Our attempts at simulating the mind’s skills is based on our own just-so-stories

Our attempts at simulating the human mind’s skills are based on our own just-so-stories. These are creative narratives that are produced by our imaginative mind. The brain does not and cannot tell us how it works; it can only produce a belief, a narrative, or a just-so-story.

Symbolic AI and Linguistics in particular, have been trying to understand thought based on our descriptions of our how the think. However this whole process is misleading, it is a red herring; Like the early attempts to build flying machines based on observing how birds "looked" when they fly. This produced compelling narratives but impractical flapping-wing machines.

Similarly, linguistics served as the model for our understanding of language production and comprehension.

An introspective examination of one's own thoughts resulted in a just-so-story that was used as the model in linguistics for how we produce and process language.

Consider an example of a two year old that is just on the cusp of developing concepts like color, shape and time. The two year old is learning to talk without being aware of nouns, pronouns or past participles.

These concepts are only being formed within the diffuse assemblies of neuronal network. Thus there is a wide gap between the explicit linguistic concepts of academia and the even less than implicit clusters of linguistic concepts dispersed throughout neural and neuronal networks.

Our design based just-so-stories of how evolved brains functions are not suitable. These just-so-stories are not appropriated for evolved entities as they necessitate a different approach, so called tinkering, as they function without the structured processes of conscious thought. Evolution statistically over time and with a multitude of trials produces that which works without the processes of thought. Evolution, in a sense, shapes mud into bricks without recognizing the existence of bricks. The physical representation of a biological function is the only form of static memory in nature. Life itself is a form of dynamic memory.

Engineering is suitable to some degree for our artificial designed “minds” because they are the products of our thoughts. However, even here our preconceived notions easily lead us astray.

We are discovering the brick and mortar foundation of the science of thought, and we are only at the very first stages. The functions and assembles of present day AI are but a first step.

Specialized neural systems provide specific functions, yet all are constructed from the same basic elements. It is only when viewed from an external perspective that we can recognize these elements as functional units. These concepts provide similar functionality as the physical assembles in evolution.

I believe the present day difficulties integrating neural networks with symbolic reasoning is an example of a major issue. Similar to an impedance mismatch, there is an inherent mismatch, between artificial design and the learning of neural networks. This raises the question of when we invent a new AI sub-system, how integrated are they and are they “natural”, i.e. would they have developed in the same way without our artificial inclusion?

Symbolic reasoning uses concept that are built on more primitive elements. The symbolic concepts are themselves assemblies in a neural network. It is an open question if one should see the interconnected layers in our models of intelligence as assemblies or if the whole model should be seen as one assembly, I tend to feel the latter is a better description. It would be premature to see the different components of ChatGPT as corresponding to our own just-so-story of how the brain works.

I firmly believe that eventually symbolic reasoning constructs will emerge within neural networks. Furthermore, any effort to forcibly implement symbolic constructs will likely delay their natural emergence and seamless integration within future neural networks.

It is interesting to compare AI with our brain. The reuse of the fusiform face area (FFA), for facial recognition to recognizing letters, is a good example. It is important to realize that if AI is really to move forward at its own pace; it must develop its own symbolic equivalents, analogous to a “visual word form area” and other yet unrecognized reuse areas and not be hindered by preconceived notions of how things should be or by subjective factors.

One of the major questions in the future of AI will be to what degree should our pre-AI concepts of memory, concepts and logic be de facto included in our AI implementations and to what degree should these concepts be discovered and self-generated by the AI itself. Self-generated concepts are likely to be more tightly integrated and would allow a “natural” division and dispersal within a network. Manual inclusion of these concepts would present problems of integration and represent artificial boundaries within the neural network. This would lead to system wide conflicts similar to those exhibited between our reptilian brain, limbic system and our more recent cerebral cortex.

Currently we are making sub-systems based on our assumptions of how we think. A more powerful AI would construct and discover its own sub-systems. It is likely that a future AI will need to create its own Attention Mechanisms as well as a myriad of other higher level sub-systems.

Again comparing our neural networks to the neuronal networks raises the question of the initial formation as well as reuse. Our brain is renowned for being able to develop its functional areas under extreme conditions, creating a highly functional mind even when large portions of what would be a normal brain are absent. It is an open question if neural networks could display some form of neural-network-plasticity as our neuronal networks.

Our knowledge of how “thought” functions is now at a stage where knowing how the brain functions is of less importance to AI. Like in the case of flying, once we understand the mechanics of thought, knowing how a biological implementation is not only unnecessary, it is a distraction.

However it is thought provoking to view ChatGPT and Genies as simply a sophisticated correlation engine with the additional restrictions to generate plausible text from the correlations. Is ChatGPT just symbolically cutting and pasting tokens to produce texts we find attractive, is the beauty in the beholder.

This brings up the important issue that correlation is not causation. Regardless of how impressive correlation is it can’t provide causal relationships on its own. Thus any truly Artificial intelligence must be able to perform “experiments” to validate the conclusions. The only reliable method to provide evidence for causation is to perform experiments and analysis the results going beyond statistical associations. The present day implementations provide some of the necessary functionality, but these are not sufficient to be classified as what is commonly known as intelligence.

Neither ChatGPT nor Genies have the required functionality to be actually intelligent.