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<center>Human-created Animals</center>

Technology has been increasing over the course of the most recent years. With that increase comes the rise of Artificial Intelligence. Artificial Intelligence, AI, seeks to make intelligent machines with the use of technology and engineering. AI has developed at a greater scale that its not just about creating intelligent robots like humans; the practice has extended to animals. The concept of AI and robotic simulations of animals is called Animats. Animats are the humanly-created robotic animals that can function just like biological animals. We have to ask ourselves if it's right to be creating animals instead of letting biology take a natural course. Should we have the power to control animal-human interactions, animal function and endangerment, and animal rights.

The robotic animal first appeared in the 18th century when an automated swan was created. The swan had the ability to rotate its head and was even able to 'catch' a robotic fish (The Silver Swan). Artificial intelligence and robotic integration of animals began with simple entertainment but has now developed to be much more. Robotics in animals has now advanced to function much like real animals do (Ziemke). Animals such as bees, pets, and zoo animals have now been developed into animats for their

function or entertainment. These animats range from appearing very much like real animals to just having the functionality and still looking like robots.

An example of animats being used for their function are AI robotic bees, also known as RoboBess. These robotic bees were developed by The Wyss Institute at Harvard University (Autonomous Flying Microbots (RoboBees)). The reasoning behind the creation of the RoboBee was to provide greater study for Colony Collapse Disorder, which is a disorder that leads to a large number of bee deaths. However, the RoboBee is being developed to eventually function very much like real life bees for potential disaster relief. If development continues, these microbots might be used for crop pollination, search and rescue missions, surveillance, and possible high-resolution weather, climate and environmental monitoring. In the end, we might not need real bees to pollinate our flowers and food because microbots will be in charge of does functions. The RoboBees have the potential to look much like real bees and would be difficult to tell the difference between the real deal and the robots.

Aside from using animats for their function like RoboBees they can also be used for entertainment purposes. Animats have already been used in robotic petting zoos and a robotic wild animal show. For instance, a new type of petting zoo was introduced by Minimaforms, they specialize in design and architecture (Stinson). The petting zoo is designed in such a way that there are no real animals. The animals are replaced by robotic looking tentacles that are meant to act like animals. These AI animats function by learning from the people they interact with. Once they have learned a gesture or

movement from a human they are able to react to it in a way that indicates if it likes or dislikes the gestures. This function can be compared to how animals jolt away from a hand if they do not want to be pet or move toward your hand or feet if they want to play. These petting zoo's serve as a form of entertainment and learning experience but without any real animals.

Another form of the use of animats for entertainment is a robotic wild animal show that popped up in Bengaluru, India (Fernandes). The robotic animal show includes various types of animats, such as African elephants, moose, Chinese panda, dolphins, and many other animals. Although very similar to other zoos this one has no real animals being held in captivity. The zoo was created with the purpose of creating awareness of the importance of preserving ecology and wild animals. Individuals who visit this zoo are welcomed by animats that are able to move and give off sound to make the experience seem more realistic. Having this new type of zoo can have different affects on people depending on their age and understanding of animats (Lepisto). For instance, children can react differently to animats than they would to real animals. Having interactions with "wild" animats is a different experience because they are robotically operated and are less likely to cause harm as they are not programmed to have animalistic instincts. Unlike real wild animals, the robots can misconstrue the idea that wild animals are not dangerous. Children and others individuals might obtain the perception that they are not dangerous and be faced with a problem when they interact with real wild animals.

Another interaction that animals and humans have are pets. Pets are a big part of many families and single person households. Humans and animals interact daily in this sense because they live in the same environment and spend a significant amount of time together. Many children see their first significant relationships with their pets, even more so than with their own siblings (Long). As important as pets are, how would we be affected by replacing them with artificially intelligent robots that look and act similarly to our pets? Lepisto makes the case that robotic pets could potentially replace our animal friends. With her research she has found that these robotic pets could potentially help future generations become more aware of nature. Having less interaction with real animals can help people appreciate and become more aware of the importance of conservation. The increased interactions with robotic animats as opposed to real animals brings up an ethical question regarding conservation and animal rights.

Utilitarianism represent the best overall total sum of happiness expressed by individuals and to seek to increase the well-being, this includes the well-being that is produced by animals (Utilitarianism). Using animals for entertainment or for exploitation of their uses is not an action that helps increase happiness. For instance, maintaining wild animals in captivity for entertainment purposes such as petting zoos brings no well-being or happiness to those animals. It can be argued that it brings happiness and enjoyment to those that visit those zoos for fun or as a learning experience. However, focusing on a utilitarian framework it can be said that the majority of the stakeholders are not being benefited by keeping animals in captivity. In this case, having animats

replace some to all of the real animals in zoos can help increase the overall well-being of both parties, animals and people visiting them. Maltreatment of animals can be prevented by the implementation of animats as a way of surveillance or resource for conservation and education.

Based on the utilitarianism framework there are two possible courses of action when deciding if animats should be replacing real animals with the argument of animal rights. First, if there are true benefits and greater happiness being achieved from replacing real animals at zoos, then that would be the right thing to do. Animats would help increase animal rights as they would allow animals to be released from captivity. Not only that but there is the potential for people to better understand about animal conservation. People would better understand animal conservation because they would not be actually see real live animals and possibly understand that those creatures need protection or they could disappear. The second course of action is the contrary to the utilitarian framework. It is possible that by removing real-animals from zoos and other conservation parks can lead to a decrease of well-being for both the animals and those that wish to interact with them. The first stakeholder is the animals, without conservation parks some animals that face disease or are endangered would not be able to remain protected. Leaving these animals unprotected can lead to the decrease of the majority of happiness. Similarly, the second stakeholders that are affected are people that interact with those animals. Without having some of those real-animal relationships can

lead to ignorance about the true nature of wild animals. It can also affect the way people perceive them and ignore the fact that real animals could be endangered.

Utilitarianism is not the only ethical framework that can be addressed when it comes to animats. The issue can also be concerned with consequentialism. The consequentialism framework focuses on how good the outcome of the newly implemented animats functions as a whole (Sinnott-Armstrong). For example, if animats can replace and fulfill the same interaction and relationships that are created with real pets, then it is immoral to not allow individuals to have interactions with artificially intelligent robots that function as their pets. The stakeholders that are affected by this are people, animals, and the animats. The new developments can be seen as a new and improved development for education, conservation, and preservation. Focusing on the consequent that these might be the results of animats helps make the case that were are not overstepping our bonds by creating our very own artificially intelligent animals. Being able to see the potential future of animals can help construct a system that understands that conservation of real endangered animals is important if we wish to continue to see those animals alive.

Based on these ethical frameworks, I believe that animats are the future and can help people succeed and live happier lives. In accordance to utilitarianism, I think the well-being for the greater number is to help preserve and create conscience about the real dangers of having animals go extinct. Similarly, depriving people of having animats at home, similar to pets can be immoral as one would rob them of the animat-human

relationship they could be building. I think animats can help improve animal right by

bringing awareness of animal captivity and neglection. Likewise, they would help

provide an alternative for the uses of animals. As stated before, losing certain animals

such as bees could lead to the decrease of food. That's were animats could come in

and aid a solution by taking on some of the roles these animals would do naturally.

Overall, I believe animats can be a solution to animal right, conservation, and humans

with animal interaction and relationships.

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