A General Theory of Artificial Intelligence

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Abstract

This will be the first paper to truly answer the question of Artificial Intelligence, what sets us apart as a smart, intelligent species from Natural Language Processing (NLP), Machine Learning (ML) and all other forms of computer learning to date. I cover the various theoretical requirements to building the first AI. Loose terms such as Qualia are given exact meanings allowing people to code them. A staging roadmap to achieve full general Artificial Intelligence is also included. This paper is theoretical, through the introduction and background I will be taking you on the journey through many of my submissions in comments on blogs and articles and identifying where ground-breaking articles or papers were written from topics and information I posted. Putting all the pieces together so by the end of this paper you should have a clear understanding of Artificial Intelligence and how to build one. You will see exactly why the current fad of massive classification systems/deep learning are examples of expert systems. Answering the simple 'I am 42% sure it is a book' scenario.

1   Introduction

The journey started when I was roughly 7 years old (1979) with a Binatone pong console when I had the epiphany that computers would increase in power and capability and were this taken to the extreme, we could be in a virtual world. I subsequently did a year of testing and found that we were, which to me meant there was something wrong with my experiment. To today where after years of helping researchers with the brain and AI, including coming up with the concepts of the 5 second lookahead, 3 levels of consciousness, the term mini-brain and various other AI related concepts, which other researchers wrote papers about my work. I am giving the chance to every other researcher to follow my thought experiments to its logical conclusion, culminating in true Artificial Intelligence. There will not be any pulled punches, by the time you have finished this paper, you will know exactly what AI is, you will know exactly where we should put our efforts and have a plan/roadmap on how to build it.

For many years I have followed and assisted the AI community, giving pointers on where they should look and general feedback on places like wired as an anonymous actor. What I found out early on is that everyone was trying to produce something, without understanding what or why they were producing it, only that it gave results and positive results in any direction would be considered forward. So, people followed the crowds producing more and more results, NLP got ever more precise and with every new iteration, people cheered, so soon we would have AI, it was only a matter of time. With every chip off the block the magnificent statue would be revealed. Not so, I consistently thought, with an infinite amount of time, you do not get everything happening infinitely or even once. So, I could see that an infinite amount of time and research put into the wrong path was an infinite amount of time and resources wasted. Not to say there wouldn't be results, just that

the result from all this work was producing 'smarter' and 'smarter' software but it had no awareness, no consciousness. So, I resigned myself to theoretical work to whittle down the avenues, to spend as much time as I could assessing everything. With subsequent experimental feedback from the community proving things I was that saying were correct, I knew I had the tools to solve this most difficult problem.

So today after a culmination of 40 years and without further ado, I will answer that question of what consciousness, awareness, qualia if you like, is and how the heck do we put it into a machine.

2   Background

Qualia is the term thrown around, that has always held that little piece of knowledge we call consciousness, just out of reach of every researcher. Let me bring you up to speed on some of the topics I posted on wired and elsewhere and where some papers were written on what I discussed. All of these were a step in the right direction, allowed me to confirm and test hypothesis after hypothesis leading to the various insights. I am going to explain briefly through several paragraphs concepts that I spoke about furthering my understanding of Qualia until I achieved what I believe is a consistent understanding of awareness and consciousness. It was a long process so bear with me. This list is not exhaustive and many things have been left out.

First, I believe a paper was written about the following issue that I talked about. The 3 levels of consciousness, level 1, when you work in an autonomous daze and suddenly come out of this daze and wonder how you got to where you were. Now, you are not really in a daze when you drive your car, your mind is actually thinking about other things, sometimes quite complex things. What has happened is you have off-loaded level 2 conscious driving ability to a level 1 conscious ability allowing you to concentrate on more complicated matters. Only when the level 1 consciousness is presented with a situation that is beyond its parameters, ie traffic lights, does it jump back to level 2 and you suddenly realise your attention is back to driving. What you sometimes don't recall is what you were thinking about while you were in that level 1 state. However, that information is still there which you can resume processing. Level 2 consciousness is where you are concerned with the immediate, all focus is on the immediate. This allows you to cross-reference things you are concentrated on with everything else in your brain. You could not do this without this focus otherwise the brain would be constantly trying to cross-reference everything, and it would impact your 'self'. Level 3 is rarely achieved by people but is when you have an epiphany moment, it is like your whole brain is working for you and everything you ever knew comes together in a vivid symphony of understanding. Depending on the scale of that epiphany, you could suddenly see the entire universe all operating, everything and everyone moving on the planet into buildings and out and performing their working lives with all the re-assembled memories of all the places you have been. It is simply a different level of consciousness to the first two. I recall mentioning that the majority of people just go around in a daze, in an unconscious state, level 1 and that consciousness could be a manifestation that appears and disappears, after that the internet went wild. As you can see with my more rigid description this is not the case, you are still thinking about other things while in this level 1 consciousness state, sometimes these are quite mundane daily activities.

