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Database

Database System

High-speed Acoustic/Picture Search Technology

The data model plays a key role in databases. In 1970, the relational model came out and became widely used. A new data mode contrary to this was the object-oriented data model. Among others, Shojiro Nishio established the deductive object-oriented data model and made this a global trend. Contrary to this, Masaru Kitsuregawa proposed various methods based on relational database query hash processing. Meanwhile, because multimedia data was being obtained and circulating in high volumes, high-speed search technologies for such data became of high practical value. Along with this trend, the following systems were achieved: a search system by Masayoshi Abe, et al., which employed image features for search and met police usage, a high-speed search method by Hiroshi Murase, et al. which used the algebraic feature for time-series acoustic/picture data, and a search system by Kunio Kashino, et al. which was a robust system for the vagaries of data.

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Individual Authentication by Biological Information

Fingerprint Authentication

Vein Authentication

Because biological information shows an individual's biological features, attention has been paid from early on to this as the ultimate individual authentication system. The first case realized in this field was individual identification by fingerprint. Regarding the development of a system for practical use such as criminal investigation, the research and development of Tatsuma Ito, et al. around 1980 led the world. From then, various biological information has been studied; among others, attention has been paid to vein authentication because of its user-friendliness. Naoto Miura, et al. developed an imaging method contacting digital veins using far-red light and then developed an individual identification method based on this data. This technology was then further developed such as with authentication by palm with non-contact, a method by Takahiro Aoki, et al. with vein authentication for financial institutions by Morito Shiohara.