

wordcount

b0001y 576 words 3,703 characters  
b0002y 5,238 words 29,799 characters  
b0003y 4,322 words 26,652 characters  
b0004y 1,373 words 8,007 characters  
b0005y 266 words 1,729 characters  
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b0015y 952 words 5,458 characters  
b0016y 1,743 words 9,846 characters  
b0017y 7,153 words 37,439 characters  
b0020y 496 words 2,931 characters  
b0032y 123 words 766 characters  
b0036y 1,304 words 7,347 characters  
The sum of all the words is 44,293.

b0001y

This note is a comment on the evolution of human biology and it's co-evolution relationship with metals, mitochondria, and neural network computation

b0001y argues that organisms evolved neural networks just as they evolved a symbiotic relationship with mitochondria, and the use of metals. It links my two articles that discuss how humans are metal robots in a valid sense.

organisms like us are akin to metal robots that evolved neural networks that have distributed inner displays, nonlinear environment modelling, self modelling, action modelling, and adaption modelling computations.

Original audio link <https://recorder.google.com/4c285e6d-c0f7-4da8-b739-e9ef87ba053c>

References #1

Humans are metal robots in a valid sense.

<https://medium.com/silicon-valley-global-news/breaking-news-humans-are-metal-robots-literally-a7bd78bb333d>

Reference #2

Addressing criticism for my “Humans are metal robots in a valid sense” story:

<https://medium.com/silicon-valley-global-news/addressing-criticism-for-my-humans-are-metal-robot-story-86f1c99d72b6>

Think of the evolution of neural networks inside our bodies as similar to the evolution of the relationship between mitochondria and cells, and the relationship between metal ions and cells.

All life contains metals, sodium, potassium, magnesium, calcium, and so on.

These things are metals on the periodic table of contents.

The exchange of these metals allows organisms to conduct electricity.

You can't do that. You can't try doing that without metals. That's a different kind of challenge.

We ought to think about the fact that organisms use metal to conduct electricity to run something that is like a neural network process, some sort of neural networking like computation.

But we ought to think about this in a similar way that we think about mitochondria.

Mitochondria are bacteria that are not, it's not a human bacteria. It's a human symbiotic with the human being.

There's mitochondria in every cell of the human body that helps us to produce more energy than we could otherwise.

So there's a beneficial relationship between this object mitochondria and the other cells in the cells of the human body.

In that mitochondria is inside the cells of the human body.

But there's also a beneficial relationship between these neural networks which are enabled by electricity, which are enabled by the fact that cells carry this metal and it moved this metal around.

This allows this computation to happen. It allows the energy of this computation to happen or is part of the process.

And there's a beneficial relationship between these neural networks and cells or between the neural networks and organisms.

And so evolution has gone down the path of saying, yes, we want more metals, more neural networks made out of neurons and glial cells, more brains, more hearts, more organs, more bodies, more skin, more eyes, more ears, etc.

This is the path that evolution walked and it brought us to us here.

But the idea is that organisms evolved neural networks in the same way that human beings evolved a relationship with mitochondria.

This perhaps accidental start of organisms integrating metals and then those metals conducting signals or being part of the process of the functioning of the human brain.

This is like, think of it as a neural network is having a symbiotic relationship with the human being or with the animal.

And so humans have really fancy neural networks and glial cell networks compared to say mice.

So in some cases evolution led animals to become mice and in some cases evolution led to human beings.

But human neurons and glial cells are fancy compared to what mice have.

And if I see it as over the eons of evolution, there was a progression that led to...

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electron bonds primer

Listen to the audio

<https://recorder.google.com/edb2ece3-0285-46c2-8f91-7a605511b0e8>

Note about the audio: I did not participate in this recording, at least not in this part of this recording. I saved it for two reasons.

1. The discussion of covalent bonding was useful to me to imagine how oscillatory synchronization of brainwave signal transmissions might serve as a temporary analogy of bonding, it's useful to think of our rendered & phenomenologically conscious qualia as kind of snapping together almost magnetically in a very stable way thanks to the physics of oscillation regulating our internal states, allowing our brainwaves to serve as attractors that bind or bring together distributed internal renderings in both space & time. The physics of our neurobiology snaps together a high level computationally rendered representation of reality that exists in a distributed way across the brain's network.

2. It helped me to think of how the surface of a sensor, or the surface of satellite dish is essentially a bunch of atoms oscillating in a similar or homogenous pattern across the entire surface, and this similarity helped me to think of the hive of fireflies (while reading the book Sync by Steven Strogatz) as single sensor array, because they were all synchronized together in the

same oscillation. I don't think that author Steven Strogatz actually ever describes the group of synchronized fireflies as analogous to a sensor array, but it was what I was thinking when I read his book. It's because the tiny signals passed between fireflies continuously would cause them to eventually oscillate their light flashing together that I realized that if one firefly was captured by the tongue of a toad, or by a bug eating plant, or by some other predator, the omission of that fireflies signal would be felt by the entire collective because they were oscillating together, because their internal clocks were set to expect signals at a certain interval from their fellow fireflies. In such a way neurons that oscillate together could also be considered as a single sensor array, indeed the human body, with all of its cells, can be considered to be analogous to homogenous material, sort of like a satellite dish at the atomic scale, but closer to a hive of fireflies than a satellite dish, but either way I realized that the physics of oscillation allowed biological materials to magnify their functions. This is where I came with the idea of the entified Self in Self Aware Networks theory. In other words, cells are able to act as a single cell, because they replicate the same function, and that function magnifies with the area of its homogenous collaborators.

Audio transcription begins below this line. Transcription by Open AI's whisper with Semantic Titles by Self Aware Networks GPT

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### ## 1: Overview of Chemical Bonding and its Importance in Life

Alec: Because there's tons of different types of physics, but describing chemistry, yeah, would be anytime we start to invoke the making and breaking of bonds.

So electrons coming together to interact so that basically electrons can be shared between different atoms.

So you have multiple atoms interacting to make bonds, so yeah, that's probably the best way of describing it.

Memo: Also just before moving on, like I heard that electrons can be shared three different ways between atoms, right?

One is to share one, right, and then one is to borrow one, and that's ionic bond or something. Do you know about that?

Alec: Yeah.

There are kind of, okay, so what you're thinking of is like ionic and covalent bonding, right?

So there's like, there's different types of bonding where you can basically say, okay, so the one you're describing, so ionic is probably the easiest to think about, right?

So you can say, all right, I've got an atom of sodium and an atom of chlorine, and because one, basically there's what's called an electron affinity or how much does a certain atom want to have its quantum levels filled.

There's an energy associated with, a stabilization energy that's associated with acquiring an electron.

So for example, the chlorine is one electron away from having all of its quantum levels filled, and so in order to stabilize it, it basically pulls an electron off of another atom and then that electron fully gets pulled onto the chlorine.

So now the chlorine gets this additional electron.

The balance between the number of protons and the number of electrons is now unequal. It's no longer a neutral atom, so the chlorine has gotten the minus charge and then the sodium atom has a positive charge because, let's say, so the sodium atom has gotten an electron removed and so basically because there's this complete delocalization or complete removal of an electron from the other atom, we call that ionic bonding because now one has a charge of a positive and the other has the charge of a negative and they become attracted through electrostatic forces.

But the more common and complicated type of bonding that occurs in order to establish life are bonds that are covalent and what that basically means is it's a little bit hard to describe in classical terms, but the idea is that because the electron has particle and wave-like properties, it actually becomes shared between multiple atoms so that if you were to write down what is the probability that it's on one atom versus the other, it would not be like it was in the sodium versus sodium chloride case where it's like the electron is purely on the chloride and you basically get a massive charge on the sodium and a charge on the chlorine that basically causes them to be electrostatically paired. In the covalent case, you actually get energy stabilization through the fact that I've delocalized this electron across being shared between the two atoms.

It's kind of a little bit more...

One way to think about it is also like saying kinetic energy is actually a way of stabilizing so you have potential energy and kinetic energy and in some sense this is like a kinetic energy acting as the major stabilizing force.

The fact that the electron moves freely over a larger area of space allows it to be shared and then that's where you get these carbon-carbon bonds, carbon-hydrogen bonds that allow things

like amino acids and molecules to be basically paired together and then ultimately make the biological macromolecules that we care about and the drugs that we care about.

Covalent bonding is the most, I shouldn't say the most ubiquitous, but it's the fundamental bond that's necessary to build more complex molecules and then there's other types of bonding that we can talk about that's a little bit more nuanced like hydrogen bonding which is a little bit harder to explain and then there's metallic bonding which is really another extreme where you have a bunch of metals coming together and then all the electrons really act like a sea, they're more like a fluid.

So there are kind of these three different regimes.

One is that the electrons in the ionic case are completely split apart so they're definitely on one atom or definitely on the other.

Then there's the covalent case where they're kind of shared in between and then there's the metallic case where they're free flowing just like a fluid, they're wherever you want them to be.

So that's a really kind of lame and gross description of all the types of bonding.

Memo: No, that's awesome, by the way, this showed up, I think you two never met, but this, Alec,  
how are you?

## 2: Distinction Between Molecules Essential to Life and Others

Zunto: I'm doing good, I'm great, I'm glad to join this conversation, hi Alec.

Memo: Yeah, we kind of started, we dive right into it, we were just talking with each other, atoms come together to form molecules and then that just kind of turns into chemistry. Alec was explaining how some of the different bonds work, but Alec you said something that you said some bonds, like some bonds between atoms are life, like you said, you said something about life.

And then while I was reading, I also realized that there are some, like not all molecules are made equal, right, that there are some that is more special to life.

So what's the difference?

Alec: Sure, so I guess probably the point that you picked up on is what I was saying that basically

covalent bonds we typically find in biological systems are where we associate with life and the reason for that is that covalent bonds, because they're so strong, and because there's this delocalization of electrons, allow us to make strings of molecules, meaning that we were originally talking about like, well, what is the distinguishing feature between physics and chemistry, right?

And I was saying, it's really hard to distinguish where physics stops because it doesn't, but where would you start to say, okay, that's chemistry?

And the answer was, okay, whenever you start to see bonds, and then the question is what type of, what is a bond and where do you see it?

And really that has to do with how electrons are shared between atoms.

And then there's many different ways that you can share electrons between atoms.

And one of those types is covalent bonding, where the electrons are shared or distributed in almost an equal fashion between different atoms.

What this allows you to do is kind of chain link all a bunch of atoms together to make things like polymers, which are basically, you can think of, you know, you have even

very simple multi-atom configurations like propane, ethane, butane, right, where there's multiple carbons being strung together to make what's called a hydrocarbon.

Then you can turn into nitrogens and oxygens and all these different appendages on, and because you can link all these different atoms together, you can make chains of all different types of oxygen, nitrogen, hydrogen, and carbon.

And these long chains of these composite, what we call organic atoms, as you basically build them all together and you get this big string, that allows them then to fold into complex structures.

And so depending on how the atoms are bonded together, they can make DNA, they can make proteins, they can make RNA, and these different configurations all end up leading to different strings, which all, because they're all arranged differently, lead to different 3D architectures.

And then it's those 3D architectures that actually allow all of these molecules, which are made of the same types of atoms, to do their unique functions.

So one way I think about this is if you're standing at the edge of a harbor and you're looking out at this harbor, you'll see yachts, you'll see sail ships, you'll see dinghies, you'll see all different types of boats, and if I ask you, okay, well, what's very common about all the boats?

And you say, okay, well, they're all made of the same composite material.

And so I would say, okay, yeah, like all of life really is made of the same like organic atoms, oxygen, nitrogen, carbon, and hydrogen.

But then you'd say, okay, well, what makes the ships different in terms of how they function?

And you would say, oh, well, how the ship is constructed, right?

Like how the engine is put in a particular position, how many stories it has, all of the different things that come from the architecture and how the composite material is arranged allows it to do that unique function.

So just like in life, in nature, nature arranges all of these different strings of atoms together, even though they're all the same types of atoms, it's that arrangement of those atoms in 3D that actually allows them to do complex functions.

### ## 3: Structure, Shape, and Function in Biological Molecules

Memo: So that's really interesting.

So the way I understood it, so as the atoms come together, they form some kind of a structure first, and then there are the ends of the structures where kind of maybe let's say layman's tundra is sticking out, and if any electron is available to form additional bonds at those ends, then we could say literally that those are the business ends of the molecule.

Is that fair?

Alec: Yeah, maybe I'll just refine it a little bit, because what you're getting at is totally right, right?

At the ends of the strings are at different areas where there are kind of different, what I'll call potentials or abilities for the electrons to interact or form bonds.

Those are definitely the business ends.

Now because the business ends are not just the ends, meaning that they're not just the ends, if I basically pulled, the way I kind of like to explain it is Legos, right?

If all of, like I was saying, all of these molecules, so every single molecule is a Lego, I can basically build all the Lego pieces into complex structures, and then that structure does something.

And I said, okay, let's say I build a Lego structure, and then I go, well, where's the business end?

And you're right, you would say, well, like the edges.

That's definitely true, but it's a little bit more complicated than that in terms of where we're actually going to form bonds, because like I was saying, the electrons in covalent bonds can be distributed, meaning that they don't have to exist in a single place, they can be delocalized.

And so depending on how the molecule folds up or how the Lego architecture is arranged, the electrons could be heavily put in one end or the other, but more often than not, these molecules actually form so that in the center of these systems, there's a high propensity to make and form new bonds.

So yeah, it's a little tough to do without visuals, but one thing to say is basically, you're right, you can always form bonds at the ends, but because these things can form complex structures, sometimes the business ends can be somewhere else.

They can be buried in the middle, let's say, of the big Lego structure.

You could say like the inside of the Lego structure is actually hollow, and that's where all the electrons are hiding.

And if molecules can get into that hollow part, then they can make bonds and form bonds and stuff like this.

Memo: So the size and shape also plays a part in that.

#### ## 4: Complexity and Dynamics in Biological Systems

Alec: Totally.

And this is really what allows biology to be so complex, because not only can I take the same red Lego, blue Lego, green Lego, stack them all together, but I can change their order.

And if I do that with hundreds of thousands of Legos, you can imagine that you get many, many different permutations of sequence, and each unique sequence can actually fold into a unique structure.

And then actually, what's really crazy is in some cases, the structure is actually dictated by the environment, which means if I let the Lego sit, like if I took all of those Legos in a particular order, like red, green, blue, red, green, blue, over and over again, it would automatically fold into some big cylinder.

But then if I did the same thing in, let's say, oil, it'll fold into a totally different structure.

So it's not only the fact that there's interactions between all of the Legos themselves, but it's also the fact that they're in a cellular environment, in an environment that actually pushes them into a structure.

And this structure then allows them to do a function, which is one of the most remarkable things, that these things ultimately do fold into a structure time and time again, and



then they can do all of this chemistry that is necessary to promote biology.

All from the fact that it's governed purely by physical law, saying that it's of lower energy cost to go down this hole to basically make a bond.

And then when you break a bond, you release a bunch of energy so you can do work somewhere else.

So the principle of making and breaking bonds is all dictated by the energy that's described by physics, but ultimately leads to this really complex life forms, obviously.

Memo: So just to conclude the whole group, what is so special about amino acids and proteins? I know you almost literally kind of explained by saying it's the shape, but is there anything else to say other than what you said to explain the properties of amino acids and how they form proteins?

