Animated Chat

ABSTRACT
On-line chat is becoming more popular for both work and leisure. Unfortunately, the chat format is quite constrained in its ability to convey many important pieces of non-verbal information. We present a new system that uses dynamic text with numerous interactive techniques to effectively communicate nonverbal information. We created a number of easily recognizable animation types to show emotional information, and developed an easy-to-use interface with which users can assign desired emotions to their messages.

KEYWORDS: on-line chat, dynamic text, animations, expression forms, and non-verbal information

INTRODUCTION AND RELATED WORK
On-line chat has become a major communication tool throughout the world, but still has many shortcomings. Birdwhistell's [1] linguistic analogy suggests that the information conveyed by words amounts to only 20-30% of the information conveyed in a conversation. This observation demonstrates the importance of non-verbal information. We present a new kind of chat, which uses animation to create a dynamic text chat accompanied by facial images. A number of interactive techniques are used to address the problem. We focus on the text in a conversation, primarily because dynamic text resembles sounds. A spoken word has many characteristics. These include loudness, pitch, feeling, and even dialect.

Our work builds on previous ideas, such as kinetic typography [3] and the kinetic libraries in a kinetic typography engine [6]. Specifically, we (1) solve the lack-of-context problem by adding emotional and structural animations to plain-text chat; (2) present an easy-to-use interface for specifying animations; and (3) generate animations automatically using keyword matching, and extract topic keywords to give chat users feedback about current topics.

A number of graphical chat interfaces have been developed in recent years. Microsoft Comic Chat [5] allows users to chat in the context of a comic book. Participants become characters in a story, and their conversations are expressed as lines in this story. Since users cannot control the qualities associated with their words, all sentences are expressed with uniform loudness and quality of voice. Written words can be used to convey information. Mills et al. [7] provided basic findings for dynamic texts. Lee et al. [6] improved kinetic typography libraries. The Kinedit System of Forlizzi et al. [4] provided ways to control the size, font, and placement of text characters. Bodine et al. [2] applied kinetic typography to Instant Messaging. Although their system is very similar to ours, their implementation is quite limited. They implemented only four animations and their system does not work over a network. Our contribution is that we implemented a more complete system with additional functions, such as automatically generated animations based on keyword matching.

DESCRIPTION OF THE ANIMATED CHAT SYSTEM
1. Animation Screen
This shows the animation of specific words (Figure 1).

2. Scrolling Text Log
The chat log is displayed in plain text. When a sentence is accompanied by an animation, the type of animation is shown using a tag. For example, the chat log might say, “<happy>I am happy.” Therefore, the chat log stores all the information in the conversation, including the animations.

3. Send Buttons
Our system is designed for multiple users, just like a conventional chat room. A user can speak to all the other users either by choosing the “send All” button or by pressing the Enter key. The user can also talk privately with a single user by selecting the “Send Private” button.

4. Specifying Animation
There are three main methods for a user to specify animations. A user can choose an animation by typing a tag, clicking a button, or using a Ctrl key.

5. Animation Control
We also developed an interface to control the size of the font, and the speed and color of the animated words.

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6. Face Pictures or Avatars
A user can use a picture of his or her face or an avatar, which can simulate real chat. When an emotional animation is used or changed, the pictures or avatar will change accordingly.

7. Screen Showing Chat Logs with Animation
Chat conversations can be stored with animation. Both the text log and the full animation chat log can be seen later. This may help users recall and better understand the content of the conversation and more detailed nuances.

AUTOMATIC ANIMATION GENERATION
During an informal test of Animated Chat, some users mentioned that the system would be easier to use if animations were generated automatically. Therefore, we implemented this function using simple keyword matching. We built a simple library that lists pairs of keywords and animations. When the words users typed match the registered keywords, animations associated with the keywords are generated. For example, when a word that means “happy” appears, the animation for “happy” is generated.

TOPIC DETECTOR
Frequently, chat users talk about topics that differ from the topic they intended to discuss. This is because users tend to talk about many things in online chat and do not remain focused. In order to help the users focus on specific topics during a discussion, our system continuously collects the most frequently appearing words in the chat log and displays them on the screen to indicate the current topic. For example, when users are talking about a soccer game, keywords such as goal or keeper appear on the screen reminding users of the current topic. The automatic extraction of topic keywords is also useful to review the progress of the discussion later.

ANIMATIONS
We developed 14 different animations to express feelings. There are two types of animations: emotional and structural animations. The first are animations used to express the feelings of the user. The second are animations used to convey physical information more clearly.

1. Emotional animations
“Happy” is used when a user wants to express the feeling of happiness or cheerfulness. Words jumping up and down indicate happiness. “Question” is used when a user wants to ask a question or show that he or she is suspicious. First, a question mark appears to indicate that there is a question. Then, the actual question appears. “Escape” is used when users are unsure of their opinion. The remarks appear in a small font from the right and then they quickly move back to the right, as if they were escaping from the screen. “Tremble” is also used when users are unsure of their words. The words themselves vibrate at high speed, as if someone was uneasy and their whole body was shaking. “Sad” is used to express sadness. The words in the sentence become progressively smaller and all the words fall down to the bottom, as if they are feeling low and sinking off the screen. “Whisper” is used to express a whisper. The words in the sentence are distinctly tiny and the pace is slow, as if one user were whispering to another.

2. Structural Animations
“Chat” is used as the default case in conversations. When a user writes a new sentence, the words in the sentence scroll up from the bottom. “List” is used when a user wants to show a list in a conversation. The items in the list emerge from the left of the screen “Attention” is used when a user wants to attract other chat users’ attention to his or her remarks. The words are initially small, and then increase in size until they fill the screen.

IMPLEMENTATION
We implemented Animated Chat in Java™. Some of the basic dynamic characters were based on the kinetic project in CMU [6]. This approach allowed us to create the animations more quickly. We created the more complicated animations from basic character motions. The new animations are placed in a class called AnimationLibrary. By modifying some basic functions, new motions can be created quickly and efficiently. Even new users can easily implement new animations and then add them to the AnimationLibrary. The chat system is a server-client network system for multiple users.

CONCLUSION AND FUTURE WORK
We described how Animated Chat provides rich, non-verbal information in communication between online-chat users. Users can either select suitable animations manually or use automatic animations to convey their feelings. We hope to develop an expression library for our chat system and a sub-system that allows users to create new animations. We also hope to further identify differences in how people from different cultures perceive the animations. In addition to animating characters, it would also be useful to animate graphics. Our next step will also include automatic summarizing and clustering of conversations.

REFERENCES