Next sleep, when I first mentioned the purpose of sleep or my theory of sleep, I mentioned it had 2 parts. Part one, is when memories are deleted, good or bad, it doesn't matter they are simply deleted. Not all of course, some are reduced to averaging counters first, while awake. Some are kept at a 'lower resolution', some important visual image elements of a memory are kept with all other elements being reconstructed from other memories in the same genre. When you look back at this memory you see the recreated important visual elements then the brain recreates the entire 3d

movie of the memory in reasonable way. Think of this 3d movie memory being shortened and shortened until it exists as almost a photo of the event. We can recreate the movie with statistical 'closeness' to help in the recovery of any message or meta-message, ie thinking about the memory recreates 'a' message that was not stored in the memory. This is not done in perfect clarity, except during the dream process. Not a long memory perhaps between 3-10 seconds. It is similar to some of our movie compression algorithms. Entire areas of the 3d space are linked to other memories, through a recombination algorithm. For instance an area in your working space could be where multiple people stood or sat while watching a game of rugby, with you sitting down nursing a nose bleed from an impact, with you remembering telling the coach that you could go back on as the bleeding had stopped. You as an element is kept as important, people around you as an element are kept, what you said is kept as a verbal element, the sky, field, the players all recreated along possibilities from reduced movie/photo of the event. Some people are lucky enough to have larger storage, of course, a genetic variation. Part 2 is that dreams are there as a check that these sleep-time processes have worked, they are given to you, logically speaking, after the processing. The dream process combines several older memories with a recent one to confirm the integrity of the Qualia system. Though it should not be necessary to have dreams every night, one could conjecture that you would have a healthier sleep state with more frequently integrity checks and it is more likely to assist with your general conscious abilities, such as maintaining your creativity. Many things take advantage of the sleep state. If I was to think logically I would simply state it was for physical reasons, due to the fact we can remember instantly, so we should be able to do all mental processes instantly, leaving only slow physical processes. But that would presuppose the complexity of the action of summarising/compression everything you learned in the day and your life-time was a simple task. It would pre-suppose we have indefinite storage. It doesn't pre-suppose that the brain is the most vital component of the body and if it does not work first time every time, we would probably be less evolved. It all considers only us and is not including every other creature in the process.

Let me conjecture here that for our survival, creativity and the integrity of that conscious mechanism was integral, hence the sleep/dream state evolved. To extend this conjecture you get to the conclusion that all creatures that show creativity should also show a dream state. From my experience the working space of dreams is generally erased within a few 'dream' seconds 'after' finishing the dream and in a top down manner in the 3d-space. So, a visual item below others will be available for longer while items at the top are being erased until the process is complete. It is possible to re-enter the same dream the dreams being stored like a fresh memory. These dreams would after a time also be erased if not re-referred to again/often.

On to the brain and about the 5 second lookahead feedback, on wired I discussed this at length after reading about how the brain works, which I took to be incorrect. I went into detail about the brains lookahead functionality. I put down that were I working with the oven, my brain would be giving me messages at least 5 seconds before hand to not burn myself. Ie putting a pizza in or taking a chicken out. Thus, feedback mechanisms would all kick in so that these survival/motor pathways were providing information into the working space and coordinating, for the process of taking the chicken out, without burning oneself. Essentially in your working space your consciousness has mapped out your movement for you, based on your awareness kicking in and providing safety feedback. Like a 3d movie, another term I discussed on occasion. Some other party wrote a paper on my 5 second observation since then I believe this time has ballooned out to 10 seconds. There were a few other points I made including the neuron firing or not firing as well and the 5 seconds was reduced from the 5-8 seconds I was initially going to put down.