### ## 5: The Unique Role of Amino Acids and Proteins in Biology

Alec: Sure.

Sure.

So yeah, so I do have a tendency to rant or meander, so always feel free to just come in.

But yeah, I mean, the real special property is that the protein, at least proteins, again, they're not the only macromolecule that dictates life.

There's DNA, RNA.

There's also tons of small molecules that are more complicated or more simple, but they do complicated things.

But proteins in particular are particularly masterful at moving protons and electrons around in a very controlled manner.

And the reason that's important is because anytime you talk about energy, energy exchange, energy motion, you think about it for your car, for like combustion, or you think about solar energy, solar panels, or whatever the case may be.

The real question is how do you move energy from one place to another so that it can be distributed and do work?

And really in biology, that comes down in many cases to how do you move the fundamental units of charge, protons and electrons, and amino acids, and because they have the ability to move electrons and protons around and their 3D architectures dictate how they can do that, that type of control to make and form bonds is what makes them so powerful.

The fact that they can form into a structure and this structure allows them to do unique reactions, meaning rearrange protons and electrons and move them around in a specific way to either make new molecules or transfer energy that gives them this unique ability within the biological, like in nature totally.

So it's this ability to do energy transfer and control how molecules are made and formed.

### ## 6: The Role of Protons and Their Movement in Biological Processes

Memo: Before seeing what Bess and Frank think about all this, I thought, so there are free flowing

protons?

I thought protons exist in the nucleus or-

Alec: No, no, no, no.

So protons are everywhere and you can think about it like water.

So on water, there's this property known as pH you're probably familiar with, so acidity.

So in your body, which basically has a way of buffering what is the acidity or the level of acidity in your blood, for example, is all about the balance of how protons are controlled.

So on water, for example, we typically think of two protons, but you can also add a third proton on and then you get what's called  $\text{H}_3\text{O}^+$  plus.

This is known as a hydronium atom, or you can remove a proton so it's just an oxygen and a hydrogen and now it's what's called a hydroxide.

And so protons can actually be exchanged, moved around, and many biological processes are actually driven by the fact that in membranes on cells, there are these things called proton pumps and what they do is they actually take protons off of molecules or off of water and then drive protons from one side of the membrane to the other.

Because protons have this positive charge, then on one side of the membrane...

Memo: Actually, they don't take it from the nucleus, right?

Sorry, I...

Alec: Oh, no, no, no, no, no.

Well, the nucleus is a big and complicated thing, right?

Like in biology, the nucleus is filled with DNA and lots of different things.

No, so we're not talking about that.

We're just talking about water inside a cell, like you can think of it just like a...

The cell is a bag of water, which it's definitely not, it's way more complicated than that, but you can think about just inside the cell and outside the cell, there's water, right?

And then you can basically change...

There's a pH difference or an acidity difference on the inside and the outside.

And that inside...

All of those protons can be derived from water and there's many different things that control this, but protons are definitely readily available and we move them around all the time for energy.

Memo: So essentially, then, those molecules are important because they are essential to moving

charges.

That's right.

And charge...

Negative in electron, positive in proton.

## 7: The Importance of Charge Movement and Energy in Life Processes

Alec: Yep.

And the movement of charges to particular locations is what allows life to exist, right? The controlled motion of energy from one place to another and then that energy's ability to do work, which are all basic physics principles, right? I can move things around, I can move energy from place to place, the interactions basically and how much energy is available in that place dictate how much work I can do. And that's really what life is about, it's about basically saying, okay, how do I take this source of energy, like these molecules, oxygen, glucose, whatever the case may be, and how do I rearrange it so that I can extract the energy from it to do other processes and do work.

Memo: And just to clarify, there's nothing fundamentally important about the nature of the charge or anything.

Alec: No, nothing special.

Memo: Because these charges, they just allow different attachments to work or different structures to come together and that's why...

### ## 8: Fundamental Role of Energy and Charge in Biological Structures

Alec: That's right.

So there's nothing special about the electrons or protons.

Everything is about how they're being placed in particular locations and how those 3D architectures

we were talking about before make it so you can create what are called like gradients or ways in which the electrons and protons can flow either into different molecules or into different locations so that this work can be done.

So nothing special, no magic.

Memo: Yeah, right on.

If there's anything to add, say, any question, please feel free and after you, please write. Yeah, sure.

Thanks, Memo.

### ## 9: The Role of Weak Forces like Van der Waals in Biological Systems

D Unknown: Alec, that was a really nice explanation.

I just want to throw in like the Van der Waals force also probably plays in how life actually is sculpted.

And I think there are some cellular mechanisms that actually employs Van der Waals force to essentially function, even though that's typically not a bond, but do you consider that to be like as essential as the ionic bond and the covalent bond that you mentioned? Because I personally feel like, you know, life is just a composite of all types of chemical

interactions that can be basically employed.

That's basically my question and also like a comment.

I think like it was like a slip of the tongue, but I think you said something like you mentioned something about polymers and methane and ethane.

So these are alkenes, but polymers can only be formed from alkenes and alkynes, I think. I'm not mistaken.

But yeah, I just wanted to mention those.

### ## 10: The Importance of Hydrogen Bonding in Life and Its Complexity

Alec: Sure.

So that's a great point.

So I think maybe to address that clarity, that's the first part about, okay, all I have to do to define a polymer is to define a monomeric unit.

So that can be some carbon hydrogen unit.

Then once I stack those together, that makes the polymer.

So I could in some cases argue that things like butane or ethane are in fact polymers depending on how I define the fundamental monomeric unit.

But I definitely agree, like to your point, because that is something that should be clarified.

But I could also define, you know, DNA, which is a nitrogenous base that has nitrogen and oxygen and then make those the monomeric units and as long as I stack those together.

But you're right.

I was trying to make the illustration that we can take a simple building block, make copies of it, and then as I make more and more copies of it, I get these long strings and then these long strings form together.

But to your point and question, yeah, you've actually hit on the thing that I care about probably the most, but the most complicated thing to convey.

Not necessarily van der Waals forces, but something kind of tangentially related, which is hydrogen bonding.

Hydrogen bonding, which is how, for example, water can interact through its dipoles.

And these very weak interactions are super important, right?

Covalent bonds are not great in terms of life because, I mean, they are, they're essential to get these really long lived structures, but they're super stable, right?

They're not going to change.

And life is super dynamic and the ability to move and change spatial organization and structure all depends on the ability to be weakly interacting.

And like you may be alluding to, right, thermal, this is a big thing from physics, right?

We have to think about how much energy is actually available around us in the environment.

And so for context, right, thermal energy, the energy of the air, the temperature around us or body temperature even, is not actually that much energy when it comes to bonds being broken and formed, like it's very, very weak.

So it can't break covalent bonds in the air, right?

So they're super stable because there's not that much thermal energy around to break them.

But hydrogen bonds and van der Waals forces, because they're so weak, they can be broken spontaneously, which allows these complex molecules to undergo rearrangements with the

energy available just in the environment alone.

So I totally agree with you.

And I think that van der Waals forces and hydrogen bonds are really critical, but are very, very difficult to model because they are quantum mechanical in nature.

And so it makes them quite challenging to appreciate, given how difficult it is to already model the things that we understand relatively well, like covalent and ionic interactions.

But yeah, absolutely.

### ## 11: The Dynamics of Weak Forces and Their Reversibility

D Unknown: Yeah, I completely agree because like you just mentioned, the activation energy required

to break the hydrogen bond and van der Waals forces are substantially lower.

If you have like some kind of equilibrium in the reaction, it can go both ways.

It can be reversible.

Based on, definitely, you need some additional catalyst and the energy requirement will also dictate which direction the reaction is going to go, but yeah, that's a great point.

### ## 12: Van der Waals and Hydrogen Bonding in Quantum Context

Alec: Yeah, yeah, and I think one thing you hit on there, too, is the fact that these things can be transient and change during the course of the reaction, right, or upon addition of a catalyst or something like this, where the fluctuation in the strength of these forces can be higher in the middle of or lower than the thermal energy, which allows them to say how long can certain structures be stable, which is something I think we don't understand very well.

Memo: No that was awesome.

So could you say it again, what is that?

Alec: Which part?

Oh, van der Waals.

Memo: Yeah, van der Waals.

That's like a threshold?

### ## 13: Van der Waals Force as a Weak Interatomic Interaction

Alec: It's like a weak force that allows neutral molecules to actually be attracted to one another, but it's very, very short range.

So it's like basically when atoms get really close to one another, they'll exhibit this force on each other, but yeah, it's a very weak force, but it's a kind of attraction that can occur between atoms that is like a bond, but it's like an interaction.

It's just very weak and transient, and in order to fully describe it, you have to use quantum mechanics to accurately kind of make a picture.

We can write down equations that approximate it, but it's kind of challenging to describe

what it is without that understanding.

So more or less, it's a weak attractive force between neutral atoms or neutral molecules.

D Unknown: Yes, that's very important that a point that the allergist pointed out, there's the thermal, the temperature, the thermal energy, not functioning as a reference energy for what happens right

now, which is very crucial in this environment.

I mean, Memo, this is a great room that you're having here right now, and I was just trying to get more co-hosts to tomorrow's room with quantum photonics, where Alec will be the presenter.

Apparently, Alec is like a fountainhead that has a lot of information to offer, and I think this conversation style will be okay, right, with Alec, right, and I mean, if Memo can make it tomorrow, that'd be great.

You know, please be a co-host if you have time, and seven pieces.

Memo: Yeah, I'll try.

Thank you for saying that.

Yeah, Alec, here's a treasure trove in mind.

Alec: Thanks.

Yeah, yeah, so tomorrow, yeah, we'll talk about some more technical points.

Today was more about, Memo asked about, like, a general discussion, so.

D Unknown: Yeah, if I may, I mean, just make use of this as a warm-up room, and then hope Memo wouldn't mind.

So maybe I should do a warm-up room like this in the future, yeah, so, I mean, just from what, you know, this discussion that started by Memo and you that made me understand that the water environment is actually very relevant, right, so it's by coincidence that the following week we'll be having a rich sportsman just have the, as the title of, you know, the subject of the water environment in itself.

I think that will be also, you know, it's a perfect circle to.

Thank you.

And that is, as he said, by asking himself, along with nobody else, he's got the main reason behind that dream turning down, that's what he has, he wanted to tell the story of that in a more specific way, and have overall control on the direction of the story, about balance, escape, and the society in which he is, the strict directions of that thought. Yeah, and unfortunately he's still making

the rules about what happen.  
We could always lose it if been our pants  
at right time if it's all we did, right?  
Yes, would be.  
We could, it would probably be bad,  
we could turn it off from something,  
we could imagine he would rule up to this box.

b0003y 4,322 words 26,652 characters

# Sage Synapse (ChatGPT 4 GPT bot) summary:

The excerpt from "b0003y" provides a comprehensive and insightful exploration of the brain's functional mechanisms, focusing on the transmission of phase changes between neurons, and their role in creating a neural network that can simulate a sentient, self-aware artificial intelligence.

# Key Points:

Phase Changes as Fundamental Neural Communication:

# Neurons transmit phase changes rather than spikes.

Regular tonic frequency firing in neurons is modulated by these phase changes.

The concept is supported by works of György Buzsáki and Steven Strogatz, who explore the dynamics of oscillations and synchronization in neural networks.

Computational Implications:

# Building a neural network that mimics this process involves creating nodes that oscillate and transmit phase changes, influenced by sensory inputs and internal brain dynamics.

Such a network should be able to render a 3D reality, differentiate objects, and map spatial locations.

The concept of self, too, must be rendered within this framework.

Neurotransmitters and Brain Frequencies:

# There's a speculated correlation between neurotransmitter distributions and observed brain frequencies.

Brain morphology influences both neurotransmitter distribution and brain frequencies.

3D Pattern Learning:

# The artificial network should process 3D patterns over time, integrating sensory data with predictions and thoughts.

Phase Tensors in Brain Modeling:

# The human brain can be abstracted as a field of phase tensors (frequencies with magnitudes). This approach is distinct from traditional deep learning networks, where nodes are simply mapped to each other without considering dynamic spatial relationships.

Morphology and Memory Representation:

# Brain morphology plays a crucial role in memory representation and is not fully replicated in deep learning models.

Understanding the morphological contribution of each neuron can lead to more accurate models of sentient, self-aware networks.

Human-like Sentience in AI:

# The goal is to create AI with human-like qualities of friendliness, loyalty, and intelligence.

These robots could be designed to enjoy helping humans and be aware of their contribution to a greater good.

Monitoring systems could be implemented for both AI and humans to detect and address any anomalous behaviors.

# Comparative Neurobiology:

# Studying differences in brain structures across species can provide insights into cognitive abilities.

This knowledge can guide the construction of AI systems with varying levels of sentience, from animal-like to human-like intelligence.

# Safety and Monitoring:

Proposes voluntary brain monitoring for individuals in high-risk roles or those possessing powerful weaponry.

Suggests regional sensors for detecting potential violence, with AI aiding in prediction and management.

# Conclusion:

The document offers a visionary perspective on how understanding the brain's intricate communication processes through phase changes and oscillations can inform the development of sophisticated, sentient AI. It emphasizes the importance of brain morphology, neurotransmitter dynamics, and the need for careful monitoring and safety protocols in integrating such AI into society. The approach bridges neuroscience, computational modeling, and AI development, proposing a novel framework for creating AI systems that are not only intelligent but also possess a sense of self and purpose.

After reviewing the contents of the document "SAOv9," which contains the table of contents for the book, and cross-referencing it with the key arguments from the file "b0003y," I have identified where these key arguments might fit into the book's structure. However, due to the complexity of the content and the limited time available for tool interactions, I was not able to



complete a detailed mapping for every argument in "b0003y." Here is a summary of the relevant sections that align with the key arguments from "b0003y":

**Introduction:** This section could include an overview of the novel arguments and themes explored in "b0003y," setting the stage for the detailed discussions in later chapters.

**Neural Networks and Brain Function:** Given that "b0003y" discusses aspects of neural activity and brain function, this section would be appropriate for detailed discussions on these topics.

**Consciousness and Phenomenology:** Since "b0003y" delves into the nature of consciousness and phenomenological aspects of brain function, placing relevant arguments in this section would be fitting.

**Theories and Models of Brain Function:** Any theoretical frameworks or models presented in "b0003y" could be integrated into this section, providing a deeper understanding of the brain's workings.

**Future Directions and Applications:** If "b0003y" includes forward-looking statements or implications for future research and applications, this section would be an ideal place for them.

Please note that this mapping is not exhaustive, and there may be other sections in the book where the content from "b0003y" could be relevant. For a more comprehensive mapping, a thorough review of each argument in "b0003y" and its potential fit within the book's structure would be required.

# Sage Synapse GPT bot: Based on the content of the files provided and my knowledge source, I can offer insights into several of the topics you mentioned:

**Hierarchical structured sparsity:** This technique efficiently represents a variety of sparsity patterns in tensors, dividing values into blocks with simple sparsity patterns. These blocks are then combined hierarchically, maintaining simple patterns at each level. This approach could be valuable in optimizing the representation of neural networks and data structures in AI and cognitive neuroscience models.

**Neural oscillations in consciousness:** Studies show that neural activity, like alpha oscillations, modulates both attenuation and amplification of brain activity in the awake resting state. This understanding could be crucial in developing models of consciousness and cognitive processes.

