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Teaching Robots to Play Soccer

On Human-Technology Relations in the Development of Software for Humanoid Robots

The development of humanoid robots equipped with artificial intelligence able to exceed human capabilities has been depicted as an intangible, irrevocably progressing force with a set end state in both utopian and dystopian accounts, in fiction as well as in theoretical treatises. I argue that this depiction, by disguising the actual processes that take place in computer science labs, significantly restricts a thorough societal discourse on how we want the development of such software to proceed. In order to empower a broader and more focused public debate on the topic, this PhD project has the goal of describing and analyzing these processes, as well as the human-technology relations on which they are based, in a team of computer scientists who program humanoid robots to play soccer.

Being a computer science student myself, I both carry out ethnographic research and participate in programming the robots in this team. My work, which is thus based on both ethnographic and autoethnographic insights, will serve to further a more comprehensive understanding of how software is developed in the context of robotics. This particular research field offers me the possibility to observe the development of a wide range of technical approaches, including neural networks-based object recognition or autonomous behavior, which are commonly labelled as “artificial intelligence”. Given that these technical approaches are equally relevant in technologies such as self-driving cars or autonomous weapon systems, my work will also contribute to an understanding of the development of these more controversial applications of artificial intelligence and robotics.



Figure 1. Nao v6. (Softbank Robotics, <https://www.softbankrobotics.com/emea/en/nao>, accessed March 10, 2021)