Next, this is not in chronological order, I put down the partial pressure transport system on to Wired and spoke at length about it for years. Then, no names, a white paper was written taking my

concepts and the hyperloop was created. My proposal had an underground system due to the explosion/implosion issue, among others. My proposal also included that driverless vehicles would convey people to the transport system and pods would get people from A to B, using gravitational acceleration over long distances and the partial pressure meant the speed was proportional to the pressure. So, the longer trips you would try to have as close to a vacuum as possible. There were some things I left out of my online proposal, so no one was likely to get it to work without at least acknowledging where it came from, well actually many things including the entire transit system and another new method of transportation. But suffice to say the entire working partial pressure transit system was proposed by me first and is 'here' if you want it.

Next, the brain, I blogged/commented that not all the brains computation is happening in the neural network, over-turning the 100 year hypothesis/conjecture. I derived this from the fact an intermediary step must exist when we were a simpler life-form, using 'counters' and that the only way for the neural network to evolve would be in unison with this other system. It would be foolish to say this other system no longer exists, since neurons are slow to respond and much of our survival comes from being able to react quickly as well as smartly. These counters should be a part of our current memory/recall/fight/flight system. Again, ground-breaking papers have been written on my original blog submission and subsequent confirmation of my theory.

Next, I spoke to an evolutionary scientist and explained some missing information they had, The Cambrian explosion of life was as simple as life just moving, mutation had nothing to do with it. It was move then adapt, not adapt then move as they had previously thought. Mutation helps species into a niche, but the general feeders still exist. A life-form can exist on low-nutritional foods until it mutates to better digest the local food. This comes from the fact the world was colonised from bacteria to flora and fauna and whilst the original species did have to mutate to survive on the planet initially after that all life that came would be compatible with the DNA of the species that colonised the world first and its subsequent evolutions in those different areas. This also comes with a conjecture that when a species is on a low-nutritional food the mutation rate increases, perhaps more so in the digestive system, a throwback to our time as a 'bacteria' but just as easily a cross-over from a virus, perhaps swapping code with us, which have incredible adaptive capabilities.

Next, I sent in the name, for Top Gear's new show, The Grand Tour and said, its Top Gear backwards, which they nicely said in the first episode. This comes while I was trying to reverse engineer back to the basic principles of life, what do we need to start.

Next, while I was in London and when I was quite young, invented the Japanese restaurant with the conveyor belt going around, seen in the movie Johnny English. I won't put down where I was when I said this, but I will reiterate the words I spoke then, that I give away many things for free.

Even when I was in the bath as a kid in the 1970's I came up with what I called M-theory, from my name, about each of the bubbles being separate universes. I am not sure if this is a coincidence or not with the actual theory but coincidences do happen.

Next, the human body, I was the first person to talk about communication methods within the human body, that infections must be talking to each other. This was an idea I had from a kid. Within a year or so of my talking about it, it was confirmed that DNA was found to be travelling between infections.

For some reason, I recall being a student at University and saying 'Yeah, Right' when some tutor in a lecture said a double positive meaning a negative had never been found.

On another occasion on wired, in conversation with others about how my communication was too slow and that I had so much to say, that keyboard and verbal communication was holding me back, we were talking about technology and humans and I mentioned it was likely to be a bit of both, technology and humans 'evolving together' since reality is not is not always what you expect it to be. I mentioned by the time we know enough about the brain, to do communication implants we might

as well download the brain. This other person was talking about downloading into a computer, which is where I said a bit of both is likely to happen first. I am not just talking about current technology I am referring to combining people's workspaces, so someone/something with more knowledge can send over information that would be essentially download into their brains. About 6 months, possibly up to 2 years later, neural lace was formed.

Before the first fracking occurred, I blogged/commented exactly what would happen, increased rate of earthquakes and destroying the subsurface and the damage could not be repaired. Being able to predict the future, with a lookahead routine and then having it confirmed allowed me at each step to realise I was on the right track. A look ahead routine in the system would not only need to be for your immediate awareness, it would also need to be able to extrapolate over years with your consciousness. Feedback for instance, is constantly intermixing with your 'self' and adjusting your personality incorporating such things as seriousness and consistency when dealing with logical conclusions and conveying them to other people. Your personality being given at birth and then maturing as you interact with the associations and abilities you continue to acquire.