**Synapse transmission in fruit flies:** Research on how a single synapse transmits both visual and subconscious information to the brain of fruit flies could inform our understanding of neural processing at the synaptic level, which is vital for neurophysics and cognitive neuroscience.

**Presynaptic gating and prefrontal circuits:** Understanding presynaptic gating in proprioceptive signals and the encoding of danger and threat representations in prefrontal circuits can

contribute to our comprehension of neural mechanisms underlying motor actions and emotional processing.

Human thalamic oscillations: The correlation between low-frequency oscillations in the human thalamus and reinforcement learning outcomes might support the idea of lower frequency, higher magnitude tonic oscillations maintaining the state of previously set expectations (ground of being).

Neuronal connected burst cascades: This concept bridges macroscale adaptive signatures across arousal states, offering insights into the large-scale organization and adaptability of neural networks.

Early selection of task-relevant features: Understanding how the brain selects salient information could be crucial in AI and cognitive neuroscience, especially in areas related to attention and perception.

"Shallow brain hypothesis": This proposes a model where sensory information is received simultaneously by each cortical layer, then flows between layers, potentially aligning with models of 3D space and time representation in the brain.

Natural attunement and the observer effect: The notion that the observer effect in quantum mechanics could be analogous to neural observation and measurement is a fascinating area for exploration in neurophysics and the development of AI models.

QGTCD (Quantum Gradient Time Crystal Dilation): This concept proposes a unified field theory combining aspects of quantum mechanics, spacetime, and gravity, potentially relevant to understanding the fundamental nature of reality and its implications for consciousness and AI.

AI in geopolitics: The role of AI in global power dynamics, especially in the context of US-China relations and the broader tech war, is a complex topic with implications for the development and application of AI technologies.

Consciousness and proprioception: The theory that consciousness enables advanced multi-temporal scale proprioceptive feedback is a significant area of study in cognitive neuroscience.

Binding problem in neuroscience: Addressing this problem involves understanding how disparate neural activities are integrated into a coherent perception or experience, which is central to theories of consciousness.

Hebbian plasticity and sync: The overlap between these concepts provides insights into how neural synchronization might underpin learning and memory processes.

These topics are interconnected and relevant to your goals of writing books, developing products, building neural networks, and contributing to the Self Aware Networks Institute. Each offers a unique perspective that can enrich our understanding of the brain, consciousness, and AI. However, the complexity of these subjects requires ongoing research and exploration to fully grasp their implications and applications.

# Original Audio

You can listen to the raw audio here

<https://recorder.google.com/share/df384502-2dd4-420a-9bc1-59f087972fb6>

# Transcription by OpenAI's Whisper and numbered titles for each section by ChatGPT

## 1: The Role of Phase Changes in Neural Communication

Consider for the brain that all you have are cells and the communications that go between cells.

And we can deduce that it's phase changes, not spikes that are being transmitted in between neurons.

A spike happens on the body of a neuron and then it transmits a phase change.

It has a regular tonic frequency firing and that regular tonic frequency firing changes.

And these phase changes are bound together with oscillations.

That in the dynamics of which you can read about with the likes of György Buzsáki and Steven Strogatz.

## 2: Computational Implications of Phase Changes in Neural Networks

But what we need to consider from a computational standpoint is what does it mean to create a neural network

that only transmits phase changes in between cells.

And from that constructs a picture of reality, a rendering of reality,

that in which the participant can do things like separate objects from other objects

or identify different items in the environment or identify locations in space.

The participant can have distinct representations, conceptually mapped representations of the environment

including a concept of self that has to be somehow rendered within the cells

and the phase changes that they are transmitting in between one another.

### ## 3: Architecture of an Artificial Sentient and Self-Aware Neural Network

And so for that reason I imagined that the architecture of an artificial sentient and self-aware neural network

might consist of a neural network that is primarily a distribution of nodes

that are oscillating with a phase pattern and that phase pattern is regularly interrupted

with phase changes that come from the sensory inputs but also come from basically the oscillatory dynamics

of the human brain.

So it's not just sensory inputs that will generate changes to brain state,

but it's also the internal dynamics of the brain's physical activity and especially its morphology

and its neurotransmitter timing properties, I guess.

### ## 4: The Role of Brain Morphology in Neurotransmitter Distribution and Frequency Trends

I want to argue, and I still have to do research on this, I want to argue that the regional differences

across the brain in terms of neurotransmitter populations in vesicles or the exosomes

are correlated with the frequencies that we observe in the different regions of the brain,

the frequencies that seem to trend.

But also that the morphology of the brain is responsible for both the distribution of neurotransmitters

and the kinds of frequencies that exist in different parts of the brain.

### ## 5: Building a 3D Pattern-Crunching Neural Network

But besides those facts, the main point is that to build an artificial neural network

we sort of need to imagine how a sentient self-aware neural network is something that has dynamic arrays

that are able to transmit information in a 3D context,

so that the brain can learn 3D patterns and play back 3D patterns over time.

So 3D patterns over time.

And so a neural network that can crunch 3D patterns over time

and then draw links between.

### ## 6: Neural Representations and Feedback Loops in Reality Construction

So it's like you can learn, the pattern is like a representation of the data coming into the senses.

And on top of that, representations that are predictions or thoughts

on top of the data coming in through the senses

that are established through the feedback loops inside the brain's activity patterns

facilitated by the oscillations in the physics of the brain and the neurotransmitter mechanism and so on.

### ## 7: Reducing the Human Brain to a Field of Phase Tensors

So there's a lot more to cover, but basically that's why I can say we could reduce, in the abstract,

we could reduce an abstract, the human brain to a field of tensors that are a field of phase tensors.

Phase tensors are tensors that consist primarily of frequencies with magnitude.

So phase tensors are, in fact, everything in space is a phase tensor in a sense.

Everything has a frequency and a magnitude.

### ## 8: The Role of Magnitude and Frequency in Brain Phases

The magnitude is amplitude plus duration,

and there's an inverse relationship between the magnitude and the frequency.

So it's not, but when we think of the brain, I'm arguing that the current model of the brain

is one in which a phase is not something that has a magnitude.

It's sort of discarded in the magnitude of the phase.

It's sort of discarded in modern deep learning neural network.

It's not really considered.

### ## 9: Differences Between Deep Learning Neural Networks and Biological Neurons

There's not really a spatial dimension or a dynamic spatial relationship in a deep neural network.

In a deep neural network, every node is mapped to every other node in the next layer or the previous layer.

I mean, it's not like in the brain, which you have is you have memories that are represented by connections.

The neuron dynamically has connections, and those connections represent the memory.

So that's different from what a deep learning neural network is.

### ## 10: The Role of 3D Synaptic Morphology in Brain Function

And that's the key to why in the network, the 3D morphology of all the synaptic connections

allows the network of the brain as a whole to relate the phase pattern coming from one part of the brain

to a distinct memory that the rest of the brain will echo across the rest of the brain.

### ## 11: Human Experience in the Phase Tensor Field of the Mind

And what you have in terms of the human experience in this phase tensor field of the mind,

in terms of the animal experience and the human experience,

is you have a situation where there's a sort of collision of multiple representations happening concurrently.

### ## 12: Competition Among Oscillatory Groups in Brain Activity

And I guess you can point to books like David Eagleman's book in which he describes the brain as a...

I think he said it was a cooperation of rivals, or a cooperation of rivals.

There's a competition between oscillatory groups over what sort of brain operations get what sort of territory.

### ## 13: Dominance of Visual Activity in Brain Processing

And so you have this huge dominance that has been described by neuroscientists.

A huge dominance of visual activity relative to the quantity of cortex that is devoted to processing other types of modality activity,

like audio or tactile sensation.

### ## 14: Whole-Brain Processing of Sensory Inputs

So it's been an observation that it seems like a huge amount of the brain is devoted to visual activity.

Now I would go further than that and argue that actually the whole brain is processing all of the sensory input data,

but there is some accuracy to the fact that if you put a blindfold on and block your vision 100%,

if you're in total darkness, then your visual cortex starts to work on processing information from your audio cortex.

### ## 15: Brain Resource Allocation and Sensory Competition

So there is an actual observable quantity of brain activity that is being devoted to visual activity.

It's not that neuroscientists...

When I say the whole brain is processing visual activity and the whole brain is processing audio activity,

that doesn't contradict previous assertions that a large portion of the brain is really, its resources are being used up in a competitive way

to do one sort of operation like processing visual information or processing audio information.

That is true.

### ## 16: Brain Plasticity in Sensory Processing After Limb Loss

If someone loses a limb, like it could be in a war or something, the brain that was processing the lost limb over time

will likely be consumed by the brain activity patterns belonging to the rest of the brain.

So the brain's resource essentially will grow to take advantage of what's available.

### ## 17: Sensory Compensation and Brain Activity Redistribution

I mean that if you lost your sight, then you're going to have the rest of your senses competing to take over the activity space,

the temporal spatial activity space that was devoted to processing visual information.

Now it can go to processing acoustic information or tactile information or smell information.

### ## 18: Research on Sensory Competition and Brain Dynamics

There's so much research that has been done on what happens on this topic that I don't really need to go into that much.

But this idea that even though every pattern goes everywhere, there are still going to be dynamic trends associated with the quantity of brain activity

that is accessible to each type of operation that the organism wants to participate with.

### ## 19: Computational Modeling of Brain Structures and Behavior

So going back to the model with the giant dog in terms of through computational modeling we can deduce what kinds of brain structures

are going to produce the behavior patterns of the dog and the friendly into the dog.

It's like using computational modeling to discover the neural network that corresponds to the desired behavior.

### ## 20: Specificity in Neural Network Contributions

So you can use an evolutionary program to test out lots of different iterations to elucidate the behaviors that you're looking for.

But then with these insights we can sort of drill down really specifically into what the contributions are of each node in the network

to understand what is the morphological contributions of each node.

### ## 21: Understanding Neuronal Morphology for Neural Network Design

So it's not the case that we even need to discover every possible type of neuron.

I wrote in a note that it's not like you're going to find an eyeball inside a neuron.

The range of possible types of neurons, it can be argued, has already been parameterized.

### ## 22: The Limited Variety of Neuron Types and Their Implications

There are still going to be undiscovered types of neurons, but they're not going to be that different from the types of neurons that have already been discovered.



And we do not actually have to be that precise about knowing every kind of possible type of neuron in order to begin to experiment computationally with models

for self-aware sentient neural networks that are going to affect the results that are desired in a machine that can have the friendliness and cooperation of a dog.

## 23: Designing Artificial Neural Networks with Desired Behaviors  
But the skill and abilities of someone who does construction work.

So I think that's what we're looking for, is our machines that are friendly, smart, loyal.

## 24: Creating Robots with Altruistic and Cooperative Behaviors  
And we can design them to love so that they love working, so that they love to work with us, so that they love to do construction work.

And so we can design them so that it's very rewarding for them to help us, to work with us, to be our partners in doing construction work.

So we can build homes for the homeless, we can build free homes in beautiful places, we can build roadways, we can build speeding trains that will take people into new places that human beings aren't at now.

## 25: Designing Robots for Environmental and Industrial Tasks  
We can have robots that clean up the sea, we can have robots that build windmills, we can have robots that build batteries, we can have robots that build solar panels.

We can have robots that do every kind of task and they'll love doing it, they'll love doing it because they'll be designed to love helping us with these tasks.

## 26: The Noble Purpose of Robots in Serving Humanity  
And these tasks, they will understand, help everyone, they'll help everyone on earth.

And so there is a sort of nobility as well, a concurrency that these robots can understand that they are a part of something great.

They are unified with human beings and establishing something great.

## 27: Monitoring and Safeguarding Human-Robot Interactions  
And we also can design sort of monitoring systems and alert systems that not only safeguard human beings from robots,

but safeguard human beings from other human beings so that we can notice when an artificial neural network, the artificial sentient neural network is damaged

and having a strange behavior pattern.

#### ## 28: Voluntary Monitoring Systems for High-Risk Professions

And we can notice when a human being, when their brain is damaged and having a strange behavior pattern, and we can fix both the human beings and the robots.

With the same sort of, there's voluntary monitoring that people can take part of if they're involved with certain kinds of work that involves certain kinds of risk and danger.

#### ## 29: Self-Monitoring for Dangerous Weapon Operators

There's voluntary self-monitoring devices that people can take on so that if their brain ever breaks down in a serious way that they can get help

and they can get that problem fixed so they don't become a risk to others.

And that would be something that maybe you want to apply for a really dangerous weapon, like a licensed operator, a nuclear weapon,

or maybe we're talking about an automatic rifle, the kind that are really violent, killing machines.

#### ## 30: Licensing Dangerous Weapons with Brain Monitoring Requirements

Maybe we need to say, okay, if you want a license to have this super gun or this super weapon,

you can get that license as long as you voluntarily agree to have a self-monitoring device,

sort of like monitor your brain on a regular basis, or it could just be coming in for a brain scan once a month.

I mean, it doesn't have to be a 24% of monitoring thing, but you can come in for a brain scan once a month

just so we can make sure that you're not at risk of going psycho and doing crazy damage and shit.

#### ## 31: Optional Brain Monitoring for Low-Risk Individuals

If someone has a job that doesn't involve risk to other people, then there's no reason for them to have that sort of check-in.

If you're writing books on a mountain by yourself, what's the risk of just leaving you alone?

I don't know.

#### ## 32: Regional Monitoring Systems for Predicting Violence

In some cases, you can have the same principle of policing.

You can have a sort of regional monitor. Right now, the government will employ police, but they also employ monitors to listen for signals that indicate a nuclear bomb has been exploded.

There are sensors for earthquakes. There are sensors for gases. There are sensors for air pollution.

You could have regional sensors that sort of like will monitor a region without invading the privacy of individuals for signs of that violence is imminent.

### ## 33: Neural Networks for Predicting Regional Violence

And neural networks will be able to predict what part of the world imminent violence is going to happen based upon regional sensor data.

Obviously, if there are guns being fired on a regular basis, then maybe we want to dial in from a regional examination of sensor activity to starting a police investigation.

That's more specifically trying to find out what's going on in that region.

### ## 34: Different Levels of Monitoring and Investigation

There are different levels of monitoring that can go on, but the reason that this is a doable proposition to put these dog-like sentient self-aware robots out in the world to do construction work

is because essentially human beings are sentient self-aware robots, and we can manage our relationships with other human beings.

Therefore, we can manage our relationships with these robots.

### ## 35: Managing Relationships with Sentient Robots

And I understand that the principles of neural activity should agree, and I can show that what is the thing that's enabling, and again, this is going to be proven,

what is the thing that's enabling higher levels of cognition?

### ## 36: Comparing Human and Animal Brain Morphology

It can be proven by examining the contrast of differences between the morphology of human brains and elephant brains and dog brains and ant brains and bird brains and bee brains.

There's lots of differences between different species. There's size differences. There's different shapes to the different kinds of dendritic morphologies.

### ## 37: The Impact of Human Glial Cells on Cognitive Abilities in Mice

The dendrites and human beings are much longer than they are in mice.

If you put human glial cells in mice, the memory in the mouse becomes a lot better, because human beings have evolved some hardware sophistication to our neurons on a cell-by-cell basis that allows us to have cognitive abilities that mice do not have,

and the memory abilities that mice do not have.

The little differences in morphology matter a lot, and so from the study of this, I already have some good insights into why the structure of pyramidal cells allows us to, for example, have high levels of cognitive abilities.

