Anthropomorphic Language in Robotics

Karolina Zawieska, Anna Stańczyk

Industrial Research Institute for Automation and Measurements PIAP
Al. Jerozolimskie 202, 02-486, Warsaw, Poland
`{kzawieska, astanczyk}@piap.pl`

Abstract. Depending on the ethical approach and the robotic system, there have been a variety of ethical issues identified in the field of robotics. If there is anything that may serve as a common denominator for different ethical concerns it is the question about the degree of human-likeness in robots. To what extent robot features equal human characteristics, if at all? This paper emphasises that "humanlike" is not equal to "human", and hence the centrality of the concept of anthropomorphism. While anthropomorphic analogies facilitate the understanding of how robotic systems work, if taken literally, they lead to the conceptual confusion and the gradual shift in goals from creating robots that resemble human beings to actually reproducing humans in robots. One of the main elements that contribute to anthropomorphism in robots is the use of the anthropomorphic terminology. In order to stress the difference between what is human and what only appears as such, this paper proposes to develop a new approach towards anthropomorphic language in robotics, on the example of autonomy in robots. The ultimate goal is to develop a particular conceptual framework rather than merely a linguistic approach, where human and robot characteristics are different in essence and not only in degree.

Keywords: anthropomorphic language, autonomous robots, anthropocentrism

1   Not Quite Anthropomorphic

There have been a variety of approaches towards robots that lie on a continuum between using versus rejecting the anthropomorphic principle. Robot autonomy is a good example: On the one hand, one may view autonomous military robots as "killers" [3, 5] that should never substitute human soldiers. On the other hand, autonomous robots may be seen as capable to not only equal but also outperform human beings in, for instance, making moral decisions. In any case, the human frame of reference for robots is very strong.

An important factor in generating the anthropomorphic view of robots is anthropomorphic language. While the field of robotics has also its own discipline-specific terminology which applies only to robots, there seem to be no limitations in transferring to robotics the terms typically applied to the human domain. This is largely due to a growing number of actors involved in the debate on robots,

in particular if the discussion concerns sensitive topics such as autonomy in robots. Whether the use of anthropomorphic analogies is deliberate or not and what motives lie behind it, largely depends on the actors involved in the debate. In any case, the popularity of the anthropomorphic language proves its explanatory role, where human-robot analogies are useful to understand different aspects of the robot design and behaviour. However, the unreflective use of the anthropomorphic terminology obscures rather than explains the nature of robotic systems and it also promotes a particular view of the human being. This is why this works proposes to gradually reduce the existing anthropomorphic language, based on the following assumptions:

- *Neologism construction.* Just as the term "robot" was coined to name a new type of technological artefacts, it is possible to create new words to describe robotic features. Neologism construction may imply either development of new terminology or popularisation of the existing discipline-specific terms which have not yet been fully assimilated into the language. The use of neologisms would reduce the need for the anthropomorphic analogies and allow addressing the unique nature of robotic creations. Since language is a social construct, creating neologisms would be only a starting point for further developments and investigations.
- *Emphasis on the artificial.* It is a challenging task to discuss robotics using anthropomorphic terms and at the same time address the non-human nature of robots. There have been numerous examples, however, of the terms that successfully embrace these two elements, for instance "Artificial Intelligence" or "Artificial Agents" [1, 5]. Thus, one may combine the term "artificial" with anthropomorphic analogies, where the term "Artificial Autonomy" [2, 4, 6] has already been used. Also, the very term "robot" well describes the unique (non-human) status of robots, hence the possibility to simply discuss "robot autonomy". Another solution is to stress the metaphorical nature of a given term, for example, using such terms as "quasi-autonomy" or "autonomous-like".
- *Discipline-specific approach.* While it is difficult to reach a consensus on the definition of the human being, we should be able to agree upon on the definition of the robotic systems we create. Thus, when developing new terminology in robotics, we should look at what the robot actually is rather than what it should or could become in relation to the human being, as well as refer to specific robot features. A functional approach and the term "autonomous robot navigation" is a good example.
- *Anthropocentrism.* The very decision whether to create an artificial version of human life or not, is a matter of a particular ethical stance and values. When developing a new terminology we should deliberately employ the values that place the human being at the centre, in opposition to the approaches where human characteristics are to be merely matched or exceeded by different robotic systems.

2 Conclusions

When developing different types of robots, the question is not only what the attribution of human characteristics to the machine tells us about ourselves, as individuals and as the human species, but also how to manage such a process. This works proposes to modify the anthropomorphic language in a way that it grasps the artefactual nature of robotic systems, while leaving room for anthropomorphic projections. Given the ubiquitous and ever-changing nature of language, it is the task that requires a mindset change rather than the mere creation of new words. The ultimate goal is to use robotics to not only reflect on but also actively construct our view of the human being.

References

1. Arkin, R., Governing Lethal behavior in Autonomous Robots, 2009: CRC Press.
2. Beer, J.M., A.D. Fisk and W.A. Rogers, Toward a Psychological Framework for Levels of Robot Autonomy in Human-Robot Interaction, Technical Report 2012.
3. Krishnan, A., Killer Robots: Legality and Ethicality of Autonomous Weapons, 2009: Ashgate Publishing, Ltd.
4. Schmidt, C. and F. Kraemer, A Terminological Stance on Artificial Autonomy, in Invited Speaker Presentation at the International Conference on Autonomous Robots and Agents (ICARA 2004). 2004.
5. Sparrow, R., Killer robots, Journal of Applied Philosophy, 2007. 24(1): p. 62-77.
6. Ziemke, T., On the role of emotion in biological and robotic autonomy, BioSystems, 2008. 91(2): p. 401-408.