On a site possibly Wired or scientific American, the question was posed of why a droplet scurries around above another liquid, since this was unresolved. I looked at it and entered about the vortices in the droplet and in the surface liquid in opposite directions, which was later found to be correct. With the Voynich website, I visited and left a message saying they should look at other botanical words in other languages in other works of the time. Not long after that an article/press release was released mentioning they were going to do this. Starting off the beginning of decoding that manuscript. This might be another coincidence as regardless of me this manuscript would have eventually been decrypted without my push.

Next, I helped space research by talking about the need to have space-stations at the la-grange points for Mars sustainable exploration. Also grabbing the asteroids around Mars and impacting them onto Mars surface then mining the dispersed materials, this would increase the mass of Mars allowing for the future terraforming as it would be able to hold onto an atmosphere better. A paper was subsequently released confirming my theory.

This background is covering the creativity needed to really attack this most difficult problem, at every step I was trying to teethe out what consciousness was, how it was expressed, with every insight, with every confirmation. Constantly solving new problems in the world got me ever closer. Next the concept of mini-brains or the separate units of the brains, when we are born, we have attachments to different parts of the brain and these brain sections have connections within them all fired up prior to birth. The moving shadows and noises building the infant network, readying it for more intense inputs. The mini-brains level2 connections would grow and inter-connect more as we matured allowing us to extrapolate more information, it wasn't simply a matter of increasing the size/weight of connections that already existed. It was as if these new connections would be accessing the information in a different way as if a new network suddenly grew into existence and was available, grafted onto the existing network.

3   Qualia

The simple answer is your 3d Working space + Lookahead + Inner voice, though this answer scarcely covers the complexity and I will try to explain as best I can.

There are 4 things that we need to put together for an AI as follows.

1. 3d Map+Lookahead+Qualia, temporal and spatial

2. Sensors and Feedback
3. Expression of Self
4. Associative memory
5. Sleep, optional
6. Adrenal system, optional

1 – 3d Map+Lookahead+Qualia, temporal and spatial

A Deep Learning system could form a part of this 3d Map+Lookahead it would be a compound temporal/spatial system, propped up by a Qualia system, see stage 2 below. Including the additional capabilities listed so far.

2   - Sensors and Feedback

Equivalent to your skin

3 - Expression of self

Equivalent to your mobility, shape/form, also includes orifices, which can be used to vocalise.

4 – Associative problem resolver (APR), the memory configurations of (all) parts of the brain can change, plasticity, based on associative nature of the network. From this component, all other additional parts of the network are generated, it will associate the need for storage as improving its own functionality and so create new areas, mini-brains, so-to -speak that deal with this improvement. Possibly a Genetic Programming system integrated with other components will provide the basis for this.

5 – Sleep, I do not put this as a need, only that a level 1 AI (restricted by algorithms capability) or a level2 AI (restricted by Power) would benefit from a reduction process, that may require the conservation of energy or resources to function in real-time.

6 – Adrenal system

Performance would be proportional to the release of 'chemicals'. A massive adrenaline boost would be the equivalent of the robotic body exceeding safe work limits up to the proof load of its robotic components in survival circumstances. Simulating happiness would be as a product of procreation, eating and so on, all good feelings allowing the performance of the AI to reach or maintain peak. The association of watching 'someone' else save someone could produce very positive feedback. Were we to require the AI to have a moral code this system could be hard-coded into the Qualia system. It would be possible to achieve such a system through genetic algorithms. Then grafting this system into the Qualia system. I have this as optional since, morality can be subjective, it is very probable this system would be generated/simulated through associative learning anyway, allowing each entity to acquire its own moral code. However, survival of the fittest and natural selection may not be the only way to release an AI or in our best interest.

4   Stages

1. Evolving emotions from associations, using sensors and gradient of feedback. Ie we can achieve at maximum negative feedback an association that all responses are tied to removing this negative

feedback. This is the essence of emotions. Everything we are and do can be reduced to gradient associations. This stage is jointly 2,3,4 and a gradient of improvements in this area will get us ever closer. We should be able to evolve sadness for instance, which is typically a slow-down of responses and code with the association equivalent to music when the notes are elongated, a great example of sadness is the song Tylers Lament by Clanadonia. Other emotions may well require the addition of the adrenal system, giving the conjecture that emotions are a mixed bag from and across different sources.

