Biology and genetics for AGI researchers

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1 Question

Why are biology and genetics interesting to AGI researchers?

2 Answer

Because it may provide interesting ideas and clues that can help with the development of AGI.

We currently know of a single instance of a system that is able to produce human-level intelligence: a human being. AGI researchers often try to understand how specific components such as the brain works. A lot of valuable work on the neuron has led to the creation of the deep learning field. Deep learning has definitely proven its value, but I am more interested in something else.

Genetics is seen as the programming of life. What I find interesting is that we can see the current human DNA as our latest implementation of this code. Since this code did not come out of existence from out of nowhere, studying DNA's history can give us ideas as to how a seed AI might come to be. It is also useful to understand how the environment has shaped DNA's existence.

Initially, there were only atoms and molecules. Through different physical and chemical processes, these molecules aggregated and formed more and more complicated assemblies. Through a multitude of steps, we reached the point where there were cells that contained DNA inside of them. This process might have been entirely random although the formation of complex structures happening randomly does not seem highly likely. Understanding the mechanisms or processes that helped create this order may be the equivalent of a pre-evolution natural selection.

My hope is that by studying such fields it is possible to discover how DNA increased in length, what were the different steps and challenges that were encountered that forced it to increase in size, as well as the potential causes of parts of DNA changing over time.

Just like a git repository, I'd like to be able to look at DNA's history and understand what happened to its code since its "Initial commit". It might also be interesting to figure out what kind of programmer nature is.

3 References

- Seed AI
- DNA: The Code of Life (SHA2017)