AGUI Takeshi

"Pioneering Research of Image Information Processing"

1. Biography

Born on September 27, 1935, Mr. Takeshi Agui graduated from the Faculty of Engineering at the Tokyo Institute of Technology in 1959. He completed his master's degree in 1961 and his doctoral degree in 1964. He became an assistant professor in 1964 and went on to become an associate professor at the Imaging Science and Engineering Laboratory in 1970. In 1979, he became a professor and Emeritus Professor in 1996. In 1996, he became a professor at Toin University of Yokohama. He served as a board member and council member of the Japan Printing Society in 1981 and as a council member of the CG-ARTS Society in 1991.

Awards

Mr. Takeshi Agui has received several awards throughout his career, including the Noma Technical Award in 1997, the Asahi Award from the Insatsu Choyokai Foundation in 1993, and the Japan Printing Society Paper Award in 1993, 1992, 1991, 1989, and 1995. He also received the AV (Audio Visual) Software International Video Software Grand Prize in 1987 and the CG Japan Award in 2005.

2 .Summary

In the Imaging Science and Engineering Laboratory, he focused on the field of computer image processing, which involved processing images as digital information. While there, he conducted research on inkjet technology, establishing himself as a leader in Japan. In the subsequent years at the Imaging Science and Engineering Laboratory, he conducted pioneering research in the field of computer image processing, with a particular focus on Computer Graphics.

3 .Research Achievement

3.1 Ink-Jet Research

Immediately after joining Imaging Science and Engineering Laboratory in 1970, Mr. Takeshi Agui started researching the flight analysis of electrostatic and high-pressure inkjet technology. While ink transfer methods were predominant in printing at the time, he explored the more convenient and faster inkjet technology. He developed high-speed imaging devices to understand the flight behavior of ink and its adhesion to paper, becoming a pioneer in inkjet research in Japan [1][2].

3.2 Image Processing Research

In the Imaging Science and Engineering Laboratory in 1974, Mr. Takeshi Agui shifted his research focus to information processing, initiating studies on speech recognition and image processing. At the time, these

fields were just beginning to emerge, and he built devices such as speech input devices, high-speed Fourier transform devices, and image input/output devices, utilizing an 8-bit CP/M microcomputer. The three-part book series titled "CP/M User's Guide" provided a detailed introduction to the manual methods of building CP/M microcomputers, making significant contributions to the field of information processing research [3]. Similarly, two books, "Computer Speech Processing" and "Computer Image Processing," which explained the utilization of CP/M microcomputers for audio and image processing, respectively, contributed to the development of young Japanese researchers in the fields of speech and image processing in the subsequent years.

3.3 Research on Computer Graphics

In Professor Takeshi Agui's laboratory, the focus of research shifted from hardware-oriented to software-oriented, with a particular emphasis on Computer Graphics, specifically the generation of animation using computers. During this time, studies were conducted on various new areas such as character animation, automatic coloring of animation cells, ORIGAMI animation creation, and image coding. Furthermore, research was carried out on topics related to human sensory organs, especially visual information processing, expression of sensibility and emotions, and knowledge acquisition.

4. Social Contribution

Professor Takeshi Agui made significant social contributions, including the establishment of the CG-Arts society in 1985. The society is currently involved in curriculum development, creation of educational materials, and the promotion and support of education in the field of computer graphics. Additionally, the AAN (Agui, Arai, Nakajima) algorithm, a fast DCT optimization algorithm proposed as part of the image coding research, has been incorporated into the international standard for image coding, JPEG.

5. References

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