

Chapter Five: General Artificial Intelligence

While the current era is defined as the era of “narrow AI,” capable only of certain actions for which they are defined, researchers and experts also address the possibility of developing “general AI,” which will act as a machine that thinks and acts similarly to the human brain.⁹⁷ This general definition indicates the complexity of the field, as it combines engineering with the biological, psychological, and cognitive functions of human beings.

Operational definitions relate, for example, to software that can pass the “Turing test” by successfully conducting a continuous conversation with human testers, who have no idea that they are talking to a machine.⁹⁸ Another more complex test is the “employment test,” testing the machine’s ability to perform a wide range of different critical roles in the labor market.⁹⁹ Some studies also refer to the computational power or processing required for such AI. However, it is apparent that the whole is greater than the sum of its parts, and that the processing capability is not a sufficient measure to explain such complex technology.

Despite the complexity of its definition, there is a broad consensus that general AI relies upon significant developments in cognitive research, hardware, and software, in addition to global willingness to transfer decision making to machines.¹⁰⁰ In addition, the development of general AI has generated great interest, with the business and public sectors addressing its many aspects.¹⁰¹

The feasibility of general AI, however, is still debatable. Researchers cannot agree on the very ability to develop the technology, and they disagree about the time needed to do so, and even if it is possible. Moreover, whether its effects on humanity will be positive or negative is also subject to debate.¹⁰²

General AI faces three central challenges. One is the lack of a definition of AI technology and its problem of measurement.¹⁰³ Second, gaps exist in the field of neuroscience and cognition, making it difficult to program a machine to quickly learn something new or make generalizations in a noisy environment, as long as there is no understanding of how a person does it.¹⁰⁴ Third, the hardware challenge also limits the advances in deep learning.¹⁰⁵ In order to advance, it needs more powerful and efficient processing capabilities than those that exist today.

The uncertainty about the future of a general AI notwithstanding, general AI may also have negative implications. Researchers widely agree that the inherent promise of general AI already has created a dangerous race to achieve it, with the United States and China in the lead.¹⁰⁶ The prevailing view is that the first country to develop this type of intelligence will have a significant advantage over its competitors, which raises the likelihood that safety aspects have been neglected during its accelerated development.¹⁰⁷ Moreover, there is concern that a small group of people could abuse general AI, as well as the problem of controlling the product itself, which some fear will be without any limitations,¹⁰⁸ similar to many science fiction films.

It is widely assessed that general AI will influence all areas—including both industry and the labor market—and cause a shift in the global economy, affecting the education system, revolutionizing health care, transportation, and more, while fundamentally changing the behavior of human society.¹⁰⁹ Inevitably, general AI will greatly affect the national security of countries and international relations,¹¹⁰ because of its implications for both the global balance of power and the nature of war.