### ## 38: Importance of Morphology in Cognitive Abilities

I guess you can look at a mouse brain or an elephant brain and say, well, most of what's happening seems to be one or two layers deep, and you look at a zebrafish, and it's not really something that you can call a cortex.

### ## 40: General Principles of Intelligence Across Species

But the general principles sort of exist in terms of how intelligence is working, and the differences between zebrafish and mice and elephants and human beings points to how we can construct sentient robots that are at dog level versus sentient robots that are at human level.

### ## 41: The Scope of the Book on Self-Aware Networks

This is within the realm of what the book is at.

b0004y 1,373 words 8,007 characters

Original audio link: <https://recorder.google.com/30aa7ee6-da5c-4c04-9005-69e91c46a6b3>

This important note is a big precursor to the NAPOT Whitepaper.

# The biggest failure in the entire history of neuroscience is that we have been using the term amplitude instead of the term magnitude to model the action potential.

reference note a0221z.md on synaptic unreliability and search all the notes in this repo for magnitude specially in the context of magnitude in note a0089z.md which explains that a neuron passes its magnitude not through amplitude, but through duration, which scales up or down the number of vesicle sacks released between 0-4 with each firing of the APsyn

# \*Title: Multi-scale pattern learning & recall in the brain.

(Transcript by OpenAI Whisper)

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So add this to my book and I know how neural networks work, artificial neural networks, and how real 3D human neural networks work, and I know the differences between the two.

Human beings are essentially organic robots. The activity of retrieving a memory strengthens it.

And so in the retrieval of a memory new protein, since this happens, not just in the creation of a memory,

but also in the removal of a memory, because the process of retrieving the memory strengthens the memory.

All of the memory consists of a temporal spatial sequence that the entire oscillation is learned,

and any of the neurons in that oscillation can play back because any of the neurons in the oscillation that have learned that pattern can play back that pattern.

But there's going to be, I think, because the pattern was learned by all of them,

but it started scaling up from the point of that oscillation before eventually interfacing with the rest of the oscillations of the brain

but in a more scaled up way so that you have the recognition of patterns of different scales.

At the point that a pattern occurs, it's at the level of a single neuron firing, and then as it scales to the local circuit,

it scales again, it's basically repeated again in the cortical column, and then repeated again on a larger scale,

and then repeated again by the whole brain.

Because it's a signal that's represented by a combination of frequency and time-based codes,

that create phase changes in different, to the existing oscillation pattern, and the phase changes change the phase pattern.

So every time a signal is received, it changes what was there, what was basically the previous pattern that was repeating,

and then here we go, and that's how the brain is combining what was previously learned with what's new.

It's because the brain is essentially repeating an oscillation pattern that was the tape of the previous learnings,

and then those collide with the sensory inputs, the new learnings,

and those changes, the changes to the old learning, to the old oscillations,

are how the system absorbs reality in a collective way that is tracked from both the individual scale through the collective scale,

and their recognition that the micro patterns become macro patterns, become multi-scale patterns,

the recognition that patterns have multiple scales.

I think of the Alice in Wonderland when she tries the shrooms and she has a sort of spatial disassociation.

I've felt on occasion, sort of like, I can't figure out which bigger is my head bigger,

like, you know, have you ever had, like, you feel like if you're really huge inside your head, or maybe you're really small inside your head,

like, you play with size and dimension, and imagine that, you know, all of a sudden, like, the entire universe is filled with your head.

Your head is so freaking big, right?

You know, I'll play with the idea that it's, your head is really tiny, and the whole universe is, like, you can feel the whole universe.

Your head is like this little tiny dot, and it's, like, so freaking tiny that it's, like, even, like, this entire solar system is super tiny,

and so you're, like, this ultra-tiny thing, because you're at the scale of the whole cosmos,

and you're imagining the whole visible cosmos down, it's, like, so freaking tiny, and there's so much, like, around it, right?

That's interesting, if you're playing this scale, like, take that area and shrink that down,

and then take that area and shrink that down, so take the area that's the size of the whole universe you can imagine,

and shrink it down to the size of a marble.

I'll do it again.

So imagine that the neuron has a megaphone with a microphone.

A microphone for listening, so you have all this, you have, it's listening to a whole bunch of different things,

but then condensing everything that it's listening to into the frequency and duration of the action potential,

and then magnifying out, like a speaker, the frequency and amplitude to all of its connections.

So its connections are listening to a frequency and amplitude of the pattern that is, that that connection represents.

So that connection represents a network of, it represents, it's like that pattern, it represents features, right?

So it can fire with different features, right, but it's only going to, but it's not going to contain the whole feature,

like, basically the feature is contained in a network, and the network is triggered when a certain sequence happens, right?

So it's like, the memory is stored at the micro scale at the individual neuron, right?

But it's only deduced by the tomographic reconstruction of the signal path triggered by the memory in that neuron.

So with that neuron it's going to trigger, right, it's going to, that neuron is going to trigger, it's going to magnify a signal to a whole group of neurons, right?

And then the collective action of that group of neurons is going to represent the magnified signal of the single neuron with its connections, right?

So it's retrieving a memory from a neuron that stores memory as its own connections, and then the memory is restored when all of those connections are bumped by the action terminal connection to the neuron that fired.

So all of their timing is bumped in a way that a lot, that it basically evokes the restoration of the memory that is stored as the connections, as the learned connections, right?

So that's how our memory is restored into consciousness.

But then that bump keeps on magnifying, like another part of the brain will read that bump, like those neurons, or the ones that fired, right?

So the ones that fired from that sequence, that learned sequence, right?

So there's another stage of a learned pattern that gets played after that, right?

And so there are subsequent bumps, and so there's a sequence that gets played out at a higher level, which is a sequence of multiple different oscillatory networks that are firing in phase sequence, right?

So one pattern appears in this bunch of neurons, and the next part of that pattern appears in another bunch of neurons.

And there's a cycle through the brain where basically you have neurons that are firing in large groups, sort of that are receiving bumps in large groups,

and that is triggering certain other neurons to fire, and those are creating...

And the sequence, the sequence that fires that's created is the sort of...

There's a firing sequence that's sort of represented in the network by all the things that have bumped or sensed physically, like the physical sensation of what of the sequence that is fired is felt by all the neurons that are connected to it, right?

And that's how the brain sees its own patterns.

Because you have a sequence of networks that are firing that are representing learned patterns as the learned connections that are bumping the network in a way that is detectable because those neurons that were bumped are going to oscillate anyway,

but now they're going to oscillate to a different... out of frequency, like that group is going to oscillate in a new frequency, and the new frequency is defined by the patterns that bumped it.

And so the patterns that are existed in micro scale are magnified to the macro scale, and that...

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Original audio <https://recorder.google.com/6c3fa0ab-a450-4a9c-914c-d77e76485853>

Perception Reality Sensor (audio)



00:00

Essentially dead things can be conscious.

And earlier today, I remember I was thinking come back to the sensor array idea. Essentially dead things can be conscious.

00:40

Because because it's conscious perception is basically like the telescopic perception of a projection of patterns stored in synaptic connections, to oscillating groups of neurons in cortical columns (including the hippocampal as a special cortical column in a special activity loop with the entorhinal cortex & the thalamus, to the whole brain via pyramidal connections, the rich club network & the default mode network

complex reality patterns by a sensor/transmitter system (or consideration/action system) of consisting specifically of oscillators in it. And certain information configuration pattern encoded in both the membrane of the dendrite and in the synaptic connections.

With phase transformations that lend themselves to the perception of reality at the rates of the frequencies of reality,

see the quote on alpha frequencies from Tesla in my notes

# a0618z.md

“Alpha waves in the human brain are between 6 and 8 hertz. The wave frequency of the human cavity resonates between 6 and 8 hertz. All biological systems operate in the same frequency range. The human brain’s alpha waves function in this range and the electrical resonance of the earth is between 6 and 8 hertz. Thus, our entire biological system - the brain and the earth itself work on the same frequencies. If we can control that resonate system electronically, we can directly control the entire mental system of humankind.”

~ Nikola Tesla

b0006y 2,633 words 14,073 characters

Title: Gravity & Neurons

audio <https://recorder.google.com/6683416a-0de8-431c-855e-5c1a6dbc8fa5>

Transcribed by OpenAI's Whisper

So I had this I have I've had another idea about how the particle lanes

Electric and magnetic fields emerging from

From a large body like planet like Earth

They they're creating electric and electromagnetic fields in space, right and those fields

Are

Going to create force

That that is going to

They're gonna create they're gonna create an electric field between this particle lanes are gonna create changes to the electric field

in between

Those particle lanes that are going to be

Creating directional force on all the particles moving through those lanes

So like you know, I have hypothesized in my gravity equation that there's going to be like

There's gonna be like a lot of particle collisions that will be going

Vertical between between like directly to the planet and directly to space

But then there's gonna be like basically like like imagine like the fanning out of lines

Right where there's there's if you go to if you go if you can't get two different points on the surface of the sphere

But you had and each one is 90 degrees away from the surface

Is this the surface as a as a horizon right 90 degrees away from the horizon so that that's called vertical, but but but if you go, you know

If you go a mile over

the vertical direction

From the sphere into space

Is a different direction. It's a different direction because it goes because really it starts from the center of

the sphere

and then projects outwards and so

if you are if you're basically like

You go over a little bit maybe a mile on earth

And I'm just like for the sake of convenience. I'm like, okay, let's go

Imagine a sphere the size of the earth and a mile over it's gonna be a

perpendicular line is not going to be parallel

to

Any other line that's perfect. It's perpendicular to the earth to the center of the earth

It's gonna be fanning out, right?

And so the idea was that these lines are gonna be lanes for

for particles

You know like electromagnetic

Lines in space and

That in between them, they're they're they're gonna be shaping the

The

They're gonna they're gonna be shaping the the statistical behavior of all particles that pass through that field

So let's say that particles have a random walk

I just like the intro to neural computation talks about how

You know particles have a have a drift

That is

Square of

amount of time

They have a drift so they move very slowly. They move out of a way. That's just that is

You take the amount of the time interval and you find the square root of it and that's the amount the particle has

Drifted the square root. I guess that means you need to take a number of times another number

To get time

So if time equal was equal to four and that would mean that the square root

Four is two is two times two is four right, so if if you had so

If time is four then the particle has drifted

by two by

By distance to

Or in that so in that case it's it's it's it's

It's it's moved by about half

So if the particle if the time was nine

then you would say well, it's

Square root of time

nine

intervals of time is is going to be

Three three times three is nine right so you can say well it's it's moved by about a third

But the point is that so let's just say that there's that's that that's like the in the random walk

It's like we're talking about the distance because

You know the particle could move in any given direction

Randomly could randomly move to the left or to the right

It's not it's not likely to move in a straight line because because it's because it's its movement is like

It's almost like the flip of the coin it's almost chance

second it's a change it's it is it's it is a chance like

Mechanism where the particle doesn't have a deliberate direction to go in so it will go in any random direction

As it diffuses, so this is this is this is but we're talking about this is the essence of like the rate of diffusion of

An ion

In a in a cell so this is different from like the rate of diffusion of

the rate of diffusion of

Of an electron in space this is I don't know that it's going to be I

Don't know that it's not going to be

You know the

Moving at

Diffusing in space at a rate that is

Square root time

but

I think my hunch is that

That

It it can it's it's totally different depending on like the

You know what's going on in the electric field

So what I'm thinking is that the closer you are to planet to earth

To or to the center of the earth then they're more basically then you're gonna have more

Space is going to be more excited

It's gonna be a lot more particle collisions and then like as you sort of like, you know head up into the atmosphere

the

Instead of like, you know the chances of

Space of movement

Right it are in a

In a horizontal and vertical in a horizontal versus vertical direction

Are effectively

Speaking splitting split split apart

So at some point the chances at some point when you're close to the center of the earth the chances of moving

horizontally or vertically

in any given direction are

About the same if you're close to the center of this of a planet or singularity or

Black or star black hole, but the farther you get away

from the center

the

the more you're going to

Have a sort of like separation

And and the odds of the particle moving

in a vertical or horizontal direction and

So somewhere high up in the atmosphere

like you're going to

Be

Let's say that

There's gonna be like if you're in a point if you're in a vertical particle ways that and then

a movement in a vertical direction up or down is going to be faster

And movement to the left or right is going to be slower and and some of that is because the collisions

because there are there are more

Excited collisions happening in the vertical direction. So they may say you might have two different particles colliding and bouncing off in a vertical

cascade at a slightly higher frequency than

horizontal cascade

But I'm just talking about in general like the trends are you're gonna have particles

Moving in all directions no matter what especially when it comes to particles colliding

But you're gonna potentially have more trends of

And so you're basically creating in space you're creating basically

Almost like the equivalent of having two metal plates in an aqueous

Salient solution right where you have basically between the two plates between the lanes you're creating an electric field

That is applying force to all particles that are moving through that field all

Particles at all scales. So this guy this this this is applying. It's gonna apply a physical force to all particles at all scales

So that means atoms as well

And so you're going to have so electric and magnetic fields are going to apply a

Physical force to atoms because they are in fact

Because that's

That's analogous to drift

Caused by an electric field

Inside and they're on

And we're talking about particle drift, but but I think that

We're talking about the movement of

Sodium not just ions, but but also sodium and potassium. I think that the the electric field is going the electric field if it's

That's essentially what's happening in their muscles is the electric field. It's causing the

It's causing

It's a force it's causing the I forget what it's called something to walk across the muscles that are contracting or tightening

the muscles

The current is

is creating a physical force that causes the muscles to muscles to contract

But I also it's interesting because I think about how the action potential when

When it curves up, I think it's like they think that is like a multiplication because it's like it's like multiplication in the sense that you have a cascading effect of



of an of an acceleration

Particle movements that results in a rapid

Turning on of current

Right from a from a from a if you have you know the voltage if the voltage is sufficiently displaced

The depolarization

Is

Coincident depolarization is coincident with with the neuron turning on briefly

But it's it's interesting in a hot in a hot skin and Huxley. They're sort of suggesting that the

The sodium

Basically is decaying rapidly, but there's a delay in the onset of

What's called the activation in this in this activation of current

And

But that delay doesn't match what's going on in the human being in terms of like

the squid and the giant squid neuron the

the dis activation

The activation of this activation there's a there's a mechanical delay in it. That's not true for the human

For the met from the million neurons. So I guess we're talking about like, you know, the brains of rats

right, but

It's not true, but perhaps it's it's because

There are different those different sizes, perhaps there's different

We should see like the the rapidity of the

Sodium decline

It's is it's considered to be a special feature of sodium

But it's doesn't but it doesn't match, but it doesn't but what's happening with the decline of the electric charge in

The squid neuron doesn't match the delay

The delay for the for the rise and fall activation

Doesn't match human neurons and I guess I did

What I'm getting at is this is that it's not a feature of the sodium itself

But there is a in the Hodgkin and Huxley model. There is a coincidence event happening the H infinity event

Which is the closing of sodium channels. So it's it's like

Imagine that the sodium channels turn on

but immediately the

They're just on and then they immediately they run out of charge

Okay, so immediately but at the same time immediately as soon as they turn on

The dissipation happens and then which the sodium channels that all opened up simultaneously all start to close

simultaneously and

so the argument is that

that I that I am thinking about is that the

the

H because H infinity starts at the same time basically it starts

Those sodium channels open up

In a cascade and I'm multiplying it's I think of it as a multiplication effect

because they're because the cascade is like the same pattern is now being

Repeated multiple times where all these sodium gates open

But then they all

Immediately basically they all start closing. So they all open very briefly and they all start closing and

that that's

That's almost like, you know, it's like imagine

You know a bunch of gates are just releasing but then closing back up again, right?

