Machine translation is a sub-field of computational linguistics that investigates the use of software to translate text or speech from one natural language to another.

In the 1950s, machine translation became a reality in research, although references to the subject can be found as early as the 17th century.

The Georgetown experiment, which involved successful fully automatic translation of more than sixty Russian sentences into English in 1954, was one of the earliest recorded projects.

Researchers of the Georgetown experiment asserted their belief that machine translation would be a solved problem within three to five years.

In the Soviet Union, similar experiments were performed shortly after.

Consequently, the success of the experiment ushered in an era of significant funding for machine translation research in the United States.

The achieved progress was much slower than expected; in 1966, the ALPAC report found that ten years of research had not fulfilled the expectations of the Georgetown experiment and resulted in dramatically reduced funding.

Interest grew in statistical models for machine translation, which became more common and also less expensive in the 1980s as available computational power increased.

Although there exists no autonomous system of "fully automatic high quality translation of unrestricted text," there are many programs now available that are capable of providing useful output within strict constraints.

Several of these programs are available online, such as Google Translate and the SYSTRAN system that powers AltaVista's BabelFish (which was replaced by Microsoft Bing translator in May 2012).

The origins of machine translation can be traced back to the work of Al-Kindi, a 9th-century Arabic cryptographer who developed techniques for systemic language translation, including cryptanalysis, frequency analysis, and probability and statistics, which are used in modern machine translation.

The idea of machine translation later appeared in the 17th century.

In 1629, René Descartes proposed a universal language, with equivalent ideas in different tongues sharing one symbol.

In the mid-1930s the first patents for "translating machines" were applied for by Georges Artsrouni, for an automatic bilingual dictionary using paper tape.

Russian Peter Troyanskii submitted a more detailed proposal that included both the bilingual dictionary and a method for dealing with grammatical roles between languages, based on the grammatical system of Esperanto.

This system was separated into three stages: stage one consisted of a native-speaking editor in the source language to organize the words into their logical forms and to exercise the syntactic functions; stage two required the machine to "translate" these forms into the target language; and stage three required a native-speaking editor in the target language to normalize this output.

Troyanskii's proposal remained unknown until the late 1950s, by which time computers were well-known and utilized.