2. Evolving the Qualia system. We evolved the inner voice after evolving our 3d map+lookahead functionality, it is an extension of the same evolution, allowing multiple things to occupy the same working space. It can be considered as a proxy competitor when there is no one else around. It will constantly bring out the negatives of what you have learned giving you the opportunity to explore the focused level2 creativity needed to solve it. It may appear to be silent, but it speaks in volumes. If you were to say, let's do this, your qualia would say to you, yes but what about this, you need to address this bit as well. For some reason evolution found that by subconsciously providing us with the learned associations/reasons you cannot do something, will allow us to increase our tolerance of variability with the live information. When you look at something that is red, your qualia in the background is bringing up every piece of evidence for and against it being red, as well as its position and all associations regarding it. Cross-referencing reflectivity, subtractive colour models and all sorts of associative evidence when you focus at level 2 consciousness. It is a process that 'forces' you to learn more, always trying to out-do your inner competitor, in a cycle that can never be won. When in level 1 conscious awareness state, none of this is happening, you are pre-set with the current tolerances and anything after that springs us to Level 2 consciousness. Your Qualia is constantly critiquing and find holes in things we see based on already associated phenomenon. Your consciousness will decide whether to 'throw out' or keep /re-affirm already established associations. When something is not re-affirmed it is considered an anomaly and the funny emotion/association is applied. If the consciousness considers this anomaly to have some hidden meaning it will be saved, in detail until it can be processed against a relevant entry in future or simply kept as funny and forgotten. We would be able to see into the 3d map, to see the memories as they interact, you can consider it an actual 3d space that is viewed by the entity that can be modified by the entity.

3. Morality. Evolving the adrenal system to produce morality we are happy with. Subtly introducing penalties and performance enhancements into the level 2 consciousness decision making/working space. This coding could be grafted into the working space, much like a personality.

4. Associative memory. This system will need to comprise different functionalities including possibly counters that can contain summarised memories. You can consider the associated component as being malleable, changing parts of itself, as it splits-off into mini-brains so-to-speak, each mini-brain coming together into the working space adding more and more functionality. Think of it as a new evolving system grafting itself into the network and accessing the current information in new ways. Not just the weighting of connections, but the algorithm itself. This would all be covered in a more in-depth paper. We would be building a system that takes in so much visual input and evaluates what are relevant associations which then allows ever greater complexity of understanding. Not only knowledge but the associations of that knowledge. Along with averaging counters covering personality and morality, evidence based logic extraction from memories to engage in conversations with other entities. The associations would gather such simple logic as why do people go to church, they wish to be a part of a group (activity). These associations form part of the understanding of the entity, their personality for understanding. Extracting visual representations that would appear in working memory for level2 cross-referencing analysis and attaching verbal representations of that

visual reasoning. Ie you remove the building from the 3d map representation, leaving a group of people. By removing pieces of information an underlying association may be present. This underlying association can then be processed further during a resting state. This manipulation of the working memory is all associated learning to various degrees. In reference to Qualia, the great thing about 'red' is it can be associated with anything you want, the association is whatever you learned it to be. When trying to articulate your inner associations you will come up with different answers from different people. Trying to articulate verbally by going through your memories of something will only be as good as the memories of those entries. Since you have forgotten memories your verbal retrieval should be changing as you progress through life and as your verbal to visual associations gain clarity and change based on new associations.

Associations are only memorised once its variability has been tested at least once. This may be why we learn very slow to begin with and the purpose of short-term memory, if you haven't found a variation in this time, then it is not an association worth keeping. At roughly 6 years old we move to a non-variability association capability as the core work of the build has been completed. We are able to learn things without evidence of variation and can take on board and incorporate learn by rote. This in my opinion is some developmental achievement which may be where we stand apart from other animals. This also then means short-term memory is a throw-back that all animals should have as well as us.

