Chapter 5.3
Review of Kansei Research in Japan

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ABSTRACT

This paper gives a historical review of Kansei-based media technologies in Japan. Kansei is a Japanese word, the meaning of which covers sensibility, sentiment, emotion, and feeling. Kansei research started in the field of music, because music is the most acceptable of the arts to computer science. In the 1990s, the applications of Kansei machine vision became widespread in many industrial fields, including electronic production, automobile manufacture, steel-making, the chemical industry, the food industry, and office appliances, among others. Kansei technologies are also applied to human interface systems, including the field of brain science, for human communication.

INTRODUCTION

In the 1980s, pattern recognition and artificial intelligence, which yielded very fruitful successes in the application of computer science, brought us close to computer systems. However, in practical applications, the information to be manipulated by computer systems was logical, symbolic, and verbal. The delicate nuances of input patterns were filtered out during preprocessing. Kansei information processing began in this epoch. This paper describes the survey of the dawn and the development of Kansei research in Japan.

Kansei comes from a Japanese word, the meaning of which covers sensibility, sentiment, susceptibility, the senses, emotion, and/or feeling. It is a subjective concept in contrast to the objective concept of knowledge processing. We can find a similar concept in pathos, which is contrasted with logos. Figure 1 shows that knowledge information processing realizes "how to understand" and Kansei information processing simulates "how

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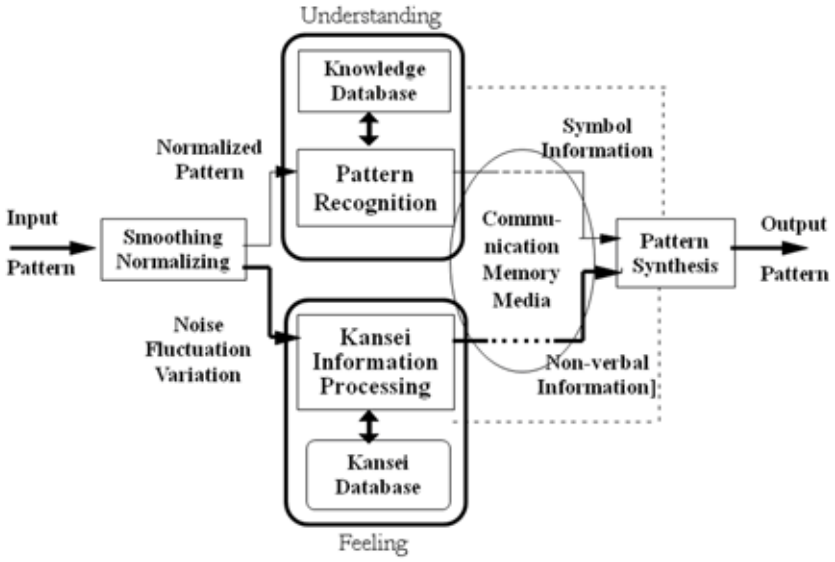
Figure 1.



to feel" (Inokuchi, 1995). In Kansei information processing research, considerable effort has been directed toward human communication, especially non-verbal communication.

In 1993, the research project "Kansei information processing," supported by the Ministry of Education, Culture and Science of the Japanese government, began exploring a new field in the form of a collaboration of psychologists and computer engineers (Tsuji, 1992). This project aimed to organize scientists in computer science and psychology into an interdisciplinary research group with the following five research interests:

1. Basic research on Kansei information processing and its modeling
2. Extraction and representation of Kansei information in the media
3. Kansei information in behavioral space
4. Kansei information processing in communication
5. Kansei design and Kansei databases

Because Kansei indicates rather ambiguous meanings, this project limited the range further to a domain called shallow Kansei. That is, it focused on areas in which sensible information is yielded in the human mind from presentations in a variety of media, such as painting, illustrations, facial expression, sound, and music, and how such media representations can be generated from internal sensible information.

Figure 2 shows the social trends progressing in unison toward the formation of a Kansei society in Japan (Inokuchi, 1994). Since the 1960s, industrial production systems changed from fixed automation for mass production to flexible automation for low-volume, high-variety production. In a Kansei society, customized production had high value, and the value of individuality and personality increased.

The application field of digital computers, originally limited to numeric calculation, has been extended to knowledge engineering and Kansei information processing. Concurrently, the sense of cultural values changed, corresponding to a value shift in the industry. In the 1960s and the early 1970s, when heavy industry was leading Japan, values could be summarized by "The bigger the better." Adjectives such as "heavy," "thick,"