

QUESTION:

4. "Human consciousness is the great unsolved puzzle in biology.

How can we make artificial intelligence?"

You may answer this in any format of your choice. If you do decide to answer this question via a video or audio clip, upload it to YouTube, with a maximum length of 5 minutes, with the hashtag #RCSU_SciChalXII. Otherwise, upload your submission in PDF format.

We are looking for creativity, clarity, and accuracy.

Human Consciousness. What a mystery! What exactly is human consciousness? We all know that consciousness is perhaps the only thing that sets us apart from growing in paddy fields and being guzzled alive by creepy-crawlies. It is what being human is about. Human consciousness has been defined as awareness, sentience, a person's ability to experience and feel, but despite the important role it plays in our lives and making us who we are, we actually know very little about how consciousness works. Who gave us this extraordinary power to be able to be aware of our surroundings and basically everything around us? What does being conscious mean? Does it simply mean that we know what is going on? The further we delve into this intriguing subject, the more we realise we do not know about it.

What I understand from human consciousness is that if we have so much in common with the healthy salad you had for lunch, what separates us from the rest of the rows of greens standing at attention (or rather slouching underneath the blazing hot sun?) The key difference is that we have a qualitative experience in our everyday life unlike the plants. This means we feel things, we live through things, we retain the emotions, and after that, we remember. Chuck the info somewhere into our temporary storage space. (And if we do not use it soon, we chuck it to the wolves.) Plants do not have the capability to do any of this, and that is what distinguishes us from the weeds growing in your backyard. The question here is, how do we give the artificial intelligence the ability to do all our basic, perfunctory skills?

In recent times, the advancements of technology have exploded. We have made significant improvements never seen by the world before. We have replicated a lamb. We have sent rockets blasting to neighbouring pieces of rocks we call planets. We are making so much progress that the day somebody invents something truly groundbreaking is right around the corner. In order for us to replicate these human functions, we need to give AI four things:

1. Sensations and feelings. They need to have the ability to experience a feeling the way a human does, and then feel the correct emotion that usually goes with the event. In order for that to happen, we need to understand how emotions and feelings are linked to the events that create them. More research has to be done in that field, though AI has been coming back with gusto after having a rough start in the early years. Multi-sensor robotics is delving deeper than humans have ever gone, and we are getting closer and closer. Touch sensors are constantly reinventing the countless robots out there.
2. Emotive and intuitive feelings. Colour recognition, sight and taking in what different sights mean, and other human senses such as smell, sound, even taste. If only we could perfect the sensors we have right now, we would be able to replicate all these human senses. However, having the ability to sense and understanding what each sense converts into is two different things entirely, bringing us to our next point.
3. Mental Cognitivity that is based on the feelings of senses. Attention, thinking, memory formation, the art of remembering key information, these are all important skills that need to somehow be incorporated into the AI.

However, when humans learn things, they are creating another mental path, this is very much due to the fact that we humans have mental plasticity. When we repeatedly do something, it strengthens the mental route we take, thus forming habits. We are able to recognise patterns, and based on past experiences, we can foretell what would happen. For example:

- I see fire, I feel heat, I smell burning.
- I see someone putting his hand over the fire.
- He suddenly retracts his hand, and screams. He starts crying.
- If this happens again, this will happen.
- This is the anticipation of general trends and the typical reactions of people.

The emotion of each outcome as well as the possible outcomes. If we could somehow program the AI to do this complex process, we really would have taken one giant leap to our dream of creating artificial intelligence.

4. A mental space, with a not entirely correct spatial framework as its composition. We have thoughts in our mental space, and that is what gives us our mental maps and images. It should not be technical, and should be flawed like how our mental maps are. When we first arrive in a new place, your brain is trying to make sense of this new place. You build this cognitive map of your environment, in which your home is usually your centre. This virtual map you make only exists in your mind, and changes the actual map around you to collage into this not entirely accurate map that helps you to find where you are going, but only you. Our mental maps are always interesting because every mental map is made as simple as possible and always follows these two rules. 1. Your brain thinks that everything is geographically correct, every street is generally as a straight line, and we always move along linear routes. We typically find a main street, and becomes the linear strip map in our minds. 2. When we do make a turn into another street, though, our minds adjust the street turning as 90 degrees. In fact, our minds are so "lazy" that we recognise buildings by the experiences we had there, and further abstract them into symbols. This is how powerful our minds are, and how we manage to change what we see into what we perceive. We have to be able to duplicate this in order to "recreate" this portion of the human consciousness.

I think the most important thing is to give AI the ability to learn. Human consciousness allows us to learn from our mistakes and retrieve our lessons the next time we are in such a situation. The AI should not be perfect either. Humans make mistakes, and so does the human consciousness, but it is how we learn and grow. If we could somehow, as I had mentioned earlier, replicate the process of learning in humans, it would be another step closer. Perhaps it might be a good idea to make sure that a moral code is implanted inside the coding, just in case the robots go haywire and override the system we have programmed them and attack us. There should also be a self-destruct button somewhere that is heavily guarded, just in case we make some wrong decisions.

Human consciousness is the product of conscious activity. The main function of the existence of a body is that it is the bearer of experiences, and is affected by it, but is not entangled with it. Human consciousness implanted into AI really is a daunting task, but given enough time and perseverance, I believe it is possible.

On a side note: Perhaps the question is not how, but can we do it? Is it morally acceptable? Are we giving AI too much power? Imagine a world with robots almost indistinguishable from normal humans, diminishing the value of the gift of human life. If AI has a sense of consciousness, what is the purpose of humans? It would not be long before they realise that we

are their biggest threat, and annihilate us. Let us not get to a stage where all the high-tech sci-fi movies fantasizing about robots vs humans become a reality. (And the robot WILL ALWAYS WIN in the end. Always.)