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<u>Unit 3: Artificial Intelligence</u>

The lecture I found most interesting was the introduction to artificial intelligence by professor

Visser. He showed examples from his own work which was very engaging. I was fascinated

when he showed the soccer robots he had worked on in action. They are programmed to win the

game so when they have any opportunity to shoot they will do it automatically. He explained

how they go through a process where they consider possible actions until they get the best option

and act. Essentially, AI systems interact with the environment through sensors and actuators

which allow perception of the world around them, providing the opportunity to evaluate and

reason what their reaction should be. The final step is producing an action in response to the

stimuli. This process is similar to the way humans process external stimuli, but instead of *(which also includes learning)*

learning through experience, it would be through concrete programming. We shrink the world

into our own model to better perceive it and take the best course of action. It is my understanding

that AI systems also have their own models of the world for the very same reason. After the

soccer example he showed himself talking to one of his fully autonomous robots, which he

programmed to not only understand what he is saying, but to also maintain eye contact. In the

video, he speaks directly with the robot while moving around. In order to maintain eye contact *it*

moved his head and body to follow the professors movements. Eye contact and the mirroring of

movements are very important in a human conversation. He then went on to explain four

different kinds of AI systems that I did not know existed. Such as, systems that think like

humans, systems that act like humans, systems that think rationally, and systems that act

rationally. Professor Visser took us back to the Turing test that we covered in unit 1. It was designed to provide the definition of intelligence. If the program passes the test we would not be able to distinguish if it was a computer or human. I think an AI that possesses all four types of systems would be able to not only come out with the best outcome, but also successfully pass the Turing test. In this lecture, professor Sutcliffe really put into perspective just how many areas of AI programming are influenced by different areas of knowledge. Some areas include philosophy, neurosciences, psychology, and many more. Psychology is useful for things like vision and pattern recognition. Psychology also assists with behavior because the desired outcome from AI systems is to exhibit behavior similar to humans. Philosophy assists with logic so that the AI would be considered a rational agent, who acts based on correct inferences of what they perceive so that they get the best outcome. Neuroscience assists with parallel processing, the understanding of neural networks, the capacity to reason and solve a problem, and other cognitive functions. While math and computer science may represent the core of programming AI systems, Cognitive science plays an extremely important role.