

Lesson 5 Talk about Tech

Reading 1

The Fascinating World of Animal Robotics

Scientists have been doing research on the behavior and social interactions of animals for many years. To understand animals better, they have tried many different methods, including observations, laboratory experiments, and computer modeling. Now they're utilizing a new tool in their research: robots. One of the best reasons to use robots is that they look and behave like real animals. They are even realistic enough to fool the animals they imitate, thanks to advances in robotics. Using these robots is a lot easier than directly studying real animals themselves. They do exactly what the scientists want, and they do it the same way every time. This is especially invaluable when doing experiments. Let's look at three examples of how researchers are using robots to study animals.

The Robotic Bat: The Art of Flight

Bat flight is exceptionally complex, so researchers have struggled to understand it. A bat's wings curve and stretch more than those of a bird. Its muscles, bones, and joints all work together to allow its unique flying movements. Its strong, flexible skin also plays a role—it creates the force required for flight. For these reasons, copying the flying motion of bats is very difficult. One group of researchers, however, took on this challenge. They created a robotic bat, known as B2, to help them better understand bat flight. The researchers created special "skin" from silicone and stretched it across the robotic bat's wings. This makes it possible for the robotic bat to dive and make sharp turns just like a real one. Along with helping the researchers learn more about bats, the robotic bat could also help robot designers. By copying the robotic bat, they may be able to devise better flying robots in the future. These robots could potentially fly into small, dangerous places that human beings can't reach.

The Robotic Falcon: Pigeon Flock

Behavior during a Falcon Attack

Recently, a group of scientists wanted to know what happens when a hungry falcon attacks a flock of pigeons. According to one theory, the pigeons all selfishly try to get into the middle of the flock in order to prevent the falcon from reaching them. However, there was no easy way to test this theory, since every falcon attack comes from a different height, direction, and angle, all of which affect the way pigeons react. So a researcher in the UK named Dr. Daniel Sankey invented a robotic falcon. Since he was able to control the robot, he could make sure that it attacked the pigeons in the exact same way each time. This allowed him to conduct a very accurate study of pigeon behavior. There was also another benefit—because the robotic falcon didn't actually strike the pigeons, it did not do them harm. The experiments were a success. By tracking the pigeons with GPS during the robotic-falcon "attack," the scientist was able to prove that the existing theory was false. Instead of trying to get into the middle of the flock, the pigeons avoided the attack by flying as a group in the same direction. This behavior implies pigeons are cooperative, not selfish.

The Robotic Guppy: Group Dynamics

Schools of fish are amazing to watch. It seems like every single fish in the school knows exactly when to turn and which direction to turn in. Wanting to learn more about this behavior, German researchers created an artificial, 3D-printed guppy, which they placed inside a fish tank. They also created a wheeled robot that moves around underneath the tank. The two are magnetically linked, so the artificial guppy follows every move of the robot below. They programmed the robot to copy the speed and direction of real guppies in the tank. The researchers carefully observed as the fake guppy followed twenty different real ones swimming at different speeds, one at a time. They found that coordination was greater with fast guppies than with slow ones. The experiment shed light on the group dynamics of schools of fish and revealed swimming speed to have a strong influence on the coordination of movement. Wild creatures are uncontrollable and their behavior is complex, so studying the interactions of live animals can be a real challenge. Though robotic animals still have some limitations, they make this task much easier. They are easy to handle and can be controlled with great precision. As robot technology continues to improve, it may help us learn more about the living creatures we share our planet with.

Reading 2

A Month without Social Media

Riding the bus on my way home one day, my smartphone suddenly ran out of charge. As I sat with nothing to do for the rest of the journey, I realized how strong my need for social media was. After that experience, I decided to delete all of my social media apps. It may seem excessive, but I'm a 22-year-old woman, and I spend all day on social media. I needed a break from my online life. After an entire month without social media, here is what I learned.

Week 1 (February 1 to 7): Is it an addiction?

I couldn't stop myself. For the first week, I kept picking up my phone at least a couple of times an hour to check my social media. Without new posts to see, I just stared absently at my screen. To me, putting my phone back down felt like admitting defeat. Depressing, right? It's not surprising, though. A recent article I read said that interacting with social media makes the brain release dopamine, a brain chemical that makes you feel good. Dopamine also plays a major role in addiction. While social media addiction may not be recognized as an official medical condition, I felt like I couldn't control my urge to check my social media.

Week 2 (February 8 to 14): Small tasks add up.

While taking a break from social media, I found that I had more time than I thought. Throughout this week, I started using the small pockets of time that I would have wasted on social media to cross off items from my to-do list. For example, while waiting for the bus, I read another section of the book for my book club. If I had five minutes before leaving to meet friends, I organized one of my drawers. I was amazed at how much I got done in these small blocks of time.

Week 3 (February 15 to 21):**Real relationships take time.**

My parents were traveling for work for part of February. When they got back, I felt like doing a little dance. Finding myself missing my family and friends, I realized the importance of real conversations. This was one of the biggest lessons I learned. During my social media break, I had better communication with them. I discovered that building solid relationships with others takes much more time and energy than clicking "like" on social media. I also learned which relationships were worth putting more effort into. That's not to say that I don't still need casual friendships, but I now know that I need to make more time for my family members and close friends.

Week 4 (February 22 to 28):**A month is over, but my efforts continue.**

I'm proud that I went a month without social media because it taught me a lot. I'll install some of the social media apps on my phone again, but I'm staying far away from anything that seems to draw me into long, pointless conversations. I've also made a goal to check my to-do list before opening any social media apps. Rather than looking through new posts, I now want to look around more in real life and cultivate a life with genuine human connections.