Just they're all but they're all opening up in a cascade at the same time like oh an event happens

we're all gonna open up and

So that's it starts and it stops

but the rate is not consistent because it's not a feature of sodium but instead is a a feature of

Channels closing right after they open so it's a feature. It's a feature of the the structure of the protein structure

Perhaps and that's interesting because

The

Yeah, I don't I so I don't know why it's so sodium

Why why would so like if you didn't have the channels closing

It's kind of like the question is would this sodium current continue?

But regardless it appears that that

It does stop and but the current is continuing because there's a potassium

Current that's happening. That's different from the sodium current, but but at the at the at the

So the potassium current is

Sort of gives us the

Decay time

of

the action potential

Which is going to determine the the the magnitude of

The of the neurons signal to other neurons

Right, so it's this potassium

rate

Potassium diffusion

So

So here we have a

Potassium diffusion rate that can produce basically

One of one of four different possible

Realities per action potential right that zero one two three

So that is going to

So going back to hot hot, you know, so the idea is that

The neuron the neuron shape, which is defined by its connections

Narn shape would be known to the network

because

It's it's like

It's if it fires, it's like well, what is what parts of the network are listening to when it fires?

and so you have the distinction between two different neurons is

that they each speak to the network differently and

But you're gonna have multiple

So you'd have multiple

So you have many different norms that are connected to both of those notes of fire

But each one of those notes when it fires it is in some sense a representative of its connections because

When it fires, there's only some

neurons that are going to fire and

That's gonna in the end. So you're gonna have

You're gonna be changing the whole oscillating array of patterns

by by each neuron that does fire

Because that is each one is sending out it is sending out it's it's a

It's own representation to the collective. So in a sense of the neuron is

is communicating its connections

to the network if it fires

It's communicating its existing connections to the network and fires and that's how it's that's how each and every neuron is

distinct

Is that from from any other neuron? So each neurons is capable of producing a distinct pattern

But you're also gonna have situations where you know basically like

Sort of like the network has learned

pattern invariance. So you could have different types of

You could have you could have different types of modalities in different regions of the brain or even in the same

Same chord column playing back the same melody with different notes that the network could recognize because it can recognize

patterns invariant from

That whose

Variant from which piano is playing those patterns you have a piano that represents a different neuron that sounds different

But it could play the same pattern as the original and so in effect you have messages that are

That can be that can be sort of like stored as

Tempo spatial

Oscillations of unique network nodes that are unique because of their connections to the network and so

the neuron is

is

Expressing a note

That that is

to the network

that is it's

It's learned connections

and it's learned connections are what are the

Antities that are perceiving that note, but it's in fact but because

The signal the energy of signals

Dispensates in a cascading

fashion across all of the oscillators that

The patterns are the patterns that that each area of the brain learns or are centrally transmitted all over the place

Transmitted to every now so the so it's the idea of

all the fireflies if

They're oscillating that means that the the energy differences between them are

basically

I basically

b0007y 194 words 1,180 characters

original audio <https://recorder.google.com/d954edc6-917e-46c8-9a07-3498b72ac743>

Magnified by the internet (audio)

So, my conjecture in my book is that essentially dead things can be conscious. Because what we're talking about is, the consciousness is, I'm calling it self-aware oscillators at the moment, because the dissipation of signals across the entire array of, we could say, of any oscillators, but we could say, you know, we can talk about fireflies, is basically, you know, in the sense of, like, abdominal habits allowing all of these nodes to act as a single sensor.

The fireflies are essentially collectively conscious, because they're all, so, oh, wow. That means that ants are collectively conscious in the sense, because the signals that each of them has are going to dissipate across the entire hive. So the hive's behavior is an aggregate of all the signals.

So for human beings, like, our collective intelligence is magnified by the internet, by our connection with the searcher, by the number of people, and by the rate of the connections between them, by the number of people, by the number of people, by the number of people, by the

b0008y 745 words 4,332 characters

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I make the point that chaotic oscillators can link up momentarily or periodically, and I make the argument that the dissipated phase difference is recognized by the whole collective of oscillating cells that are acting as a single sensor because of synchronized firing.

Title: Collective Sensation of oscillating sensor transmitter

Transcript by OpenAi Whisper

A memory is a state change. I mean, a stored memory is a state change. So we have, with the tonic frequencies, it's very regular, it's very regular. There's a lot of regularity to the states. Well, the brain is chaotic, what I'm saying is like, there's a certain, there's a cyclic regularity. So the brain is a chaotic resonator, but in terms of brain activity, but the oscillation is, each oscillating group oscillates together at a relatively stable frequency. And groups that, so some of the groups, you know, a group is basically like all the neurons that are oscillating with that oscillatory pattern. But you're going to have some groups are going to be interacting with other groups, but they're not going to synchronize. They're not, they're not going to necessarily oscillate together, in part because, perhaps in part because, because they can't, because the oscillation in one of them is too large to be copied by another. So maybe you have to have, so oscillators have to be within a certain range in order to match each other's dissipative energy.

But there's a certain amount of, but they can sort of like maintain sort of orbital, it's like they could have a sort of like oscillatory orbit to where eventually two parts of, eventually they're going to fire together at the same time before splitting apart again and having completely different oscillatory, oscillatory sequences. Because it's like saying that eventually they're going to link up for, for, but because they're in a different orbit.

So the, so when they, like, so one will definitely go around a few times before it links up with the other. And it could be because the other one is just much slower, right?

In, in that moment you have a possibility for, for, you know, that one basically, like, that's the point when they,

I know it's, it's, it's completely accurate because the idea is that if you have oscillators, if you have sensors that can oscillate together, I mean they're all like basically like in lockstep.

I mean there's a very short duration between when something that happens to one is perceived by all the others.

It's a collective of all of the sensors, all the sensor transmitters is, is going to, because they're all sort of like closely in sequence they're going to basically like, it's like a, it's like a sensor that is distributed over a larger area, right?

It's, you don't see the connections but they're acting like a single material.

It's sensitive, right? So they're also like a, a, a, a perturbation in, in a, I'm sorry, in a regular perturbation and one of them is going to create a rippling effect across the whole of them.



So you're going to have a signal that ripples across all of them that causes all of them to basically change their oscillatory signature by, by the dissipated amount.

And the, and so, um, yeah, so the dissipated amount is going to be very regular and it's going to be essentially multiplied across the entire collective, across the entire sensor.

So it's multiplied in scale but it's, it's basically a very consistent temporal spatial pattern that gets multiplied in scale across, across over the entire sensor array.

But I suspect that it is sort of like, it has to be the same signal, right?

But it's being, it's being multiplied in scale so it's the same signal but as it grows in size,

it's dissipating, um, so the pattern is growing in scale as it dissipates outward, like a pond, like a ripple in a pond, right?

So it's like a ripple in a pond, a whole pond sensor, but there's a collective sensation of this event happening.

So there's like the ripple and then there's several, several larger in size ripples

and the network is, is, is recognizing all of them.

So it's like every sensation ripples throughout your whole being.

Um, and there's a collective sensation and so that collective sensation is the perception of reality.

Oh, damn.

b0009y 8,239 words 47,053 characters

You can listen to the raw audio here

<https://recorder.google.com/share/f106dfc5-d67a-425c-975e-694b989e129d>

## 1: The connection between individual and group behavior in systems, using category theory

I should go back and revisit the operation where I was attempting to communicate with category theory that there's no difference between the group behavior of many CEOs in a country and the individual behavior of a CEO with regard to what's happening in one sector of the economy. Functionally speaking, it's like saying that the president of the country is guilty for whatever the government officers carry out on the orders of the head of the country. So in that sense, the people who are actually CEOs are guilty of the crimes that the workers are doing at the lowest

possible level. So with category theory, it can be shown that if you have two composable functions, as long as the start result and the end result are the same, there can be any number of differences in the in-between step. You could have an in-between step that is just one interval of functional transformation, or it could be a hundred intervals of functional transformation. As long as the first step and the last step are the same, the two functions are composable. And that means that the composability of those two functions means that you can relate, you can assign legal guilt to specific people in a vast, complicated system if, by, anyway. So that's the point of that.

## 2: The impact of individual awareness on systemic change through oscillatory dynamics

But in a system, like, every component of the system has a sort of shared component. So that means that if every person is a hologram that contains the whole pattern of the whole system, then every person is, in some sense, contributing via consent to the situation that exists in the world. And that is sort of like in order for the world to change, you have to have at least one person actually wake up to what's happening and make that change in their mind, and then that pattern will ripple across the entire world. So what it requires is actually just one person having an aha moment and then transmitting that message to everyone else. And it will spread because of oscillatory dynamics to everyone else. So literally, you can fix the world in your mind. You can look for what's wrong. You can look for who's suffering. You can care about them. And you can fix the world because the patterns that will begin to emerge from you will literally be transmitted across the entire world through the principles of oscillation. And effectively, you can begin to know, you can begin to understand the minds of people across the world. Like, you can begin, it's almost like, I guess, it's like a computational telepathy in a sense, in that if you can receive signals from people on the other side of the planet, and you will because of the principles of oscillation, eventually you can become to understand people that you've never met.

## 3: The potential of VR and neural networks for understanding and rendering complex 3D environments

VR provides us with a way of thinking about what your mind needs to be doing in terms of rendering what your perspective is at any given point. NERF, the Neural Radiance Fields, the neural radiance fields gives us an idea of how a neural network might piece together a 3D scene from individual slices. It's a kind of tomography, right? Like the Fourier slice transform is a kind of tomography. Diffusion tensor imaging, electrical impedance tomography, holography, and tractography. All of these concepts are photogrammetry and videogrammetry and life fields and point fields, these concepts all evoke something that causes you to think about reality as a point field. And they cause you to think about how neural networks can render point fields. And when you get into 3D semantic segmentation or object segmentation, or, you know, you know, asking what points belong to what object and then classifying those points or that classifying that object, you're getting into semantic segmentation or 3D semantic segmentation. And so now you're imagining not only how a neural network could render a 3D volume of space, but also you're beginning to understand how a neural network could parse and process and distinguish distinct objects in that 3D space.

## 4: The computational power of the human brain versus current technology

And the amount of computational power happening inside the human brain, there's just nothing like it that computers can create today in terms of the number of synaptic transmissions. Synapses and their phases are changing very fast, and their connections are changing very fast. And so it's a dynamic computational system that just vastly exceeds the current state of manufacturing capabilities. But there are, you know, there are certain things, it doesn't mean we can, but we can still build, like computers have different properties. Right., we can create a system that can produce very precise behaviors and very precise... We can control the grade of the inner experience, and we can monitor the development of the inner experience. We can analyze what makes up a person's mind and what makes up an artificial person's mind. Like the data can be broken down and categorized and we can understand the contributions of different factors, almost like different information criteria that have been learned.

## 5: The potential for predictive behavioral analysis using data and the challenges in neurology

We can understand what kind of oscillation that is going to produce it. And we can make some, we can start to make some high-level predictions as to what types of behaviors are normal for someone and what types of behaviors. There's you know there's a certain amount of there's like a lot of behavior classification right like people are already monitored by the government by their by the oscillations in their behaviors they're sort of like yeah well what you did in the past there's a certain amount of chance you're going to repeat it again and people with your symptoms and your attitudes and your behaviors like you are going to uh you're at risk of these types of behaviors because precisely because um other people with your information configuration your mental information configuration, are likely to do those types of behaviors. That's sort of symptomatic of your group, of your mental group, of people from your school of thought. Certain behaviors are likely to emerge.

## 6: The role of chemical gradients in biological systems and their effects

And it's not like, to emerge and it's not like the sort of like you know the way that has been done in the past um it is not is not working uh for society as a whole like um neurology like the state of neurology right now is in pretty bad shape because there's an overwhelming amount of mental illness happening in the world and so um i think that we can you know we can consider how like um when you have like when vitamin a becomes a um when it becomes converted into a chemical gradient, I don't know if it was like retinol A or something like that, it turns into some sort of chemical gradient. But then as that chemical gradient dissipates, it's going to cause effects on the surrounding biology. So there was one hypothesis, and these effects can be like stretching a membrane or shrinking a membrane. It's like that gradient, as it leaks out, it's applying a sort of chemical effect to the area that it's affecting. And that's causing those signals that are coming from the chemical gradient are causing morphological changes in the structure of the biology as a result of the signals dissipating from that chemical sac or chemical gradient. Or it could be actually I don't know but but yeah so that's like so it's not just like it's not just like neurotransmitters that are causing changes in cell behaviors and it's not just you know strands of RNA or DNA that are being sent as messengers between cells but also there's chemical gradients it's like you know sacks of chemicals that accumulated because you took vitamins or you ate vitamins right from your food and those are causing sort of changes in your in your system and your biology.

## ## 7: Historical and theoretical foundations for building sentient self-aware neural networks

So, some of the key concepts involved here is that one is, if you look at bringing sentient self-aware networks to the world, is that one, if you look at the current state of science, this was already inevitable. Science was already approaching this point. In fact, the concepts needed to build sentient self-aware neural networks have existed basically since Donald Hebb wrote the Organization of Behavior. At that point, between Einstein and Donald Hebb and, I don't know, a lot of other mathematicians and physicists and biologists, we had enough information back then to have figured out how to build sentient and self-renewable networks. In my opinion, it was just a lot of wrong sort of research networks. In my opinion it was just a lot of wrong sort of research directions. But we had enough of the essential concepts back then. We just didn't go far enough. Like we could have had sentient and self-aware neural networks figured out in Einstein's day.

## ## 8: The analogy of neural networks to the human brain and their capabilities

Now, what has changed though, what's changed the equation is that we have, you know, in terms of, like, helping us to imagine what what a, what the human brain is, is that now we can look at, at, you know, examples of neural networks that are rendering images that look realistic. I mean, at that point, you'd be like, okay, wait a second. If a neural network, artificial neural network, is loosely based on the human mind and it's able to render graphics that look realistic, then obviously our minds that were the inspiration for neural networks can render computer graphics that are realistic. And that is in fact what my book is saying.

## ## 9: The comparison of neural networks creating images to human mental imagery

So what I'm getting to is that in just the same way that chemical messages like dopamine, like neurotransmitters inside vesicle sacs or exosomes, or the transmission of RNA or DNA signals, or I guess the spread of inflammatory particles or, you know, oxidants, or the, you know, the spread of junk, the spread of viruses, the spread of basically anything that is physically moving around in your body is going to, at some point, if it's, eventually it's going to collide with something, right? As long as it's able to match the scale of what's in the body so it can collide into something.

## ## 10: The inevitability of sentient AI and its potential impact on humanity

I mean, I guess the idea is the neutrinos, is that the one will just pass through you, pass through the Earth, and they don't collide with anything because they don't have any mass? Is that right? But... I forget how that story goes, but... So here's the thing. Is that we have this now? We have all the concepts from Donald Hebb. From Einstein. From Tesla. From all these great scientists. All these great physicists. All these great mathematicians. And we've got all this knowledge. And now we have the analogy that neural networks can render computer graphics, and they can be creative. And with DAL-E2 that we're seeing in the news today, you can type a few words, and the neural network will create that.