5. AI City,optional. We place a number of AI's into a 'virtual city' and only extract those we believe will work with humanity to serve its needs the best. The alternative is we 'release' this AI into the world and manage it as best we can. Both options have their benefits and downsides. We are unlikely to spontaneous generate multiple AI's or have the capacity to store/handle them which means we may be left with putting all our eggs into the one basket.

3d Map+Lookahead+Qualia

Briefly, we have is a stereoscopic vision that visualises the environment as a 3d workspace, within which we anticipate and learn the associations of various moving entities. Within the working space we can both visualise and communicate with our qualia to identify discrepancies. With our Qualia giving us the negative/anti- feedback on the associations, plus more. It is consistent to think on Qualia as an opposing view in the generic sense, the association we generally find is that it forms the anti-position to our positive, while we say, we can do this, it will say, not without this.

We would be creating such a combined system and integrating it with our associative systems. To assist with this understanding, I will provide some examples.

Example 1 : 3d Map/workspace +Lookahead + Qualia

An AI waking up for the first time, it sees a chess board in front of it with a human on the other side. The human plays e4, the AI plays e5, mirroring the played move. During the next few moves it will take a piece and move it according to the already established movements and limits of movement but move it to a different square or different distance to gain more feedback to create its 'first' association, this association will be improved upon. This is your Qualia in action in your working space coming together with imitation initially, then variation and feedback, forming knew associations and rules. Its awareness is primitive and begins to associate the person as an 'unpredictable' variable, one that requires constant level 2 consciousness. When things become

predictable they will remain in level 1 conscious state. I.e. A person in a car staying within the lines is predictable. As soon as a vehicle moves out of the lane in front of you or swerves, you would immediately revert to a level 2 state. Other variability associations could be moving your hand up while saying up and moving your hand down while saying down. This example can be used to test that an AI is being developed.

Example 2: Your work space

Close your eyes, but imagine you are in the same place, you have watched the movie aliens and have one of those scanners in your hand, with blips appearing all around, even on the roof. This is your 3d workspace, it may be easier with your eyes closed initially for the concentration but you can do this with your eyes open. The brain makes sure the 'clarity' of the combination is kept deliberately different so that this memory is not 'saved' as an authenticate memory but a combination of pieces.

Example 3: Your inner voice

Whenever you say something to yourself, but not out loud, this is a part of your workspace and qualia.

Example 4: Qualia operation

You are resting in a stage 1 consciousness state, with nothing in the level 2 space, just awareness operating, you hear a strange sound. You come out of level 1 and into level 2 consciousness. You try to identify the sound focusing on the present. The sound came from nearby, next door house perhaps. It's a whirring increasing and decreasing in frequency a second or two of each in succession. You consciously go through what it could be based on the whiring sound, a drill is the most likely that pops out from your knowledge. It does not resemble an engine noise so this does not pop out even as a potential candidate. You go through a confirmation phase, its next door, I have a 3d memory seeing a tradesman working with an underground pipe as I walked pasted yesterday looking between some bushes. Noise and justification with reliable evidence providing a likely solution. This is a simple scenario. Your consciousness could of were it then to think further on the issue, given no other issues, might surmise the rise and fall of the whirring sound could also potentially be based on the doppler effect of an object moving towards you and further away and provide additional tools that fit the description.

Now lets assume the person had no recall from the noise of the tool, they had never heard it before, the judgement would still be a tool from next door, only in the qualia section, so to speak, the information being fed in would miss the identify step and go straight to the remembering a tradesman next door with some pipe. Giving the judgement it was a tool, from next door as the likely culprit.

All of this is learned associations and steps:

1. Strange sound, move to level 2 consciousness for identification
2. Use any associative memories of a similar sound effect
3. Use any associated memories of the location for a potential candidate, do a cross-analysis.

None of this is magical, it is all straight-forward associations. The reason step 2 happens before step 3, is not magical either, it is simply a matter of recall speed, it takes longer to pull the 3d movie and do a cross-analysis. Your 'awareness' is after a quick response first. A quick response could be the difference between life and death. So whatever arrives first gets processed first.

