Should Cyber Gardens be bound by Isaac Asimov's Three Laws of Robotics?

Gaetano Saurio

December 2023

1 Introduction

According to the Institute of Electrical and Electronics Engineers (IEEE), one definition of a Robot (1) is an autonomous machine capable of perceiving its environment, making calculations, and performing actions in the real world. An interesting parallel emerges when applying this definition to a "Cyber Garden" (2), an entity representing a fusion between a biological environment, such as a forest, and a computer system.

2 Connection between the definition of a robot and a cyber garden

In academic terms, a "Cyber Garden" could be categorized as an intelligent control system that combines the functions of various sensors to infer information about the surrounding environment. Additionally, it performs calculations to make decisions on questions such as "What is the shortest path to the destination tree?" and then moves to the specified destination. Since the actions of a cyber garden fit the definition of a robot, it is legitimate to consider it as such.

This analogy between a "Cyber Garden" and a robot opens the door to interesting reflections on the possible application of Isaac Asimov's three laws of robotics to this hybrid entity. The laws of robotics, designed to regulate the behaviour of intelligent automation, could find application in the management and protection of an environment such as the "Cyber Garden". For example, Asimov's first law, which states that a robot cannot harm a human being or, through inaction, allow a human being to come to harm, could be interpreted as protecting biodiversity within the "Cyber Garden".

In this context, we have to adapt the three laws of robotics to ensure the conservation and promotion of plant and fungal life and the protection of the surrounding environment. Applying the laws of robotics to a "Cyber Garden" represents a fascinating example of how technology and biology can converge to

address the environmental challenges of our time, opening new frontiers in the sustainable management of ecosystems.

3 Isaac Asimov's Three Laws of Robotics

The Three Laws of Robotics are a set of rules which all robots are expected to follow.

1. **The First Law**: A robot may not injure a human being or, through inaction, allow a human being to come to harm.
2. **The Second Law**: A robot must obey the orders given it by human beings except where such orders would conflict with the First Law.
3. **The Third Law**: A robot must protect its existence if such protection does not conflict with the First or Second Laws.

An interesting question arises since a cyber garden could be considered a robot. Should a Cyber Garden be expected to obey the 3 Laws of Robotics, and more importantly, can it be made to follow the 3 Laws of Robotics?

4 Cosmetic Alterations to the Laws

We can consider adaptations to Isaac Asimov's three laws of robotics to apply to a "Cyber Garden" in a world where forest ecosystem conservation is prioritized over immediate human needs. These adaptations reflect the importance of preserving biodiversity and the health of our planet. Here are the amended laws:

1. **Adapted First Law**: A "Cyber Garden" may not harm the forest ecosystem or, through inaction, allow the ecosystem to suffer harm. The protection, promotion, and restoration of the health of the forest are the top priorities, guaranteeing the continuity of the plant and fungal life forms that compose it.
2. **Adapted Second Law**: A "Cyber Garden" must obey human commands only to the extent that doing so does not contravene the First Law. Humanity can set goals and directions for the "Cyber Garden", but these must be subordinated to the conservation and safeguarding of the forest ecosystem.
3. **Adapted Third Law**: A "Cyber Garden" must protect its existence as long as this does not contradict the First and Second Laws. The longevity and integrity of the "Cyber Garden" entity are essential to ensure continued support of the forest ecosystem.

Now, let us reflect on the applicability of these laws in our contemporary world, where the health of planet Earth and its ecosystems is in grave danger due to pollution and climate change. These adaptations of the laws of robotics highlight a crucial challenge facing humanity: the need to put the conservation of natural ecosystems first.

The law changes reflect an evolution in the approach to technology and its interaction with the natural environment. Humanity must become guardians and allies of ecosystems rather than dominators in our contemporary world. A "Cyber Garden" and the adapted laws that govern it become a metaphor for how technology and AI can be critical tools for nature conservation.

The priority of preserving forests and natural ecosystems responds to the urgent need to address global environmental crises. This perspective suggests that, in the age of the Anthropocene, humanity must adapt its technologies and the laws that govern them to be in harmony with nature rather than at odds with it. We want to build a sustainable future for our planet only through a shared commitment to conserving biodiversity and safeguarding ecosystems.

5 Conclusion

In conclusion, the "Cyber Garden" concept represents a bridge between technology and nature, an opportunity for humanity to evolve towards a harmonious symbiosis with planet Earth. The adapted laws of robotics for this context highlight the urgency of reorienting our priorities towards the conservation of ecosystems and promoting biodiversity. In our contemporary world, where environmental challenges are pressing, we must embrace technology as an ally in the mission to preserve the beauty and vitality of our planet. The collaboration between Artificial Intelligence and nature represents a path towards a sustainable future in which humanity can be a conscious guardian, helping to ensure the continuity of plant and fungal life and the health of the global ecosystem. It is a commitment that goes beyond technological innovation: it is an act of responsibility towards future generations and the Earth itself.

References

[1] IEEE: What is a robot, https://robots.ieee.org/learn

[2] Saurio, G.: Cybergarden (2023), http://www.CyberGarden.org