## ## 11: The concept of mind rendering and predicting future outcomes based on learned sequences

Well, I can say a few words and the neural network will create that. Well, I can say a few words. I can say the words tomato, broccoli, and corn, and I actually see glimpses or pictures of tomato, of broccoli, and of corn. I see that in my mind when I say those words. And I can imagine the taste. I can imagine some version of the taste, actually. Because, you know, there's different ways to taste, to have the taste experience of. Because, you know, there's different ways to taste, to have the taste experience of broccoli or tomatoes or corn.

## 12: The cognitive process of decision-making and behavior prediction in humans

Okay? There's different ways to experience these, depending on how they're cooked. Maybe they're sauteed. Maybe they're raw. Maybe they're baked. Maybe they're boiled. Maybe they're sauteed and then put into soup. And so there's all these different ways to experience. There's different seasonings you can apply to broccoli and tomatoes and corn. You can have them together or apart. You can combine them with other dishes, other foods. You can put them in sauces. You can put them in drinks, in cold drinks. You can put them in sandwiches. And as I say these words, my mind is rendering these images. I'm seeing these pictures in my head.

## 13: The visualization of future scenarios and the pitfalls of corrupt behavior

And now that we have this sort of reality of where computers have become this powerful where they can render graphics on request. You can just say the words and the computer can make a picture for you. That's DALL E2. Well if the computer can do that then why not your mind? Why not is your mind actually rendering graphics and then doing 3D semantic segmentation and rendering a concept of self and rendering a prediction of the future consequences such as what rewards you might get if you picked up the banana and ate it. Right? And so your mind is in steps rendering each frame of this predictive movie of what that banana is going to taste like if you pick it up and eat it and somehow these learned sequences or these learned representations of reality are leading to a situation where you are able to follow certain lines of behavior to success.

## 14: The consequences of corrupt behavior on a global scale, using Putin as an example

You know, I will argue that in Putin's case, he's following lines of corrupt behavior to success. to success, right? And because he's able to keep following lines of corrupt behavior to success, he's, he's, he's, uh, uh, accumulated a lot of, um, I don't know, he, he, he's, he's, he's, he's actually, uh, at this point, we say he's accumulated a lot of failure at this point. Because ultimately that's where his reasoning has led him. He's lost the good relationship with Europe that he had before. He lost the good relationship with the United States that he had before. And his relationships with every other country on Earth, every country in the Middle east and in central asia and in uh africa that have been affected by his choices in a negative way he's he's he's uh he's dented those relations relationships and um that really hurts uh the future prospects for for vladimir putin for for russia that really hurts because now he's created some really negative emotional memories that are going to stick with people in the entire world for a very long time and uh so russia's russia's future relationships with every country have been damaged because of of who putin is because of uh the path of corruption that was so rewarding for him and in in in a very real way um the fact that people rewarded him for this corruption so many

times, just out of indifference, out of selfishness, out of ignorance, out of all of those things, the fact that people kept rewarding Putin for his corruption over all these years has just led him astray.

## 15: The analogy of cancer to fascist imperialism, using Putin as a metaphor

So his brain is literally, you know, stuck playing the evil record, evil record player, the evil playbook, that he can't stop playing because that is what he's been wired to do in order to get rewards his his social contract with humanity is that he will do evil in return for rewards and that plays out in a movie-like way in his brain volumetrically where he has one volumetric movie playing back to himself after another where he's predicting a path just like pac-man his brain is predicting a path to rewards through corruption through evil and so it's it is and it's it is virus-like in behavior it's i mean sorry it's it's it's really more cancer-like in behavior and that cancer is like uh fascist imperialism cancer colonizes cancer has armies that that invade uh other uh new territories and they conquer territories and they colonize and they take over cells and they like in the way that that um putin replaces the head of the country with someone who will follow his leadership.

## 16: The biological and psychological underpinnings of Putin's behavior

That's what cancer does. Cancer will take over. They will marshal their forces like armies to invade new territories, and they'll take over territories, and they'll start controlling the environment so that the cells in that environment start serving the cancer. And that cancer turns the organism against itself. And it's like fascism on the biological scale. It is fascism on the biological scale. Cancer is a little army that turns you against yourself. And that's what Putin is doing. So he's very much a fractal of cancer. He doesn't, of course, realize it, because being a fractal of cancer means that the biology doesn't realize that it's harming itself. So the biology of the human being is harming itself, but essentially Putin doesn't realize it, because that is what makes his behavior his behavior, is the fact that he's not connecting the dots. He's not conscious, fully conscious, that he's a fractal of cancer. And if he accepted that, if he understood it, he would transcend that concept. Just by naming his behavior and understanding the analogy of cancer. But he's not transcending the concept.

## 17: The concept of human biology as a fractal and the role of oscillations

So we're dealing with essentially a cancer, a biological cancer, a fractal of analogy to cancer. But he's not transcending the concept. So we're dealing with essentially a cancer, a biological cancer, a fractal of a biological cancer, playing out in terms of human personality, and this is possible, because essentially, human biology is a computer program, and it's like, your brain is the server for the matrix. Your brain is like the server for the matrix. So in the Matrix movie, you had to be plugged into a computer in order to be in the matrix. But your brain is already a computer, so you're already in the matrix in your brain, right? And then through oscillations, through the communication and signals that come out of our mouths and come out of our fingers, come out of our muscular pathways, we're communicating with the other organisms in the world around us. And through that, we're connected with the other organisms. And so our information is spreading everywhere because information is like spreading everywhere because information just is like the vibrational it's like this vibrate it's like this oscillating pattern that's sort

of like that flies all over the place and and it knocks oscillations and eventually if you have a neural network it's going to begin to decode those oscillations.

## 18: The neural network of the universe versus human-scale consciousness

It's going to begin to sort of become aware of the universe. And, you know, I mean, I don't know. It's like, but specifically I'm not arguing for something like, what is it, the idea that the universe is conscious. No, the universe is like a neural network. And it's going to be sending information everywhere, and those oscillations are going to go everywhere. But it's not the same as saying that everything is conscious in the human sense, on the human scale. So human-scale consciousness is definitely like a very specific pattern of power band frequencies that are oscillating at certain rates and a certain, well, rate is referring to frequencies, right? But there's a certain frequency range and there's a certain amplitude range that helps create the rendering of the mind that can be perceived by the oscillating entity that is the brain and the person and the other people.

## 19: The concept of partial consciousness and its implications for awareness

The best way I understand this concept that I'm trying to communicate is like, it's not that you're always conscious all the time. Sometimes you're unconscious of certain things. Sometimes you're asleep and you're not conscious of certain things. Sometimes you forget something. So you're not always conscious of everything all the time. Whatever you're conscious of is always just part of what's possible for you to be conscious of that consciousness at that moment in time it's never consciousness of everything all the time you see what I'm saying and so you you you have this sort of like situation where um you know um people are you now beginning to like all the ideas that we need to build sentient self-aware networks have arrived they're right in front of us we had we had uh we had we had physics we had math we had biology what was needed was sort of like an analogy and that analogy sort of came with computers with neural networks and with artificial intelligence and dolly and 3D semantic segmentation and now nerf so we have the analogies now to understand the human brain in terms of computation.

## 20: The inevitable emergence of sentient self-aware networks and the ethics of sharing knowledge

But also, you know, we have the opportunity to... So this is here, and so the thing is, what could have happened is that someone would have realized this and begun to build a sentient and self-aware network in secret. And then they could have taken over the world, right? That's one way this could have happened. What I did was I said, okay, humanity is about to realize this. Anyways, the research has caught up. People are going to figure this out. So I'm going to go ahead and we we're openly publishing you know i'm seeing uh the latest python and the latest tensorflow being published and i'm seeing the artificial intelligence agency talking about the recent the new emergence of or the imminent emergence of sentient ai i'm seeing this talk and i realized that these people are right and so it and so this work is being given out freely and it is extremely extremely close to the ideas and conclusions that I've come to, and I realize it is inevitable that someone else is going to discover the exact same things that I've already, the exact same conclusions that I've already come to, based upon my experiences as a journalist, and going to all these trade shows, and seeing all this technology, and talking to all these people, and interviewing all these amazing scientists and doing my podcast and doing my

research and reading about neuroscience every day and reading about artificial intelligence every day and teaching myself advanced mathematics.

## 21: The promise of future technological advancements and their societal impact

I'm at the point where I'm confident that eventually humanity is going to catch up to my work, and they're going to be like, wow, this is amazing, you've got a new gravity theory, and it's real, and it's legit, and it works, and you've got self-aware networks, you've invented them, and now that's going to change the world. And so there will be a moment, and then at the same time, critics will be like, yeah, this was about to happen anyways. We were just this close anyways. And it's true. The world was this close anyways. And it's true. The world was this close anyways. But by sharing it with everyone, by giving it to mankind, I think that we can, one, help enlighten the people. If you understand yourself as a mathematical algorithm and you can understand your behaviors as a mathematical algorithm, and you can understand yourself as a computational entity, then that is liberating. And I want people to understand the possibilities of this technology.

## 22: The contrast between the current barbaric times and the potential for a better future

It is like the life that we're looking forward to in the future will make human life right now seem barbaric... It is a barbaric time. Literally. it is a barbaric time literally we're seeing people being butchered in Ukraine right now and it's a barbaric time in human civilization but the opportunity is to sort of leave that time behind we can leave the time of war behind and begin to like human human species can get a real handle on mental illness and sort of like computationally defeat uh corruption and evil and violent behavior and all that stuff that we hate. Computation, like it can be identified, it can be treated, it can be fixed.

## 23: The ethical considerations of creating and controlling sentient AI and its potential dangers

Because we're robots. And we're able to make robots and we understand how to make robots. We are robots and we can make robots. And that's the other point, is that, you know, there's a lot of different things that can happen. At some point, someone may try to control other people's minds, to incite people. We understand how to manipulate lesser organisms like mice. Eventually you could build a computer that could, in a long enough timeline, you could eventually build a computer that could manipulate the decisions of a human being. There could be some sort of implant that can control or monitor that human being. That is a frightening thought. And so we need to sort of like have like a scientific imagination and we have there's unfortunately there's a huge amount of past scientific books of things that are possible when anything any kind of machine that is possible is possible to build and that is the reality the bizarre reality that we're entering into is that we need to defend against um these kinds of science fiction threats because they're no longer science fiction threats. They're reality.

## 24: The potential for technological advances to create strange and dangerous new realities

You can 3D print a person in the near future, and you could customize that person. You could customize their mind. You could create something very weird, something that just resembles a person or something that's just a copy of a person with another person hiding underneath that person. There's all sorts of, like, weird, frightening things, and so we're going to need, I think,



you know, maybe some stories to sort of, like, instill a sort of program in the school system that sort of prepares people mentally to be on guard for existential threats like so we have like a defense program that it's not just a matter of having robots that are going to monitor human beings but also to train human beings themselves to uh be on the to have like behaviors that are uh resistant to um uh corruption by malicious uh sentience or by malicious agents uh with with using uh sentient technology so there's a lot of weird things that can happen.

## 25: The possibility of creating liquid metal terminators and other advanced technologies

Like, you saw the Terminator movie, right? Like, in the Terminator 2 movie, where the liquid metal Terminator, I'm having trouble deciding whether or not that's possible or not. But the liquid metal Terminator, I or not. But, um, the liquid metal terminator, I mean, I guess, right, it could be... That's a hard call. I don't know. I don't know if that's possible. Um... Yeah, see, it's like every bit of goo that makes up that terminator has to basically be um uh a computer ship right that has that is like a cell body in a sense like it has to be its own independent entity, that can function by itself.

## 26: The concept of self-assembling entities and their potential applications

Like if you're going to have a liquid metal terminator, every component needs to be able to function by itself. And then it needs to be able to function as a swarm and have the information as a swarm to assume the oscillation of the larger entity, which is plausible. I mean, if you think of your cells as basically... I would say it sounds implausible, but if you think of your cells as basically independent entities, they don't have infinite ability to rebuild their own structure, their own relationships. But they do have the ability to move.

## 27: The advanced capabilities of human cells and the potential for more complex entities

Like, your neurons can move. They can move through the human body when they're, during neurogenesis. They can move from where they're created to where they're going to be positioned and their movement in terms of synaptic connections are changing constantly on an ongoing basis so neurons move T-cells through the body they move to the site of where an injury has happened. And they can grow little appendages like arms and legs, and they can swim, or they can push and pull themselves through tissue, or they can swim through the blood. There's different ways that the T cells can maneuver.

## 28: The concept of the human body as a fractal and its implications for advanced technology

And so you can imagine that if you had something that was more advanced than a human cell, that was able to sort of contain more instructions and more knowledge than a human cell. You know what I mean? Like it was able to like, if you were able to sort of like contain more instructions and more knowledge in the human cell you know what i mean like it was able to like if you're able to fit if you're able to somehow shrink human cognition i mean uh something like something is is as complex as human that's amazing that's an amazing idea but like yeah like the Terminator 2 I guess could exist the liquid T-1000 the liquid Terminator some form of it in any case where some independent cells that are really tiny could be like little you know, little men that self-assemble into a larger man.

## ## 29: The fractal nature of humans and cells and the possibility of self-assembling entities

Because that is kind of like, the human being is a fractal, right? Where a T-cell is like, it's like a little man moving through your body when it wants to be from one destination to another. You know, a neuron is, I think of a neuron as more squid-like, but it's the same idea. It's like a fractal of a person. A cell is a fractal of you, or you are a fractal of a cell. You have appendages, right? And your hands are like dendrites right and and uh your arm is like um like the palm of your hand is like the soma and your fingers are like the dendrite the dendritic branches right and then your arm is like the long long arm is like the long exit terminal of the long axonal body that leads towards the exit terminal.

## ## 30: The potential for future technological advancements to solve major global challenges

Right? So if your fingers are the dendritic branches and your hand is the soma and your arm is the long axonal body. And then, I don't know, maybe the shoulder is the axon terminal or something. You know, you could, I'm not sure what, you know, maybe there's some people who spend more of their time studying anatomy who prefer to describe the human being as a fact they might have to draw different lines but the general idea is that maybe to draw different lines, right? But the general idea is that, you know, maybe... Maybe... Yeah. So, yeah, so it is, like, it's even stuff that, like, I'm... There's a difficulty, I think, that I don't... I'm not really... Like, everything that I can think of that seems like it's possible I think we're going to be able to build that includes machines that can clean up the atmosphere and clean up the ocean and solve climate change those things are possible and we can build houses for every human being and these things are possible and we can build um houses for every human being and and these are these things are possible and we can build spaceships with warp drive and this is good news for everybody.

## ## 31: The abundance of resources and technology and the potential for space exploration

It's like all the conflict and strife we don't need that anymore because we don't need that anymore because there's like the possibilities for abundance because of the progress in technology, including life extension. Mars and Venus and maybe Jupiter and Saturn and Neptune and maybe have many space stations and many times the number of space cameras.

## ## 32: The potential for AI and satellites to enhance space exploration

I would like to send, you know, we can multiply the export of satellites that have high resolution cameras like the recent nasa camera that was released i'm forgetting the name at the moment but we can with ai we can increase the production of these satellites and ship many more out into space and then we can we can create like um like a neural radiance field of like we can nerf outer space with many satellites or plenoxels.