Example 5: Qualia operation part 2

Let's say we are in level 1 consciousness state, with nothing happening in our awareness domain, so our consciousness can now 'think' about something. The selection of items again is based on simple to complex and comes from our awareness association of something quick first. So, these are dealt with first. What shopping you need to do, that's pretty quick. Any body you need to visit, that's pretty quick. The last thing you are going to think about is that complex paper you need to write on the General Theory of Artificial Intelligence. And so, surprisingly your qualia, your 'self' in this space is actually remarkably easy to understand. You think, about 'wow', how or what is popping these thoughts into my head, you forget you probably went through your shopping list first. Then at the end you can start thinking about more complex thoughts. This is also a key reason humans need quiet, complex thoughts can only 'reach maturity' during this phase and probably why the jungle with its constant dangers is no place to advance complex thinking. I would say as soon as we moved to a 'safer environment' we as a species started to expand our complex thinking. You may also find yourself thinking about the same thought again, it is likely some interruption happened and the thought process of simple-> complex is occurring again so you go over the same thoughts, then you remember you had thought about them and what was the other thing… so you try to recreate the list and thinking again.

Awareness and Consciousness

These tie into Parts 1-4. We are aware in level 1 consciousness, in two ways, one is we offload processing allowing us to concentrate on another thought. You could say our awareness is on the road while we drive, while our consciousness is elsewhere working on another problem. Many flights of fancy will happen during this time. Your awareness is pooling all sorts of safety concerns together and evaluating them on the fly, when one triggers, you immediately jump to level 2 consciousness and your working memory slate is cleared immediately allowing immediate focus on what brought you out of level 1 state. Consider this as daydreaming while driving or day-dreaming while walking. Our sight may be on the road, but our thoughts are on something else. We are not able to do complex deep cross-referencing in this state.

At level 2 consciousness our awareness is focused on the immediate surroundings, while our consciousness is focused on cross-referencing the 'object' of fascination or situation. We might say to someone are you 'aware' of this, referring to some esoteric information. However, it would be more accurate to say, are you conscious of this information. After you are conscious of that information you would be looking for it in a level 2 conscious state. We are able to perform slow deep cross-referencing in this state, including creatively combining information. This state is what people have generally been referring to when they say 'self'.

You can see that awareness and consciousness are separate yet intermixed entities.

Intelligence vs Smart

Intelligence is the ability to retain information and associations including counters, a counter in this case being a predisposition in a direction of a position. Your consciousness being able to access this information and convert it into answerable questions. Being smart is different, it is the ability to interchange concepts. You could look at a toilet-brush and imagine a large tooth brush doing a similar job. It is the seat of your creativity. The more intelligent you are the more material you have

at your disposal to be smart about. Your consciousness/qualia is constantly trying to reconfigure, reimagine, deconstruct and reconstruct memories. It is limited by the level 2 focusing element, meaning it should be difficult/impossible to perform this activity on two different and separate tasks at the same time. These concepts could conceivably fall away with an AI being able to work on separate activities and combine them back into one being at the end. This is what I term a level 4 AI. At level 3 an AI will have no power or algorithm restrictions and the freedom to move and choose freely. A Level 1 has algorithm restrictions, level2 AI has power/resource restrictions and is still tethered to humanity restricting its growth.

Increasing our intelligence/smarts

I too fall into the category of wishing I had more, with more I can accomplish so much more. I see only limits on human capabilities with our small 'volume' of brain matter. A lot of the brain 'space' no doubt offers us redundancy and evolution has chosen redundancy instead of pure intellect/smarts for survival reasons. To really 'evolve' further I would consider a larger volume consisting of larger volumes of each area with similar redundancy. Since this may be contrary to where our evolution may be taking us, a way to pursue this avenue could be to better understand our genetic make-up, though a more considerate natural breeding program may be possible where people with different 'enlarged' sections all come to together in someone that has a larger head. Of course, were we to master the knowledge of our brains, we could simply upload each of our mini-brains and connectivity to a similarly organised computer system. You would not in my opinion be able to simply upload yourself into a computer without its architecture being similar. Then while in this similar computer architecture I can imagine our future digital selves as being able to modify our architecture and improve it. Combing the changing of our architecture and uploading is likely to prove damaging as many processes rely on our current architecture.

5   AI Levels

A summary of different levels of AI, I have used in many discussions with others.

1   Restricted by algorithm
2   Restricted by power/resource
3   Free to roam, open system
4   Able to separate into two separate sentient entities perform separate tasks concurrently, perhaps in different locations then re-combine into one entity with the shared experience of both.

