

D-16~D-17

Three-dimensional Data

Stereoscopic View

3D Digital Archive

Humans see the three-dimensional world with two eyes as a picture, then reconstruct it with the brain. Applying the principle of human vision, studies about experimentation on stereoscopic view are going on. For stereoscopic view, there are two methods, showing plural pictures (binocular stereo) and spatially reconstructing three-dimension (holography, etc.). As for binocular stereo, there are two methods, using glasses and with the naked eye. In the case of wearing glasses, many people can see at the same time, while in the case of the naked eye, the points to see are often confined. As a method for stereoscopic view, S. Ohtsuka, et al., proposed a DFD system where pictures with changed in LD ratio based on depth cognition information making use of the human perception mechanism. Meanwhile, studies to acquire three-dimensional data from the real world are actively carried out in the field of computer vision. A study about the measurement and reconstruction of large-scale archaeological sites applying technologies in this field to archives of cultural heritages was carried out by K. Ikeuchi, et al. This was significant as a study in the field of fusing technology and culture.

DFD: Depth-fused 3-D

D-18~D-19

Pattern Recognition

Pattern Recognition

Character Recognition System

Pattern recognition is processing to convert information obtained from sensors such as characters, pictures, and speech into a system where things can be expressed by language, the base unit for humans, namely, the field of challenging the essence of information. From the dawning of the computer, studies on processing such information started in Japan. In 1971, the Industrial Technology Institute, MITI, initiated the *pattern information processing system*, and a government project and studies on pattern recognition were promoted. Its principle was to extract features from signals and picking them out, then converting them into meaningful symbols. This principle was academically proposed by T. Iijima. With pattern recognition, the problem of character recognition was clear in terms of definition and the subject was binary pictures and the amount of data was small, so studies

aimed at realization were advanced. S. Watanabe, et al., proposed a method combining the superimposition of patterns and structural analysis, for the pattern recognition problem, thereby constructing character recognition and speech recognition systems and advancing their practical realization. As a method to effectively learn reference patterns, A. Sato proposed generalized learning vector quantization and studied various types of character patterns, considerably expanding the application field of character recognition. This technology was applied to face recognition in addition to character recognition. M. Kimura, et al., was noteworthy in that they developed recognition technology for documents, not individual characters.