

A STUDY ON BLUE EYE TECHNOLOGY

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Abstract: Is it possible to create a computer, which can interact with us as we interact each other? For example imagine in a fine morning you walk on to your computer room and switch on your computer, and then it tells you “Hey friend, good morning you seem to be a bad mood today. And then it opens your mail box and shows you some of the mails and tries to cheer you. It seems to be a fiction, but it will be the life lead by “BLUE EYES” in the very near future. The basic idea behind this technology is to give the computer the human power. We all have some perceptual abilities. That is we can understand each other’s feelings. For example we can understand ones emotional state by analyzing his facial expression. If we add these perceptual abilities of human to computers would enable computers to work together with human beings as intimate partners. The “BLUE EYES” technology aims at creating computational machines that have perceptual and sensory ability like those of human beings.

Keywords: *Imagine, facial recognition, emotion computing, magic, artificial intelligence.*

I. INTRODUCTION

Imagine yourself in a world where humans interact with computers. You are sitting in front of your personal computer that can listen, talk, or even scream aloud. It has the ability to gather information about you and interact with you through special techniques like facial recognition, speech recognition, etc. It can even understand your emotions at the touch of the mouse. It verifies your identity, feels your presents, and starts interacting with you .You asks the computer to dial to your friend at his office. It realizes the urgency of the situation through the mouse, dials your friend at his office, and establishes a connection. Human cognition depends primarily on the ability to perceive, interpret, and integrate audio-visuals and sensing information. Adding extraordinary perceptual abilities to computers would enable computers to work together with human beings as intimate partners. Researchers are attempting to add more capabilities to computers that will allow them to interact like humans, recognize human presents, talk, listen, or even guess their feelings.

The BLUE EYES technology aims at creating computational machines that have perceptual and sensory ability like those of human beings. It uses non-obtrusive sensing method, employing most modern video cameras and microphones to identify the user’s actions through the use of imparted sensory abilities. The machine can understand what a user wants, where he is looking at, and even realize his physical or emotional states.

II.EMOTION COMPUTING

Rosalind Picard (1997) describes why emotions are important to the computing community. There are two aspects of affective computing: giving the computer the ability to detect emotions and giving the computer the ability to express emotions. Not only are emotions crucial for rational decision making as Picard describes, but emotion detection is an important step to an adaptive computer system. An adaptive, smart computer system has been driving our efforts to detect a person’s emotional state. An important element of incorporating emotion into computing is for productivity for a computer user. A study (Dryer &

Horowitz, 1997) has shown that people with personalities that are similar or complement each other collaborate well.

Dryer (1999) has also shown that people view their computer as having a personality. For these reasons, it is important to develop computers which can work well with its user.

III. MANUAL AND GAZE INPUT CASCADED (MAGIC)POINTING

This work explores a new direction in utilizing eye gaze for computer input. Gaze tracking has long been considered as an alternative or potentially superior pointing method for computer input. We believe that many fundamental limitations exist with traditional gaze pointing. In particular, it is unnatural to overload a perceptual channel such as vision with a motor control task. We therefore propose an alternative approach, dubbed MAGIC (Manual And Gaze Input Cascaded) pointing. With such an approach, pointing appears to the user to be a manual task, used for fine manipulation and selection. However, a large portion of the cursor movement is eliminated by warping the cursor to the eye gaze area, which encompasses the target. Two specific MAGIC pointing techniques, one conservative and one liberal, were designed, analyzed, and implemented with an eye tracker we developed. They were then tested in a pilot study. This early stage exploration showed that the MAGIC pointing techniques might offer many advantages, including reduced physical effort and fatigue as compared to traditional manual pointing, greater accuracy and naturalness than traditional gaze pointing, and possibly faster speed than manual pointing. The pros and cons of the two techniques are discussed in light of both performance data and subjective reports.

The goal of the conservative MAGIC pointing method is the following. Once the user looks at a target and moves the input device, the cursor will appear “out of the blue” in motion towards the target, on the side of the target opposite to the initial actuation vector. In comparison to the liberal approach, this conservative approach has both pros and cons. While with this technique the cursor would never be over-active and jump to a place the user does not intend to acquire, it may require more hand-eye coordination effort.

