Chapter 1
A New Dawn

ABSTRACT

People have varying (and often conflicting) beliefs, expectations, and fears of science and technology. While emerging technologies such as artificial intelligence (AI) may be no different, it has captured the imagination of people of all walks of life globally and is already trickling into our lives daily. When considering the future, the role of AI often polarises views of "a utopian versus dystopian future" throwing up a number of interesting questions about ethics, morality, religion, social values, regulation, and perhaps controversially, what it means to be human. Moreover, AI seems to be creating expectations that perhaps cannot be fulfilled in the present day but may (potentially) affect our future in ways that we still cannot comprehend. A new dawn of innovation is upon us, perhaps a revolution or an evolution of human society. This chapter presents this new dawn.

"Everything we love about civilization is a product of intelligence, so amplifying our human intelligence with artificial intelligence has the potential of helping civilization flourish like never before – as long as we manage to keep the technology beneficial." –Max Tegmark, President of the Future of Life Institute

INTRODUCTION

This book studies the social implications of artificial intelligence (AI) in society, the workplace, in industry and beyond. No prior knowledge is required.

People have varying and often conflicting beliefs, expectations and fears of science and technology. AI is no exception, and it has captured the imaginations of people of all walks of life and is already affecting into our daily lives. AI is all around us, from self-driving cars and drones to virtual assistants and apps for translation or investing. It is commonplace enough that economists refer to AI as a *general-purpose technology*. In recent years, there has been major advancements in AI driven by exponential increases in computing power and the vast amounts of available data. Software now being used to discover new drugs and to predict our cultural interests. Digital technologies interact with our biological world on a daily basis. Engineers, designers, data scientists and software architects have combined computational design, additive manufacturing, materials engineering and synthetic biology to pioneer a new symbiosis amongst micro-organisms, our bodies, the products we consume and even the homes and office spaces we inhabit.

We may be far away from super-intelligent AI systems, and there may yet be fundamental obstacles to achieving much beyond human intelligence. When considering the future, we often encounter polarised views of utopian vs. dystopian futures, raising several interesting questions about ethics, morality, religion, social values, regulations and what it means to be human. Some are concerned that AI will amplify the gaps between rich and poor and further enhance inequalities, prejudices and conscious/subconscious bias. AI is sure to further play a role in an ever-increasing surveillance-based society that may suffer from suffocating bureaucracy, malevolent governments and public manipulation via social media reminiscent of George Orwell's 'Nineteen Eighty-Four' (Orwell, 2003).

Although top experts often disagree about how to define AI and machine intelligence, it is essentially intelligence demonstrated by machines that mimic human cognitive functions associate with humans, including learning and problem solving (Russell, 2009). AI, as a distinct field of study, emerged in the 1950s concurrent with the invention of digital computers. The earliest methods of simulating intelligent decision-making are now commonly known as 'symbolic AI', which includes often Boolean programming methods that use symbols (e.g. letters and numbers) to describe rationally determined, rules-based operations. Considering that this represents most typical computer

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