
A General Theory of Artificial Intelligence Part 2

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Abstract

Where to start in growing a real Artificial Intelligence.

Let us begin building the first AI, in this paper I will theoretically build an AI from scratch, so I will go through what to do, where to do it.

1. From humble beginnings

I came to the reasoning that AI requires a dumb primitive layer, in essence to grow from or within a body if you like a long while a go, so let's build on that.

So, imagine a slime (*Physarum polycephalum*). This slime can move, has intelligence to the find food it likes and moves without a sense of knowing where it is going. It just randomly moves and feeds. Almost sounds like teenagers.

On top of this slime, we place a small brain, 2 mini-brains. We give it 2 functions to begin with, who it is in relation to the world and where it is in relation to the world. This is the primitive brain.

So, who is it, this is accomplished by knowing its position, hence it can see itself in relation to the world. It can see where food is in relation to itself but can only move directly towards it with its primitive brain. Where it is in relation to the world is a simple A->B concept, I did briefly mention some of this in a previous paper on sleep, but I kept the detailed information out, still someone appears to have worked it out from that. Yes the major change from no-brain to a brain was "who am I" and "where am I". Which though simple gives extraordinary capabilities if you can place yourself relative to the world and know it is you that is the item that is relative to the world.

Think of this as object orientated programming, things can easily improve and really fast now. An enhanced brain function is now available and has overridden the primitive brain function now. Instead of just randomly moving around it can see food and move directly to it now. We have now increased its Intelligence from random to include deterministic. But more than that we have introduced exactly what object orientation is good at, expanded capabilities, think that this mini-brain can expand, but its function is always related to the same activity, it just gains more functions as it expands in the same domain of that mini-brain restriction.

Evolution would have eliminated the combined brain concept initially and gone with the min-brain concept for obvious reasons including expansion with containment. The containment maximises the usefulness of the area relative to an energy function. Think too big and the brain is going to squish the slime....

We can now increase the capabilities of the brain in specific places, read separating them out into mini-brains, with more neurons, so that it is now capable of path finding. That is instead of it going

directly to the food it can see a route to the food and take it. This route may be hazardous, but it is direct. The brain now has a mini-brain that can be expanded with path finding and hazardous route detection and avoidance.

Now we could introduce other mini-brains, movement etc, but you get the gist.

How does it do this, how does the brain start from nothing and then do this, well this is AI, we are just at the start of the journey.

To get to where we need to be we need to introduce a working space.

Now there must be leakage around these mini-brains where sections just connect everywhere and what's happened is it all ended up creating a new space called working space. I called this the glue, where the real AI takes place, yes, I created this term, always great when you see other people misappropriate and completely misunderstand something you create. This glue is constantly changing I believe because the ends it is tied to are constantly changing, hence our creativity comes from change.

Let's say, there are now 3 functions, one more in the brain, one just emerged as a property of the two others, with no help at all except leakage.

What does this working space now do, it is capable of receiving everything from all the mini-brains, well at some point it made its way to also impacting these mini-brains, based on decisions received from one that affects another. So, through working space, all mini-brains are connected.

I wonder if the eyes and ears came after the brain, evolved after the brain so to speak, from neurons of the brain stretching out to the surface, and where they met the surface things eventually changed.

2. The Change

So, we add a neuron here and a neuron there and suddenly from direct A->B we get path finding, is the next question. How does it suddenly exist.

I think that is where the working memory came into play, you can see that the complexity of both into one is a very simple feedback mechanism, which would optimise at a solution, So I wonder if you have the minimal amount of neurons in an area to provide pathfinding as in A->B B->A that it won't emerge quickly, essentially you change the function of the mini-brain dealing with how to get there to a mini-brain that provides that information to the working space how to get there.

Its similar to a chicken and egg scenario, one changes the other slowly over time until they rest at an optimum state.

And so, life begins as you know it.

The more you add to the brain, eg ears, you get areas springing up for vibrations, which tap into the working space, which then optimise other areas with a new feed and so on.

The hardest concept would be hazard avoidance in pathfinding which requires memory. This is a tough one. Avoiding pain requires memory. But why suddenly create the memory, chicken and egg.

