

Chapter 4

Robots, Replicants, and Surrogates

ABSTRACT

The human brain is an extraordinary machine. Its ability to process information and adapt to circumstances by reprogramming itself is unparalleled, and it remains the best source of inspiration for recent developments in artificial intelligence. This has given rise to machine learning, intelligent systems, and robotics. Robots and AI might right now still seem the reserve of blockbuster science fiction movies and documentaries, but it's no doubt the world is changing. This chapter explores the origins, attitudes, and perceptions of robotics and the multiple types of robots that exist today. Perhaps most importantly, it focuses on ethical and societal concerns over the question: Are we heading for a brave new world or a science fiction horror-show where AI and robots displace or, perhaps more worryingly, replace humans?

“Replicants are like any other machine - they’re either a benefit or a hazard. If they’re a benefit, it’s not my problem.” –Rick Deckard, Blade Runner (1992), A Ridley Scott Film

INTRODUCTION

The human brain is an extraordinary machine. Its ability to process information and adapt to circumstances by reprogramming itself is unparalleled, and it remains the best source of inspiration for recent developments in artificial intelligence (AI). This has given rise to machine learning (ML), intelligent systems and robotics. The past few decades have witnessed the increasing role that robots play in society... something that we often take for granted as we forget what they actually do. Many of us still think of robots in the sci-fi humanoid sense and not as self-checkouts or home computers. As such, it never occurs to us that we are entrusting our shopping, work and communications to a robot for improved speed, cost, efficiency and safety. Many cutting-edge technologies are connected with the field of robotics, such as ML and AI, industrial internet of things, man-machine collaboration and autonomous mobile systems.

To most humans, the use of robots is a natural part of our day-to-day activities. They are paving the way to an easier life while enhancing our everyday lifestyles, whether it be by driving us to our destinations, cleaning our houses, providing medical care or producing products we crave more quickly and cheaply. Robots in society have faced criticism by people concerned that they are taking over human jobs. As companies search for faster and more cost-effective ways to do things, they invest in more machinery and fewer people. In cases where safety is the key concern, there is little opposition. However, in other cases, some claim that it leads to people being left unemployed for the sake of profit (Ford, 2016). However, concerns such as these have been here since the original industrial revolution when the Luddites smashed machines that had made manufacturing more efficient. While undoubtedly some jobs will be lost in the short term, historical patterns have shown that machines do not ultimately lead to unemployment. They must be built and maintained; they allow companies to expand and they open up whole new industries and areas.

Intelligent robots are a crucial part of digitalisation of the manufacturing industry (Wilkins, 2019). However, the global manufacturing industry is facing big challenges owing to rapidly changing consumer trends, shortage of resources, shortages of skilled workers, an ageing society and demand for local productions. Given these challenges, innovation and enthusiasm in the robotics market is on the rise.

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