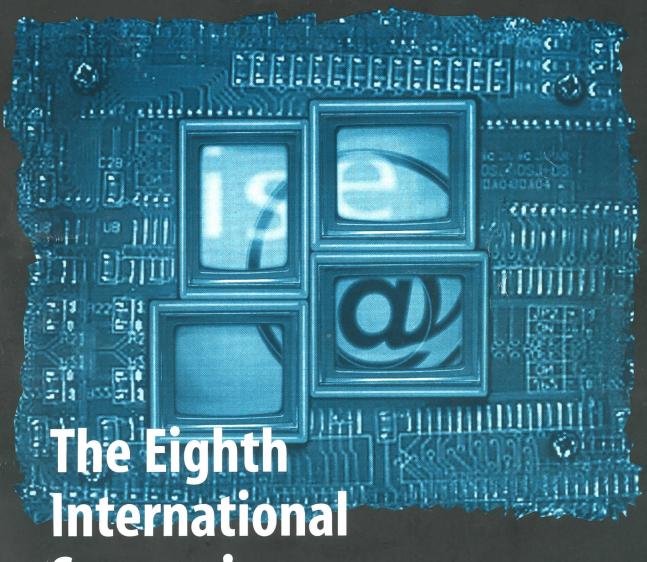# isea@97
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Interactive Poem

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Interactive Poem is a new type of poem, created by you and a computer agent, collaborating in a poetic world full of inspiration, emotion and sensitivity. The concept of this interactive poem is based on conventional poetry, but goes beyond traditional limits by introducing the capability of interaction. You and a computer agent create a dialogue by exchanging short poetic phrases, and through this exchange produce a new poetic world that integrates the poetic world of the agent with your own.

Interaction: A computer agent called "MUSE", who has been carefully designed with a face suitable for expressing the emotion of a poetic world, appears on the screen. She will utter a short poetic phrase to you. Hearing it allows you to enter the world of the poem and, at the same time, feel an impulse to respond by uttering one of the optional phrases or by creating your own poetic phrase. Exchanging poetic phrases through this interactive processes allows you and MUSE to become collaborative poets who generate a new poem and a new poetic world.

The interaction mechanism operates as follows.

1) When MUSE utters a phrase, the recognition process is activated. A participant then utters a phrase and it is recognized by the phrase recognition function, which uses the lexicon subset corresponding to the next set of phrases in the transition network. At the same time, emotion contained in the utterance is recognized by the emotion recognition function.

2) Based on information pertaining to recognition and the transition network, reaction of the system is decided. The facial expression of MUSE changes according to the results of emotion recognition, and the phrase MUSE utters is based on the results of phrase recognition and the transition network. The background scene changes as the transitions continue.

3) In the above atated manner, poetic phrases between MUSE and the participant are consecutively produced.

The speech recognition unit has two different speech recognition functions: phrase recognition and emotion recognition. To recognition each phrase uttered by a participant, HMM (hidden Markov model) based speaker-independent speech recognition technology has been adopted. Each phrase to be uttered is represented in the form of a phoneme sequence and is stored in the lexicon. To simultaneously detect the emotional state of a participant, the emotion recognition function is introduced. A neural network architecture has been adopted as the basic architecture for emotion recognition. This neural network is trained by using the utterances of many speakers to express the eight emotional states of joy, happiness, anger, fear, teasing, disgust, disappointment, and emotionless. As such, speaker-independent and content-independent emotion recognition is realized.

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A Shock in the Ear

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News_agent (X)

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Stock markets, wars, power struggles, environmental problems, murders, and moree—we always try to find out what's behind the headlines on television news or what's to be read between lines of newspaper articles. It's easy to see that there are many causal relationships lying under the surface of the daily news. All the small particles of cause interact with each other, to become social phenomena at the final stage. Evening news programs on TV can work toward family ties, providing a time for sharing common subjects with other family members. Yet 24-hour news programs like CNN or BBC Satellite can turn us into world news addicts. We can hardly stop watching news programs. They bring dramatic spectacles to our homes in real time, as do music and sports channels. News seems to influence our feelings, thoughts, behavior and attitudes in everyday life. All of human activity reflects the mechanical, materialistic elements which form the world. This the traditional sociological viewpoint, but it is being turned upside-down. We should now start interpreting society through the methods of biology. Social structure needs to be seen as a biological system rather than a material system. Applying this interpretation to news, the reflection of our social structure in all of our activities is based on biological reasons, since individuals' activities can be understood in the context of biological rules. The latest theories in financial analysis—as well as other fields—derive largely from biological findings. (Theories based on "complex systems" are a good example.) Darwinian competition, too, is being applied to those theories.

For ISEA '97, I will set up a closed circuit information flow, a virtually-created "news program", which consists of TV news images, newspaper articles and financial market reports. News contents can be categorized by a "favorability" score indicated by the audience's brainwaves. Brainwave data, in this case, depicts the audience's subcon-

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