Computer Research Paper

Technology in Biology

(Technology help advance the world of Biology)

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Intro to Computer Concepts

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**Introduction**

Biology is defined as the study of living organisms, their origins, anatomy, morphology, physiology, behavior, and distribution. To put it simply, Biology is the study of life in its most basic form. As the earth spins, new life is being created to be studied as it is created. It is the same way that computers technology is improving with every passing day. People can discover something new each day. Technoloy are important in the world of biology because of new discoveries, modeling & imaging, and collaboration with others.

**Computers can detect Viruses**

To commence, technology is important in the world of biology because of new discoveries such as viruses. Every now and then a virus comes along affects animals or people. They act so quickly that it begins to spread contact to contact. A perfect example would be the Ebola outbreak back in 2016. According to IEEE Spectrum it states, “To find the optimal locations for six Ebola treatment centers, Telionis's computer model sought to minimize the distance an infected person anywhere in the six-county area would have to travel for treatment (Ebola Outbreak).” This detail shows how the computer could seek help from those who already came in contact with the detail. Another example is COVID-19. According to CBS NEWS it states “It was New Year’s Eve when Blue Dot's Computer spat out an alert: a Chinese business paper had just reported 27 cases of a mysterious flu like disease in Wuhan, a city of 11 million. The signs were ominous. Seven people were already in hospitals. (CBS News 1)” This evidence shows how important computers are because they can help alert scientists about potential outbreaks that can help them start to prepare themselves for what can occur. Further into the article it states “Blue Dot wasn’t just tracking flights but calculating the cities at greatest risk. On December 31, there were more than 800,000 travelers leaving Wuhan, some carrying the disease (CBS News 1). Without computers it would take a bit longer to see the outbreak affecting humans and to seek help from them.

Also, technology is important in the world of biology because of new discoveries such as coming up with treatments for them interacting with cells. Scientists are capable of finding a treatment for diseases it just takes longer because of resources and time. It also makes room for scientists to know how diseases work at a gene level. There is a tool called the CRISPR tool that scientists use to help. According to Yale News it says, “The new tool, which is called CRISPR-Cas12a, can help researchers simultaneously assess the impact of multiple genetic changes involved in variety of immunes system responses (Yale News 1).” Another piece evidence from this article is “With these powerful tools, Chen’s lab was able to induce and track changes in a varitey of immune system cells in a response to gene editing, and to fine-tune sets of genes in different ways....the lab was able to enable the rapid generation of new disease and treatment models like genetic diseases in the liver, lung, cancer, and skin cancer (Yale News 1)”. This is a good point of how technology can help come up with treatments for viruses.

**Microscopy and Imagery**

Next, technology is important in the world of biology because of modeling & imaging. First, computers play a vital role in modeling because it gives you a third eye to see things from a different perspective. The article “Science Direct” says that “In modelling and simulation, sets of differential equations and logic clauses are used to create dynamic systems environment that can be tested (Science Direct 1)”. This means that the modeling program can help come with logical questions that could actually occur in real life which helps us test it, in order to prepare for the real-life situation. Imagery is just as equally important because it helps show the structure and lifecycle of viruses. An example would be Electron Microscopy “One of the main advantages of using EM for viral diagnosis is that it does not require organism – specific reagents for recognizing the pathogenic agent. Other test involving molecular and serological methods require that a specific probe be available for virus identification (Modern uses of Electron Microscopy 1).”

**Ecological, Environmental & Predictions**

Moreover, technology is important in the world of biology because of ecological purposes. The first way is monitoring ecosystems. We can see different ecosystems from the comfort of our home all because of technology. In the article “Fauna & Flora” it states “Remote camera traps have made a huge contribution to the discovery of new, rare, secretive and elusive species. They also provide a non-intrusive means of monitoring species behavior, distribution and diversity within a landscape, and help protect threatened wildlife and habitats from poaching and other illegal activities (Fauna & Flora).” It helps us not to come close to the different animals or interrupt anything going on in their natural habitat. Next, another way technology helps our ecological part of biology is allowing biotechnology to find a way to break down the pollutants. According to “Tutorials point” it states, “Bioremediation is the use of microorganism, such as bacteria, fungi, and algae, to remove pollutants from the environment...It is cost effective, environmentally friendly, and can be used to treat a wide range of pollutants (Tutorials point 1).” This piece of evidence explains how technology can help us contain pollution. Lastly, the way technology helps our ecological part of biology is through climate change. Computers can show us how ecosystems might respond to CO2, temperatures, and animals. It was written in “Bio Boston Consulting” it says, “Scientist are also creating bioengineered microorganisms, algae and plants that can suck up and store carbon dioxide more efficiently than conventional approaches (Bio Boston Consulting 1).” This piece of evidence further dives into how technology has yet again helped one in the ecological field. Pollution may never disappear, but we can manage it with these tools.

**Community in Biology**

Last but not least, technology is important in the world of biology because of collaboration with others. Technology allows one to collaborate with another and come up with how to continue to better help the environment. Starting with sources such as Google Drive, Zoom, or even Microsoft Teams. People can use those tools to talk to people from all around the country. They can also use platforms like Facebook, Instagram, WhatsApp and more. This is a great tool because then scientists can brainstorm with each other and basically bounce off ideas to come up with the best solution. This is how articles about research can be written and published. A second way is creating virtual labs and stimulations. This is an interesting idea because you can have others walk you through what they did, to help the state or area that you are in. Each day something new may come up but if we are able to teach others what’ve come up from countries away it truly helps. According to “The cell editorial” it says “Technology is a powerful partner in biology and biomedicine, allowing for the exploration of frontiers previously beyond our physical and conceptual reach. Transformative discoveries have often come together with the development and clever deployment of a new method tool, or computational approach (The cell editorial 1).” This evidence simply backs up how collaboration is effective. As the saying goes teamwork makes the dream work!

**Conclusion**

To sum up, technology is important in the world of biology because of AI. AI in science helps because it helps speed up research. There’s no question that without AI research it would take a lot longer to find as mentioned before. AI also helps create an image it truly shows what can occur to and the results after a sickness, for example, occurs. Al can also help read X-rays, MRI, and CT scans. Which is a mistake because even when a human can read it habing the technology backup what you are seeing is like having a second opinion. Technology helps one in the world of biology by providing more information in a sufficient time to help the community thrive. New discoveries, modeling & imaging, and collaborative work are all made possible by technology in biology. This is why technology is important in the field of Biology!

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