

6 • 6 Japan

Akira Kubota

Ministry of International Trade and Industry, Japan

[1] Background

In Japan, machine translation has been of great interest. This is because we deeply feel that the Japanese language is a barrier to establishing communication with other countries

Japan aims to maintain stable relations with other countries through free trade and mutual understanding with other nations.

Industrial and economical exchanges with developed countries are undoubtedly increasing and deepening. In addition, industrial and technical information transfer from our country to developing countries is increasing through technical and economic cooperation.

Under these circumstances, translation is in strong demand. This demand results in a tremendous increase in translation costs. This tends to widen the gap between translation supply and demand.

From the technical point of view, various improvements have facilitated machine translation. These include: Japanese text processing on computer through the development of a Japanese word processor accompanied by the standardization of the character code; accumulation of know-how concerning natural language processing as a result of artificial intelligence research; development of super mini-computers and engineering workstations made possible by the realization of high-speed processors; and processing of large volumes of information, which is contained in natural language, by the appearance of large-capacity magnetic disc devices.

Due to these developments, a machine translation system on the application level is strongly desired. This desire has led to the vigorous development of commercial systems by computer companies, as well as basic research being done in universities and research institutions.

At this summit, companies have introduced their commercial systems and systems still under development, and the progress seen is remarkable.

Since computer technology is one of the most rapidly advancing science and technology fields and further development is expected, machine translation technology promises great leaps of progress.

[2] The current situation of machine translation

In Japan, machine translation is at the first stage of its practical application. Major computer companies began to concentrate on research and development of machine translation technology from the late 1970s and early 1980s. At present, more than ten companies have introduced English-to-Japanese and Japanese-to-English machine translation systems.

Universities such as Kyoto University and Tokyo Institute of Technology, and the national research institute, Agency of Industrial Science and Technology Electrotechnical Laboratory, are conducting research on machine translation. In these institutions, basic research is proceeding, focusing on natural language processing.

Furthermore, some joint research and development projects are being done on a national scale.

First, we have a project of machine translation system development for Asian countries. This project starts this year in CICC, commissioned by MITI. In this project, a machine translation system for the Japanese and Chinese, Thai, Malay and Indonesian languages will be developed with close cooperation by each country, at an estimated cost of about 6 billion yen over 6 years. Although Japan and other Asian countries are very close in distance, they find difficulty in information exchange because of language problems. Therefore, I hope the development of this project will be of help to accelerate the smooth distribution of Japanese industrial and technical information to other Asian countries. Further, I believe that information processing technology, which is the basis of industrial technology, will be transferred to Asian countries by joint research and development between the Japanese and other researchers and technical experts.

The other project, the development of an electronic dictionary, is being carried out at the Japan Electronic Dictionary Research Institute Ltd. This institute was established by joint investment of the government-related Japan Key Technology Center and other computer-related companies. This institute aims at the research and development of a large volume electronic dictionary, an essential tool for natural language processing and knowledge inference.

[3] Future outlook

The history of machine translation so far can be divided into two periods: the promising period and the pessimistic period. It is difficult to foresee the future of machine translation because computer technology is developing so rapidly. In addition, I think, there is difficulty because we are uncertain about what kind of machine translation systems are desired, and what kind of systems will be practical for what purposes and with what performance standards.

Machine translation systems can never replace excellent human translators in accuracy and expression. However, such systems will be practical with appropriate human support and acceptance of its application limits. Therefore, it is necessary that we understand what machine translation systems can and cannot do. The machine translation systems in use today are operated under very restricted conditions. To develop a usable machine translation system, it is required to evaluate the system properly to meet the needs of users.

I believe this Machine Translation Summit is very meaningful in its promotion and exchange of up-to-date opinions concerning developments in and applications of machine translation.

Machine translation technology can help remove barriers in communication and activate international information exchanges. Therefore, it should be regarded as an important infrastructure, and I hope the system will see further improvements.