

## Chapter 1 Summary

Lugar defined artificial intelligence as a branch of computer science that is concerned with the automation of intelligent behavior. The goal of this “intelligent behavior” is to apply it to a wide range of practical problems. Due to the nature of artificial intelligence, the types of problems it can be applied to share a common set of features. These features include using computers to make inferences using reasoning, pattern recognition and learning. These problems also tend to deal with inexact or missing information used to define the problem or answer. However, despite the usefulness of artificial intelligence in solving certain types of problems, some remain concerned about where artificial intelligence will lead us.

Lugar uses the story of Prometheus to discuss some of the controversy behind artificial intelligence. Much like in the story of Prometheus, artificial intelligence will help humans become more enlightened and gain more knowledge. However, some suggest this is at a cost, much like Prometheus’ endless torture by Zeus. The main controversy behind artificial intelligence is the fear of consequences of intellectual ambition. However, much like many previous scientific discoveries, the usefulness humans get out of gaining more knowledge tend to outweigh the ramifications.

The principles behind artificial intelligence has been in the works for several thousands of years. It stems from the metaphysics field of philosophy that is concerned with the separation of mind from body. Descartes helped to establish the structure of ideas about how the mind and body work together, and how they may be separate as well. This is important for artificial intelligence because it tries to mimic human intelligence outside of a human body. Descartes’ thinking suggests that mental processes have an existence of their own and obey their own laws, which means they can be studied and artificially applied. This is something that the study of artificial intelligence would try and do. However, while it is important for mind and body to be separated for AI, there must also be a way to reconnect the two since the interaction between them is essential for human existence.

Artificial intelligence has a long history that leaves some skeptical of its usefulness. However, there are a large number of problems that artificial intelligence can be applied to. Some of these fields are game playing, reasoning and theorem proving, expert systems, natural language processing, modeling human performance, machine learning, and neural nets and genetic algorithms. The usefulness and broad range of problems artificial intelligence can solve make it a useful tool to help humanity gain greater knowledge.