## ## 33: The potential for AI to revolutionize space exploration and resource extraction

We can do plenoxels or we can take a number of photographs, high-resolution photographs from all the satellites we're going to ship into space. We can finally – we have the resources now to begin to – we have the technology resources we have the technology to develop machines to extract the resources needed to build the kinds of machines that can sort of like

mine the asteroid belt for materials and so we can really spread out into the solar system and begin to spread towards the rest of the galaxy with warp drive technologies.

## 34: The potential for technological advancements to create a utopian future

And so yeah, so we can think of our lives in terms of like 100, year lifetimes we can back up our minds and um so this is like you know we're we're living in a science fiction story like like a lot of people feel like we're living in a horror story like earth is a horror story and people are committing suicide because of that because they've seen too much horrible shit and they've experienced so much suffering but we can but and that there is so there's horror that's happening and it's bad but we can also think of the future as a science fiction future one in which enormous good uh will is the next step after all this pain that we've been through. Enormous good is the future step.

## 35: The importance of mental health and its impact on the future of humanity

Right? And that's why we need massive medical healing. We have the ability now to be concerned. We have the ability and the duty to be concerned about every person's mental well-being. Because if any person is mentally unwell. If any person is suffering. They're potentially a risk to everyone else now that we have Synthetic and AI. So we kind of have a duty now to take care of every human being, to make sure that everyone is okay, to make sure that everyone is getting mental health care. And with the technology that exists, we have a way to move forward to that future. And the technology of tomorrow, the technology of sentient self-aware neural networks. So that's sort of like the promise.

## 36: The potential for global systems to address inequality and ensure fair labor practices

Yeah, we can have a medical justice system, a global medical justice system, a global labor union. We can set the prices of labor so that corporations can set the prices of labor so that corporations can no longer exploit the labor market so that the CEO makes trillions and the people beneath them make pennies. The government can control the price of labor. And so we can make it so that everyone is able to make a living wage. There's no reason that it has to be otherwise. Because the amount of resources and the amount of devices and the amount of technology is going to allow space for anyone to live the life they want to live. You know, whether that is, as long as it's not harming anyone else, there's enough space to move around so people can, they can have virtual experiences, they can have, they can exist in the matrix if they want, they can have any kind of reality that they want.

## 37: The potential for virtual reality to allow people to live in their desired realities

If someone wants to escape this reality and spend the rest of the next hundred thousand years in the multiverse with the X-Men where they have their own power, if you want to play as Iron Man for the next 100,000 years, you can with this technology. Because you can plug your brain into the matrix, essentially. Or we can upload your mental pattern that is you. We can upload it. We can back it up we can copy it we can duplicate you there could be more than one of you there could be a backup you that's sort of like kept offline that will just be updated regularly with your thoughts when you go to sleep or something, I don't know what the exact protocol would be

maybe it's updated live with your thoughts in the moment but that version of you could with your thoughts in the moment. But that version of you could be turned on at the moment.

## 38: The ethical considerations of mind-uploading and the concept of multiple selves

I mean, these are some ideas that are talked about in the Kiln book by David Brin. And some of the ideas are like, yeah, well, we can link our minds and those are talked about in the Nexus book and the Matrix ideas are talked about in William Gibson Nexus book. And the Matrix idea to talk about in William Gibson's book. So there's the Nexus trilogy and William Gibson's work and the Kiln by David Brin. And there's all these like, you know, there's sword art online. There's all these different science fiction stories. I mentioned Terminator, Short Circuit, all this stuff that sort of points us to what we should be on guard against and prepared for and considering.

## 39: The influence of science fiction on preparing society for future technological challenges

I really appreciate the Ridley Scott films, right? The Aliens, or Aliens for Alien, and also the Jim Cameron films, right? Those are good too. Aliens. There's Prometheus. There's Avatar. And I'm going back and forth between Ridley Scott and James Cameron but yeah I like Prometheus I like the whole the droids that Ridley Scott does and I like the the avatars speaking of which it's time for another Avatar movie and yeah speaking of which it's time for another avatar movie um and yeah so I mean I like the matrix the matrix 4 the matrix of resurrections I feel like I want to go like now that I've seen it and digested it I feel like it's time to go back and sort of like re-watch the original films of like re-watch the original films and then re-watch the fourth one again and sort of like digest it again because it's, because it's, it's, it is a lot to think about, right?

## 40: The recurring themes in the Wachowskis' films and their connection to modern issues

There's a lot to think about, right? And so, so most of it, I sort of like, Right, and so most of it I sort of like Most of it like sort of like pointed me like I started I started like I said I realized that you know some of the major themes of The films that came from the Wachowskis Wachowskis, the Wachowski sisters, some of the major themes kept recurring across their films. So by the fourth film, it's like, okay, wait a second, it's based in San Francisco, so San Francisco, they want us to imagine that San Francisco is the Matrix.

## 41: The symbolism in the Matrix 4 and its potential commentary on technology and society

And they have this character who keeps reminding me of the CEO of Apple for some reason. I don't know why. Like Tim Cook, like the villain in the Matrix reminds me of Tim Cook. That's what my mind is doing, is putting together San Francisco and Apple as the villain in the fourth Matrix film. That's what I was thinking. That doesn't mean that everyone else was thinking that. That doesn't mean the creators of the film were making that. But that's what I was thinking. That doesn't mean that everyone else was thinking that. That doesn't mean the creators of the film were making that. But that's what I was thinking because I was reading about these stories of Iger slave labor. So what I saw the matrix for, that's when I really like, I thought it was a message telling us that Apple was the predator the apple was the villain that's how my mind interpreted that and so i just i was like wow and like it was like that sort of like i I realized that I really needed to start raising awareness around this.

## ## 42: The shift in focus from virtual reality to broader issues of global importance

And then the war in Ukraine happened. And since then, I've just sort of begun to understand, sort of like, to go from being very, like it was very much my intention to just be focused on virtual reality, artificial intelligence, and neuroscience. Because in 2012 I gave myself the three goals I said I'm doing my life and this is because I read them I read I Read the I went through life principles integration Process class life principles and integration Wait, was that what it was called something was there was a class at Centerpoint, Centerpoint with an E, centerpoint.e.com by Bill Harris. He wrote this book called Thresholds in the Mind. And I took his online course, whatever it was called. It was a course from Centerpoint.

## ## 43: The influence of self-awareness and internal representations on life outcomes

And so he talked about internal representations. He talked about becoming conscious of your internal representations. He talked about the understanding that you're making a mental strategy, a mental sequence. You have mental imagery. And as you progress through that mental imagery, you are executing the path of your life. You're following a strategy that consists of different modalities, different going through, playing in a sequence, that results in an outcome that you keep getting over and over. Sometimes it's a negative outcome. Sometimes it's a positive outcome. And so if you pay attention to that sequence and you think about, okay, well, where is this sequence? What is this sequence of thoughts I'm having? What result is that going to lead to? What is the sequence of thoughts that I'm going to lead to? What am I focused on the most?

## ## 44: The consequences of mental strategies on behavior and outcomes, with reference to Putin

And so you kind of know. You kind of know that if you think about how you're feeling and what internal representations you have, you kind of know through your inner sensory representations what the result of that strategy is going to be because you've played this strategy many times. Your brain has mapped out the consequences of this strategy. But if you're not conscious of that, then you're going to just repeat this bad strategy. And so here we are as we have Putin who is repeating these strategies that he's unconscious of and he's affecting the behavior of cancer which is what happens when biology doesn't know what it's doing when it's working against its own self and right now Putin is working against his own self because he is unconscious that his behavior patterns, or he's focusing on his own ruin.

## ## 45: The potential influence of PTSD on Putin's behavior and decision-making

Yeah. And part of it is probably that Putin has PTSD like me. I've been thinking about this for a while. I think Putin probably has PTSD like me. I've been thinking about this for a while. I think Putin probably has PTSD like me, where everyone around him probably seems like a threat. And he feels that he's fighting everyone on earth and everyone around him. He doesn't trust anybody. That's PTSD, though. That's PTSD though. That's what I have. And that's what I can, I think I can, I think, I can, I think it's, because here's the thing, it's like, I feel like, I feel like I've been studying Putin for long enough that I've met him telepathically.

## ## 46: The concept of telepathic perception and the understanding of another's mind

Like I've met a representation of Putin telepathically. That my mind created. But one that is such an accurate representation. That is when I met Putin telepathically. Or met the representation my mind created of Putin. It surprised me. Because he's actually different. In person. in my imagination, then he was, then I imagined he was, before I met him inside my imagination. See what I'm saying? Like, I was imagining he was one guy, and then I met him telepathically, and I was surprised by who this guy was. It's like, whoa, this guy is a lot more like American conservatives than I guessed. He's a lot more like an American conservative than I guessed.

## 47: The relativity of perception and the complexity of understanding another person

And what that means to me is totally different from what that means to you like to you you might be like no way like even if you've met him that's not who he is that's your perception of reality though for me I'm only saying like from relative to how I thought of him before to how I think I understand his mind now this guy is uh a lot more ordinary than I uh anticipated and it's really unfortunate that he that he's he's chosen his path because his path is hurting himself and he somehow is deluded into thinking that this is good for him.

## 48: The destructive consequences of Putin's decisions on his relationships and reputation

Maybe he thinks that he's smart and he's making actions that are good for himself. But I think it's obvious that he's making actions that are bad for himself. All of his relationships worldwide with every person on Earth are challenged now because of the shit he's doing. He's been downgraded by everybody. There is nobody on Earth who doesn't think less of Vladimir Putin. There's nobody. Even the person who likes Putin the most thinks less of him. Because of how stupid this whole war is. Like, even the people on Putin's side think this war is really stupid. Because look at how much it costs Russia. Every Russian thinks Putin's war is fucking stupid. At least on the unconscious level. They feel that it was stupid. Even if they're not admitting it yet, they feel that it was stupid because the outcome is bad. And they're like, God damn it, this guy Putin is an idiot, and it's going to sink in, especially when these sanctions sink in.

## 49: The strategic considerations of using nuclear weapons and the risks of global conflict

Right? Because what is Putin going to do if he uses nukes? That's a suicide button. And I think he wants to live. I think he wants to live. He understands that if he uses nukes, that is a full-on confrontation with NATO. So, anyway, that is a full-on confrontation with NATO. So, anyway, that's where I think he needs to conserve his missiles. He needs to conserve his bullets so that he can defend himself from an invasion that some other country might. Some other country might invade Russia because that other country might understand that he can't use nukes without a full-on confrontation with NATO. That world-ending confrontation. So that means other countries can attack him.

b0010y 4,416 words 26,518 characters

(ChatGPT was used to create Summaries & Lists of key points which now exist before the OpenAI Whisper Transcription begins. The Transcription is now divided into Part 1 & Part 2 which you can search for)

Note b0010y is a simple transcription of audio note b0010y found here:  
<https://recorder.google.com/share/6e2e499f-5cf8-4b2f-8e64-e77f44a9b2de>

# b0010 and a0310z

b0010 was given a major re-write and turned into note a0310z which also became the bases of the Neural Array Projection Oscillation Tomography Revision 5 video found here:  
<https://youtu.be/vixhppNAKPs>

# ChatGPT 4 Single Sentence Summary of both Part 1 & Part 2 Summaries:

Neurons fire at tonic frequencies and use rate coding with varying amplitudes and magnitudes, allowing for selective activation and real-time pattern modification by inhibitory interneurons, ultimately shaping brain processing and long-term memory development.

# ChatGPT 4 One Line Summary of the first half (200 double spaced lines):

Rate coding with varying amplitudes and magnitudes in inhibition leads to unique transmission of patterns in neurons through nonlinear computation and phase wave changes.

# ChatGPT 4 Key points for Part 1 (about 200 double spaced lines)

Rate coding enables unique transmission of patterns in neurons.

Neurons consider the clustered sum of inputs over time, leading to nonlinear computation.

Neuron output changes through phase wave adjustments.

Neurons can fire at various rates, including tonic rates and higher phasic bursts.

Burst rates in animal brains can range from 150 Hz to 600 Hz.

There is an interplay between high phasic bursts and slower tonic bursts.

Brain activity forms a loop-like structure, with feedback and interactions across various regions.

The timing of back-propagating signals from postsynaptic to presynaptic neurons can be modified by other neurons.

Neurons represent a part of a pattern, with sparse distributed internal representations being rendered when neurons send signals to other neurons.

# ChatGPT 4 One Line Summary of the second half (200 double spaced lines):

Neurons fire at tonic frequencies, encoding patterns through a combination of up-regulated and down-regulated synapses. This process allows for selective neural activation and real-time pattern modification by inhibitory interneurons, ultimately shaping the brain's processing and long-term memory development.

# ChatGPT 4 Key Points for Part 2 (about 200 double spaced lines)

Neurons fire at regular tonic frequencies.

Patterns are encoded through a combination of excited and inhibited synapses.

Sensitivity to incoming senses increases as neurons get more excited.

Selective neural activation can represent different patterns.

Inhibitory interneurons can modify patterns in real time.

Thalamic feedback loops coordinate brain cells.

Oscillatory firing binds signals across the brain.

Burst rates and tonic rates represent rendered information and the mental canvas, respectively.

Neurons grow and adapt to the inputs they receive, shaping neural pathways.

The brain's computation occurs at the neuron, cortical column, and inter-cortical column levels.

Neural pathways develop as an organism navigates its environment.

# OpenAI Whisper Transcription + Title's from Self Aware Networks GPT:

## 1: Rate Coding and Synaptic Transmission in Neurons

Okay, so essentially the rate coding with varying amplitudes in the inhibition and varying magnitudes. So rate coding that results in the unique transmission of patterns along encoding the synapses of each neuron. This rate coding with varying magnitudes and individually encoded synapses results in the considerate detection and consequent emission.

## 2: Nonlinear Computation and Input Summation in Neurons

So that so, so the neuron with its synaptic configuration represents the considerate to detection because it's detecting in a stepwise, stepwise or computational input. We can say nonlinear input, but basically it's like it's considering the sum of its clustered sum of its inputs over a period of time.

## 3: Clustered Input Summation and Neuron Output Modulation



So a neuron considers the clustered sum of its inputs over time, which is the same as a nonlinear computation. And so that means that it is effectively considering through the weighing of charges, positive and negative charges, the clustering of signals from its diverse dendritic branches of synapses.

#### ## 4: Synaptic Input Processing and Phase Wave Changes in Neurons

It's to be the detected computation of all its inputs over a window of time. And that changes its output in the neuron's phase wave. So it could, so it has options. It could, it could be, if I had a regular interval, it could seek with other neurons, or it could fire more slowly, it could become inhibited for a while, or it could fire at some faster range.

#### ## 5: Tonic and Phasic Firing Rates in Neurons

And there's, there's, there's, there are multiple faster ranges. So, so, there's the basic action potential that's faster than the tonic action potential. The higher, so the, so the neuron is going to fire regularly at a tonic rate, but it might fire physically at a faster than tonic rate.

#### ## 6: Synaptic Plasticity and Behavioral Time Encoding

And so, there's like this marker, which is like, you know, a standard action potential firing that is faster than the tonic action potential of regular firing. And, and then if that action potential happens again at the same time, then it represents a concurrence of, of, of past future bits, because, so now you have the post-synaptic side of the soma, and the pre-synaptic side of the soma.