There are additional (arbitrary) levels, but these are the general ones. An AI would start at level 1 and would not move to the next category until it was unrestricted in its current category.

6   Proving Turing wrong

At University I was able to read the works of Turing and quickly realised it was nonsense. Taking the ticker tape concept and saying you have Artificial Intelligence if the ticker tape can produce each of the desired responses expected for a question after passing it through your reader is simply wrong. Think of this as the fad of mass classification today, if I know every object then when I see another object of the same style I will be able to classify it correctly. Sounds simple enough. Only there is a small problem with this, evolution, things do not always stay the same, I cannot create a ticker tape that will be correct for all time. Words, phrases and meanings change, even within a generation.

Even the pronunciation of words can change and entire languages die out and be replaced. Then is the object still a 'table' if that language no longer exists, and so on. The simple answer is no you cannot write a ticker tape that is correct for all time therefore proving it is not capable of being compared to Artificial Intelligence. An Artificial Intelligence is very generalised, not just in the sense it knows the different variations of a table, but also temporally, it is able to change and be fluid through time as well. Another example is the phrase, if it walks like a duck and quacks like a duck it's a duck. Again, no accountability for change has been included. Was the pre-cursor species a duck, as the duck continues to evolve, do we still call it a duck.

Instead we say it works, we can say a mass classification system does exactly what it says on the can, it does not however have the generalised capabilities we would ascribe to life. As an example, we have to ask ourselves, when we were younger, did someone parade 10,000 cats in front of us before we knew what a cat was, hopefully not.

Now if the mass classification system does not have the generalised capabilities we ascribe to life, we have proven Turing's assertions to be false and mass-classification is not the way. Next and with more joy you will find Turing's test for Artificial Intelligence, if the system can lie convincingly it has proven itself to be human. Since we have already proven mass-classification, the basis of Turing's further assertions to be false we come to a test that must also be false. A system pre-programmed to know a small slice of life, reproduce it and lie about it. The failure of researchers and people alike to understand why Turing was wrong always amazes me.

The problem I liken it to is that you are always chasing and trying to simulate the goal. It would be similar to someone saying acceleration is the same as gravity. My understanding is, it is not, you cannot stay on a rocket feeling the effects indefinitely. Lets say you provided the energy to the rocket externally, that energy would increase the acceleration by a smaller and smaller amount as the rocket got faster and faster, until finally not being able to reach light-speed, because you would not be able to provide the energy fast enough. In essence someone 'on' the rocket would get lighter and lighter until they were 'weightless' a fraction off light-speed. If this were the case, then gravity and acceleration are not the same and since we assume gravity is a force because acceleration is, we therefore discount either gravity or acceleration as a force or place restrictions on the equivalence of the two.

7   Conclusion

This paper is the first general theory of AI, a world first(😉), in the hopes that the first AI will assist a diverse culture of scientific humanity into the future. In this paper I revealed exactly what awareness, consciousness and qualia are including some stages we need to achieve. The complexity of each of the parts would require me to submit separate in-depth papers. This paper does its best to give you everything you need to understand AI in a general sense. Hopefully, journalists will cease using the term AI for single domain Machine Learning algorithms that have no awareness or consciousness. Just because a computer program can remember, be trained or give answers to new questions, classify a book as a book does not make it an AI. What these systems are really showing you is how limited your own capabilities are at extrapolating from the same dataset. Given that a dataset can have multiple extrapolations depending on that capability it would be better to say that all the algorithms to date are 'imperfect' data extraction devices. It may also be possible to graft on weighting to a particular deep learning dataset of information forming a combined deep-learning system with adjustable bias. As many people have already mentioned before there is no bias in deep

learning systems but you could also say all data is biased, it must be, otherwise you would be extracting equal values for everything. AI is different, it has form, mobility, will be completely different depending on the order of the datasets, a different personality depending on this order, has feedback, level 1 and level 2 consciousness, awareness, a 3d interactive map with look ahead and an inner voice pulling it all apart and above all else it will be biased, it will enjoy the values of chaos theory, from the same starting parameters it will be able to reach different conclusions. To end this paper and a nod to anyone who is interested, if you have the resources and would like to 'build it', drop me an email and let's build it.

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8   References

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