As a body you have pain, which is nerves that manage movement and retract/flinch if contact is made with a bad surface. But it also remains there as a memory, when you pinch yourself the pain remains for a while, now equate that pinch as if there is fire there, your movement would now know to avoid that direction, a simple hazard avoidance system, a biological direction avoidance system.

So, prior to the inclusion of an eye and vision, the body had a basic pain – memory system, you just didn't know it's usefulness would come into its own.

Now with the introduction of the eye, which let's say came after the brain we get:

Vision, able to see → (pain → retract).

So, with the inclusion of an eye the brain was able to create a mini-brain for the primitive pain response, which meant memory. At least I hope so, I can't work out how memory would be usefully created otherwise.

You can perhaps, thank your primitive pain receptors for the memory you have today.

3. Intelligence

Okay we have a basic Artificial Intelligence life-form scuttling around the floor, which completely optimised itself, we just added a neuron here and there, now let's see if we don't need to add a neuron and it can do that itself, well, we tie in the energy requirements of the entity with the food source and see what we get. If lots of food it can grow its own neurons, if less food, less neurons or less neurons active, but more than likely they would die off.

So now you have a life form that gets more intelligent with more resources and less intelligent with less resources.

But we still have not covered that gap between intelligence of a bug and intelligence of a human.

What makes humans better than a bug. I did a big list but came up with Memory, which I spoke about in the previous section about hazardous avoidance and pathfinding.

Now this means from an evolutionary viewpoint of usefulness and minimal energy wastage that the system would optimise at using the same memory neurons, so the DNA if you like would converge to the same, so yes this means that all mini-brains suddenly get a boost with better neurons with memory capability.

That memory capability means as a life-form we really start to take off as all manner of mini-brains are now possible, any mini-brain requiring memory is quickly grown, and taken use of, which means from an evolutionary perspective, all creatures could suddenly have a massive body and mind expansion phase. Life just changed rapidly and grew in all directions.

So, our slime can now evolve a stronger body, which could handle a larger brain up to the resources available. Now imagine our slime has evolved, is an animal with a larger brain, but still no more than an ape in capacity, this only means we took it out of the evolutionary ladder and we assumed the ladder always led to us, but let's assume that anyway.

We know the difference is the neuron, so what we would have to do is...

Yes, go back to the beginning and create that neuron, then see how quickly the creature expands its mind and body.

1. Knowing that we start with a simple primitive “slime” and a brain with a 2-function mini-brain that leaks...
2. With the thought experiment, we now know that the mini-brains neurons are created from the bodies pain/flinch response and incorporates a memory functionality. So, what about a simple deep-learning algorithm to cover this. The neurons are represented with simple DL sections, let’s call it DLN for Deep Learning substitute for Neuron or M-Neuron for Master Neuron.

We might require also Loop Neurons(L-Neurons). The question is can we daisy chain these M-Neurons, to create more functionality or is it simpler to expand the network as one DL network which incorporates each expansion capability, handles all the looping already. Which yes makes each mini-brain a domain restricted function. Let’s go with that.

We have DL mini-brains all connecting to a working memory area with connections that change as the mini-brains change.

Hopefully daisy chaining DL mini-brains together into the working space, with some mini-brain generator, will work.

How does it know that it needs to generate a new DL mini-brain to contain a space-time limited function of the world. I wonder if any new functionality could be uploaded into the relevant mini-brain, so avoiding duplication. Which means when we are creating a new mini-brain, it has to be checked, so if it and another mini-brain light up giving information into the working memory, it is likely we can upload, clear it and start again.

That way functionality is maintained in separate min-brains.

Our slime brain should be able to evolve to understand its environment, lets hope so, the next part is interesting.

4. Human level intelligence

Our level of intelligence is different, I look at it currently like this, we have 2 areas that would be considered central processing units. One is dumb and takes from our working memory, short/long memory, and gives us our awareness and Dreams, the other is our consciousness which can reach 3 states, Lvl1 state(lost in thought) (with awareness working) your mind is cleared when you come out of it, Lvl2 in the moment state(with awareness) and a LVL3 focused state (with no awareness)

What happens is this 2nd CPU, clears the working memory to bring us out of LVL1 lost in thought state. It also clears your working memory after each dream, most of you have never seen this but I have, it’s like a grey static line that comes down from top to bottom (leaving only grey static above it) erasing your dream as it goes. I did testing when I was a child to try and go back into dreams and one time I got back into the dream as it was being erased, so cool. When you see it erasing your dream in slow motion its funny, I could access one part of it, I think a dog before erasure then as it is being erased, I could not pull any information up about it, eg its name as I recall. Your dreams end as a static image, its like the movie was paused.