Both the liberal and the conservative MAGIC pointing techniques offer the following potential advantages:

1. Reduction of manual stress and fatigue, since the cross screen long-distance cursor movement is eliminated from manual control.
2. Practical accuracy level. In comparison to traditional pure gaze pointing whose accuracy is fundamentally limited by the nature of eye movement, the MAGIC pointing techniques let the hand complete the pointing task, so they can be as accurate as any other manual input techniques.
3. A more natural mental model for the user. The user does not have to be aware of the role of the eye gaze. To the user, pointing continues to be a manual task, with a cursor conveniently appearing where it needs to be.
4. Speed. Since the need for large magnitude pointing operations is less than with pure manual cursor control, it is possible that MAGIC pointing will be faster than pure manual pointing.
5. Improved subjective speed and ease-of-use. Since the manual pointing amplitude is smaller, the user may perceive the MAGIC pointing system to operate faster and more pleasantly than pure manual control, even if it operates at the same speed or more slowly.

IV. ARTIFICIAL INTELLIGENT SPEECH RECOGNITION

It is important to consider the environment in which the speech recognition system has to work. The grammar used by the speaker and accepted by the system, noise level, noise type, position of the microphone, and speed and manner of the user's speech are some factors that may affect the quality of speech recognition. When you dial the telephone number of a big company, you are likely to hear the sonorous voice of a cultured lady who responds to your call with great courtesy saying "Welcome to company X. Please give me the extension number you want". You pronounce the extension number, your name, and the name of person you want to contact. If the called person accepts the call, the connection is given quickly. This is artificial intelligence where an automatic call-handling system is used without employing any telephone operator.

V. THE TECHNOLOGY

Artificial intelligence (AI) involves two basic ideas. First, it involves studying the thought processes of human beings. Second, it deals with representing those processes via machines (like computers, robots, etc). AI is behavior of a machine, which, if performed by a human being, would be called intelligent. It makes machines smarter and more useful, and is less expensive than natural intelligence. Natural language processing (NLP) refers to artificial intelligence methods of communicating with a computer in a natural language like English. The main objective of a NLP program is to understand input and initiate action. The input words are scanned and matched against internally stored known words. Identification of a key word causes some action to be taken. In this way, one can communicate with the computer in one's language. No special commands or

computer language are required. There is no need to enter programs in a special language for creating software.

VI. THE SIMPLE USER INTEREST TRACKER (SUITOR)

Computers would have been much more powerful, had they gained perceptual and sensory abilities of the living beings on the earth. What needs to be developed is an intimate relationship between the computer and the humans. And the Simple User Interest Tracker (SUITOR) is a revolutionary approach in this direction.

By observing the Webpage a netizen is browsing, the SUITOR can help by fetching more information at his desktop. By simply noticing where the user's eyes focus on the computer screen, the SUITOR can be more precise in determining his topic of interest. It can even deliver relevant information to a handheld device. The success lies in how much the suitor can be intimate to the user. IBM's BlueEyes research project began with a simple question, according to Myron Flickner, a manager in Almaden's USER group: Can we exploit nonverbal cues to create more effective user interfaces? One such cue is gaze—the direction in which a person is looking. Flickner and his colleagues have created some new techniques for tracking a person's eyes and have incorporated this gaze-tracking technology into two prototypes. One, called SUITOR (Simple User Interest Tracker), fills a scrolling ticker on a computer screen with information related to the user's current task. SUITOR knows where you are looking, what applications you are running, and what Web pages you may be browsing. "If I'm reading a Web page about IBM, for instance," says Paul Maglio, the Almaden cognitive scientist who invented SUITOR, "the system presents the latest stock price or business news stories that could affect IBM. If I read the headline off the ticker, it pops up the story in a browser window. If I start to read the story, it adds related stories to the ticker. That's the whole idea of an attentive system—one that attends to what you are doing, typing, reading, so that it can attend to your information needs."

VI. CONCLUSION

The nineties witnessed quantum leaps interface designing for improved man machine interactions. The BLUE EYES technology ensures a convenient way of simplifying the life by providing more delicate and user friendly facilities in computing devices. Now that we have proven the method, the next step is to improve the hardware. Instead of using cumbersome modules to gather information about the user, it will be better to use smaller and less intrusive units. The day is not far when this technology will push its way into your house hold, making you more lazy. It may even reach your hand held mobile device. Any way this is only a technological forecast.

VII. REFERENCES

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