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Part 3

So, if employers' rules are not enough, are there other types of rules that can be used? Well, almost all the main professional associations have their own ethical guidelines, and these can help decision-making. One example of this is the British Computer Society (BCS) Code of Conduct.

The BCS guidelines include the need to consider the impact of members' work on society in different areas, such as in public health; in maintaining the privacy and security of individuals; maintaining the quality of the environment, and also the well-being of others.

Another aspect the guidelines mention is the requirement for members to continue to develop their professional competence skills and to only carry out work that is within their professional competence. In other words, they keep people safe because they know what they can and cannot do. Linked to this is the requirement to respect the organization or individuals they work for, so the work they do is carried out with due care and attention.

The code also reminds individuals that they should promote their professional society with colleagues and let others know how computing professionals contribute to the well-being of society. The Institute of Electrical and Electronics Engineers (IEEE) also has a code of conduct. The IEEE Code of Conduct focuses on personal behaviour when interacting with others, as well as requirements to avoid damage or injury to others and to behave in an ethical manner when doing business.

Although some people may claim that guidelines are very general and are often ignored by their members, they offer a way for computing professionals to evaluate how ethical their decisions are, regardless of the specific employment context that they are in.

A key issue where this is becoming more important is in relation to the development of machine learning and artificial intelligence. A very useful definition of AI is from King (2017) – and I quote – 'computer systems able to perform tasks that normally require human intelligence, such as visual perception, written and spoken human language recognition, decision-making, and translation between languages'.^[1] A key point here is 'otherwise attributed to human intelligence', in other words, these are machines which can make decisions in ways we would expect humans to do. As Computer Science students, you will know that AI is made possible by the huge increase in the processing power of computer systems and the availability of large amounts of raw data. Because of the speed with which AI is developing, many different organizations and governments are trying to develop clear guidance on how to manage AI.^[3] You may want to look at the British Computer Society draft national AI strategy to get some ideas about how they see the issues. I can give you the reference at the end of the lecture.

So, we saw earlier in the lecture that Bynum highlighted the fact that computer specialists were constantly creating new possibilities for society and that this meant that ethical decisions were more difficult for them. The way in which computers have developed over the last 30 years is truly amazing, but the possible developments in AI are even more amazing and there is a clear need for ethical guidance around these.^[2]

There are many benefits from the use of AI. For instance, it has enabled computers to translate texts between languages with a high degree of accuracy, even with spoken language. It also enables high-quality speech recognition, helping to develop speech-controlled devices, such as Amazon's Alexa.

However, AI can also be used in ways which can be regarded as harmful. For example, facial recognition techniques can be used to track individuals across different surveillance cameras, making it easier to monitor and control individuals in ways which affect their daily lives.

Another important issue for AI is the ability of AI-controlled devices to operate autonomously,^[4] that is to say, without any instructions from a human operator. The use of autonomous vehicles is one example of this. This is a good example of the need to consider potential benefits and harm that AI can bring. Autonomous vehicles have the potential to make travelling in cars safer. However, it also has the potential to cause damage to individuals if the system does not work correctly. There have already been examples of deaths of passengers in autonomous

vehicles. An even more worrying aspect of autonomy is the development of autonomous weapons, that is weapons which can attack without direct instructions from a human operator. This sounds like science fiction, but according to a UN report, armed drones have already been used in this way.

When the first silicon chip was created, the people who created it had no idea of the impact it would have on society 60 years later.^[5] I think with AI, we are in a very similar situation. We have no idea of the scope and scale of what AI can make possible.

It can be argued that addressing the issues around AI is not simply a matter for ethics, but one which requires strong legal regulation. The question is: *Is legal regulation of AI products justified?* There are those who claim that imposing legal regulations on AI companies prevents the development of new products and services which could have helped people in different ways. I'm afraid that just isn't true. It's quite clear that, in some cases, regulation can impose an unnecessary burden on companies. However, research has shown that it is possible to go some way towards balancing the need for innovation with protection for society. For example, the EU is creating a framework which separates AI developments into those with different levels of risk, where regulation will be only applied to those developments with higher levels of risk.

A final area to think about is whether the values of the computing professional and the organization they work for are in line with each other, or not. It is particularly important for software engineers to consider what products or services their company is providing. These types of products could include facial recognition technologies, weapons development or healthcare applications.

Now, I'm going to set you a task which will involve investigating some of the points I've raised. I want you to do some research into the legal and ethical issues related to AI. I want you to focus, firstly, on some of the benefits of AI. What are the good things it can do for us? Secondly, I'd like you to think about whether laws, company rules and regulations can cover all of the possibilities when employees are engaged in developing new AI products, and if not, what companies can do to make sure their activities are seen as ethical. Thirdly, I would like you to think about the possible impacts of AI on society as a whole. Finally, I would like you to look at different ways society can balance the benefits of AI with the dangers it can bring.^[6]