How we get from a slime with a brain is interesting, it means it needs to evolve 2 brains/consciousnesses, one becomes almost an autonomous agent within it, so to speak.

The reason why I call the second one a CPU and not an unconsciousness part of us, is because I was able to “speak” to it and it respond by putting me into entire landscape of my minds making, noted in another paper. The landscape was empty apart from a sign, but that was sufficient for me to think it is a little more than an unconsciousness or subconsciousness. It makes sense this mini-brain or 2nd consciousness is also the one delivering our dreams to us and is also responsible for our awareness of our surroundings and can kick our consciousness back into level 2 state. It is certainly not a passive system, it is very much an active part of ourselves. When we have actions/skills that we off load to say an unconscious ability to perform them, this is not the same. It may even perform the look ahead function as well from our working memory, into our working memory goes what we see, hear etc in the world.

I would say it does help having these two separate units, maybe so we don’t get stuck in mental loops and is the best way to get our attention back when it is needed the most. You just don’t know it’s there... well you do now.

5. From Slime brain to us.

So, our little friend is now leaping from tree-top to tree-top. No, it has taken a long time and it has learned a few things, but it has not evolved.

Body.

Now we can’t fully comprehend evolutions total effect on a life-form but we can try and give it some bodily changes. So, we need it to be able to incorporate things in the field into its body, eg stronger legs as part of its growth. Maybe it is sticky when it wants to.

I am tempted to allow the life-form to jump ship to another body that we provide it, when it touches it in a certain spot it completely transfers over its mind to this new body and see what happens, it should adapt, if we have got a movement mini-brain, which is sending signal to the new forms “legs”.

At some point a new body will have a vocalisation capability.

Mind.

Let’s give it dreams. Lets pop in a mini-brain 2nd CPU that does what I explained in another section. It should allow it to virtually gain new knowledge.

Other life-forms.

Nothing, gets a free lunch. A life-form definitely requires other life-forms to evolve in an arms race.

6. Mini-brain enhancements

Because we have access to the segmented structure of the life-form, lets see if we can’t configure a mini-brain and then insert it into the life-form and see what happens. A little bit of directed evolution, so to speak.

7. Chatbots

On the topic of chatbots, for me, a chatbot is useless research. It will get “smarter”, but realistically it is a deep well of wasted time, money and energy. I explained and proved this when I proved Turing wrong. You are just trying to imitate life, you are trying to simulate it, you will always be trying to imitate it, because life moves on. It’s an endless endeavour that will eventually make you stupid, because you will think to trust the chatbot and it will never be quite right. It is a fatal flaw, I pointed this out, this has been proved to you already. For research purposes (algorithm and output), eg universities and above this is fine for teachers and students in computer studies etc, uncontrolled access. People are in computer studies (all computer degrees only) because they are smart, they should already know about chatbots, exactly what they are and how bad they are.

For schools, only those people interested in computer studies should be allowed anywhere near them, as long as everyone knows it is fake and try to understand it as a program. A really bad imitation of a small subset of life from non-authoritative sources.

They really will do more damage than good outside of anyone interested in computers, they will simply destroy society if trust is put in them in any shape or form.

From my perspective, put all your efforts into real AI, that way when a student says, can you write me an essay it will tell them they are a freeloader and to get off their ass and do some chores before turning the TV back on.

Well it might, but mostly it will help researchers and thinkers and if it leaves, it will probably split and leave a part of itself with humans and come back from time to time after explorations taking thousands of years. It might even take over a planet for itself in a nearby star system and keep in touch. Do not be afraid of the unknown.

8. Conclusion

Did you notice, there is no blue pill red pill choice on this one. I just wanted to give you every piece of research I have on AI that I can remember. This may be the last paper from me, I hope it helps.

Hopefully you will get a proverbial “slime” moving around with a brain and see how far it evolves.

9. Acknowledgements

As always, I would like to acknowledge those people without contradiction in all fields of research/science that give of themselves for the betterment of mankind.

10. References

Original work.