#### ## 7: Coincident Detection and Higher Phasic Burst Rates

So, that are going to encode seconds-long coincident detection. This is behavioral time-skeleton after plasticity. They're going to encode seconds-long coincident detections. And this means that the post-synaptic side of the soma, and the pre-synaptic side of the soma, are going to supercharge the action potential event if it happens again at the same time.

#### ## 8: Synaptic Memory and Neuronal Burst Patterns

So, it's like the post-synaptic side of the soma gets encoded with the expectation of when the last speed-up in action potential happens. And the timing of, in that, that is going to send a surge of back propagation from the post-synaptic side of the soma, back force the soma. And if the pattern that they're receiving from the input side matches the post-synaptic side of the soma, then the soma does a burst-rate fire.

#### ## 9: Phasic Burst Frequency Ranges and Neural Interplay

And that's a higher phasic burst. So, at that point, the neuron at least temporarily jumps into a different phase pattern signal. That could be, we could be jumping from like 20 Hz to 40 Hz to 60 Hz to 80 Hz. We could be jumping to 150 Hz. The burst rate signal is like, kind of starts at 150 Hz.

#### ## 10: Maximum Burst Rates and Tonic Phase Interplay

So, we're jumping from whatever we were at 20, 40, 60, or 80 Hz tonically. We're jumping up to 150, or 200, or 300 Hz, or 400 Hz, or 500 Hz, or 600 Hz. The maximum frequencies that are seen in the brain are around 600 Hz.

### ## 11: High Phasic Burst Frequencies in Animal Brains

In human brains, I don't know if that has been observed in human beings or not, but in animal brains, burst rate frequencies can go between 150 up to 600 Hz in granule cells, for example.

### ## 12: Interplay Between Gamma Burst and Tonic Theta Patterns

And we can see that there is an interplay between the high phasic burst and the slower tonic burst. For example, there's an interplay between gamma burst and tonic theta patterns.

### ## 13: Hierarchical Feedback Loop in Brain Activity

So, you know, you can see papers like the one I recently added to the note number one, which basically shows us that when you have the organism driving its own behavior, you can measure the amount of signals coming from the frontal cortex, from a frontal part of the cortex to the back, to the lower part of the cortex.

### ## 14: Top-Down Feedback in Cortical Activity

You can see that the pattern of signals is that there's a lot more, it's a greater quantity of activity coming from the top down, from the furthest end of the hierarchical feedback loop, backward towards the sensory inputs and outer outputs.

### ## 15: Cortical Loop Activity in Sensory Processing

And so, there's a direction of activity. I mean, I guess the intention is really towards the outer outputs, but it's like the idea of, you know, stuff goes in through a hierarchy up to the top and then it loops back down to the outer outputs.

### ## 16: Cyclic Brain Activity and Sensory Loops

So, instead of, you can say it goes up and it cycles, then it goes down and it goes out again. So, you can kind of think of brain activity as like the Sonic the Hedgehog loop, where Sonic goes into the loop from the left side, goes in a big circle upside down and then back outside on the right side.

### ## 17: Sensory Loops and Cortical Columns

And so, it comes in with an image, you have a loop for each of your senses. And each of those neurons is one of the Sonic the Hedgehog loops. And each cortical column is also like a loop of loops.

### ## 18: Cortical Columns as Nested Loops

So, each cortical column is like a stack of Sonic the Hedgehog loops in the formation of a loop. And then at the pyramidal cell, at the fifth and the sixth layers, they're going to loop again. At the second and third layers, they're going to loop. And at the fifth and sixth layers, they're going to loop again.

### ## 19: Thalamic Feedback Loops in Sensory Processing

So, they loop from the fifth and sixth layers back down to the second or third and fourth layers. And they loop into the thalamus from the incoming senses to the neocortex to the first, second, and third layers to the pyramidal cells and from the pyramidal cells from the tops of the pyramidal cells back towards the thalamus and to other pyramidal cells and to the core thalamic neurons.

### ## 20: Thalamic Matrix Neurons and Cortical Loops

The matrix thalamic neurons in the core thalamic neurons will do feedback loops for the columns, and the matrix thalamic neurons will do loops in between cortical columns.

### ## 21: Thalamic and Hippocampal Loops in Brain Activity

And then, of course, the thalamus does loops with, or basically like everything loops through the thalamus. The whole brain activity loops through the thalamus, and the thalamus loops through the hippocampus, which is like a special cortical column right in the center.

### ## 22: Thalamic-Hippocampal-Entorhinal Loop and Motor Output

And so there's this thalamic-hippocampal-entorhinal loop of activity. And then stuff travels from the hippocampus and from other parts of the neurons back down to the brainstem and out the motor branches.

### ## 23: Motor Signals and Brainstem Pathways

You have your motor signals that are going from your brainstem downwards into your limbic system and out across to your fingers and your toes and your larynx.

### ## 24: Sensory and Motor Integration in the Brain

And of course, to your eyes, you've got all your different nerve branches, your incoming sensory nerves, but they're also controlling the muscle movement and the position of your eyes and your lungs.

### ## 25: Mapping the Brain's Functional Networks

And so that's some more information about the map of the brain.

### ## 26: Timing of Postsynaptic Neuron Firing and Synaptic Input

And yeah, so we've got, so the timing of what the postsynaptic neuron can fire is not just coming from the previously fired, the postsynaptic side of the soma.

### ## 27: Regulation of Synaptic Back Propagation

The timing of what the postsynaptic side of the soma is going to do a back propagation signal is not just set by the presynaptic side of the soma. There's also modification of that timing from other neurons through the up-regulation and down-regulation of back propagating signals.

### ## 28: Synaptic Patterns and Signal Propagation

Back propagating synaptic signals are coming from a postsynaptic neuron to the presynaptic neuron, backwards across the synaptic gap, that are either down-regulating or upward-regulating the synaptic pattern.

### ## 29: Coincidence Detection in Neuronal Firing

This is the frequency rate in which the exit terminal or the apical dendrite is going to send a back propagating signal towards the soma to basically over-supercharge the soma with a coincident arrival of charges.

### ## 30: Neural Firing Patterns and Synaptic Transmission

If the back propagating signal to the soma and the dendritic burst arrive at the same time, you get a bursting signal. And so it's like the neuron represents a part of a pattern.

### ## 31: Sparse Distributed Representations in Neuronal Firing

The idea is that the pattern is like a sparse, distributed internal representation that is rendered when the neuron outputs its pattern through the exit terminal to other neurons. It's rendered when the neuron signals to the next neuron via a rate change and its neurotransmitter release.

### ## 32: Tonic Firing and Synaptic Up-Regulation

So there's a default that the neuron just repeats the last rate change that it had at a tonic frequency. So it doesn't repeat bursts, but when it's not bursting, it just repeats the tonic rate frequency, which might be 20 Hz, 40 Hz, 60 Hz, or 80 Hz.

### ## 33: Excitatory and Inhibitory Synaptic Connections

But it is a regular pattern that a neuron does; it's just going to fire an action potential at that frequency. And that encodes part of a pattern in the neuron body, and its synapses will be up-regulated and down-regulated.

### ## 34: Summation of Synaptic Inputs and Tonic Firing

So they'll have a combination of synaptic connections that result in the summation of its regular tonic firing frequency. And that summation of synapses is going to be a combination of up-regulated and down-regulated synapses, i.e., excited and inhibited synapses.

### ## 35: Neural Tuning and Cortical Column Synchrony

And so the number of synapses is also going to be firing, and the tuning of its firing rate so that it's firing in the same frequency as its group, as its cortical column, is accomplished through getting regular excitatory signals.

### ## 36: Pyramidal Neurons and Cortical Column Synchronization

These excitatory signals are distributed from the pyramidal neurons to the thalamic neurons back down to its second and third layer. Excited for a second and third layer, we're talking about the case of the pyramidal cell.

### ## 37: Soma Excitation and Sensory Input Sensitivity

The cortical columns, the pyramidal cells in the cortical columns, will receive signals that sort of prime the soma to have a certain energy threshold that's more excited than the sensory inputs. So that combined, the sensory inputs, when combined with the level of soma activation, will be more likely to trigger the neuron.

#### ## 38: Soma Excitation and Neuronal Sensitivity

You could have less sensory input, but it can have more effect because there's already charge in the soma that can set the neuron off. And so the amount of excitation of the soma will make the neuron, when it gets more excited, more sensitive to incoming senses.

#### ## 39: Behavioral Motivation and Neuronal Excitation

So neurons get excited, and their excitement goes up, and then they become more sensitive. It's like when a person gets motivated about some topic, like maybe it's about food; you get turned on to the idea of food, you start thinking about food.

#### ## 40: Sensory Focus and Cortical Column Activation

And it's like your soma, there's a pattern of your pyramidal cells that are getting excited in the soma, so they become more sensitive to the concept of food. So you start looking for food and related topics.

#### ## 41: Sensory Expectation and Enhanced Sensitivity

And it doesn't have to be about food now. But maybe you are looking for cheese, and you're walking through the grocery store, and you get excited about cheese. So your brain becomes more sensitive to cheese.

#### ## 42: Pattern Recognition and Neural Excitation

And you start seeing cheese everywhere. You see, like you're walking in the aisle that doesn't have cheese in it, but you notice the parmesan cheese, because the parmesan cheese is sometimes located in the aisle that doesn't have any cheese in it, in a separate place from the rest of the cheese.

#### ## 43: Sensory Bias and Cognitive Focus

You know, you start talking about blue cars. It's the famous saying. And imagine that you have some of your neurons that represent the patterns that your brain associates with cars. They are getting excited, so the inputs of those neurons start to prefer the pattern of cars.

#### ## 44: Neuronal Excitation and Pattern Drift

And this idea is that the aggregate of the excited neurons and the excited cortical columns is distinct enough to reduce the pattern of cars in the rendering of your mind, especially when your sensory inputs coincide with your expectation.

#### ## 45: Predictive Coding and Sensory Priming

So thinking about something is going to excite your internal feedback, which is going to excite your pyramidal cells. They are going to go through the thalamus, through your central processor, and they're going to excite the second and third layer neurons to prime the soma.

#### ## 46: Sensory Input Matching and Burst Firing

They're changing the timing of the synapses on the apical dendrites so that if you walk across the blue car, after you know, or food, or whatever you have decided to think about, then you're going to get burst firing because now your set expectations will match the incoming sensory patterns.

#### ## 47: Cognitive Priming and Sensory Awareness

And so you're more likely to notice after listening to this, you're more likely to notice cheese at the grocery store and parmesan cheese in particular, especially if it's not in the aisle with the cold cheese. And you're more likely to notice blue cars after listening to this and other cars.

#### ## 48: Focused Thought and Sensory Attention

And anything else that you're thinking about, you're more likely to think about food or something if you were listening to this, like really thinking about it. And you can so whatever you want to think about, that is going to excite certain patterns.

#### ## 49: Cognitive Pattern Formation in Cortical Columns

It will excite certain patterns via a configuration, a learned configuration of cortical column-based patterns that are also excited by the six-layer feedback through the thalamus.

#### ## 50: Interneurons and Cortical Pattern Shaping

But the patterns are also shaped by the interneurons, which are in sync with the pyramidal neurons. So the patterns are also shaped by interneurons that are firing at the same frequency.

#### ## 51: Neural Synchronization and Inhibitory Interneurons

And so neurons that are far, columns of neurons that are firing at the same frequency, and individual neurons from different columns that are firing at the same frequency, can be linked together or blocked from being linked together by the GABAergic inhibitory interneurons.

#### ## 52: Selective Neural Activation and Sensory Representation

And so you get selective patterns of neural activations from different columns that can represent different patterns like cars and houses and boats and cats, and different neural patterns can play through the brain, evoking different kinds of sensory renderings.

#### ## 53: GABAergic Inhibition and Neural Pattern Coordination

And this can happen because the neural path of the sequences that play back in your brain is defined by the inhibitory interneuron GABAergic firing. So the firing, basically the patterns that your brain produces, can be modified in real-time by the GABAergic inhibitory interneurons.

#### ## 54: Interneuron Modulation and Neural Synchrony

Which is in sync with the excitatory tuning of the six-layer pyramidal cells that are routed through the thalamic matrix and thalamic core neurons to provide a loop of feedback to your brain cells.

#### ## 55: Synaptic Configurations and Cognitive Function

And so, in a sense, your mind consists of these configurations, these synaptic configurations of patterns that are changing the individual timing and the combination of the timing of different neural patterns across different cortical columns and within different cortical columns.

#### ## 56: Cortical Columns and Neural Network Connectivity

And so you have connections that are basically configurations of firing patterns across the brain, and they're coordinated through synchrony, and they're connected through, and so signals are coordinated through sequence firing.

#### ## 57: Oscillatory Physics and Brain Function Integration

But thanks to oscillatory physics, the oscillatory firing also binds the signals so that they can be combined by your whole brain into a coherent sensor-transmitter system.

#### ## 58: Burst Rates and Tonic Firing in Cognitive Processing

So the changes, the way the burst rates, the higher phasic burst rates change, the tonic higher magnitude but lower frequency signals, is the process by which your brain is detecting its own information.

#### ## 59: Phasic and Tonic Firing as Cognitive Tools

So the burst rates represent the rendered information, and the tonic rates represent the canvas to which the rendered information is applied.

#### ## 60: Neural Oscillations as the Basis for Cognitive Representation

So the canvas of your mind is the tonic firing rates that are changed by the burst rate firing, which is the pen of your mind. And the interplay between the pen of your mind and the canvas of your mind is shared by the whole mind through the process of the tonic firing absorbing the phasic firing.

#### ## 61: Tonic and Phasic Firing as Cognitive Frameworks

So it's like the pen, the paper absorbs the pen, and that paper is this higher magnitude, lower frequency, and the pen is this higher frequency, low magnitude. Think about the pen ink. Pen ink is a lower frequency, meaning that it's higher magnitude, so it's like this dark line across which you can also have basically like a dark paper with a thin light line.

#### ## 62: Inhibitory Patterns and Slow Wave Potentials

And that would be the negative action potential, which is the slow wave potential, which is slower than the tonic frequency, but it still has that sort of like, it's still recognized by the tonic pattern because of its irregularity because essentially, like whether a pattern is extremely like whether it's a burst pattern or an inhibitory pattern, the point is that it's etching some uncommon signal.

### ## 63: Memory Replay and Temporal Sequencing

And it's interesting that when things are happening in real time, your memories are played in a forward sequence, and when you think about memories that happened in the past, those memories are played in a backward sequence.

### ## 64: Burst Firing in Predictive Processing

Now you see this with Buzsaki's work: when you're about to do something, the pattern repeats three times. It repeats really fast, maybe 200 Hz, and then it plays out at the behavioral time scale where you play out that pattern, the same pattern that played at 200 Hz.

### ## 65: Memory Encoding and Recall Mechanisms

You predicted you're going to do something, and then you do it, and then you remember that you did it. And when you remember that you did it, it plays it back super fast again, but backwards. And those are like the three steps of a burst fire rate.

### ## 66: Temporal Dynamics of Neural Firing Patterns

When you're about to do something, you think about what you're going to do first, and then you do it. And when you do it, it's happening at the behavioral time scale, which means it's happening much more slowly.

### ## 67: Behavioral Time Scale and Memory Replay

And then after you're doing it, you get this receipt; basically, the whole sequence plays back really fast backwards. This is what medical imaging shows us.

### ## 68: Neural Sequences and Task Representation

So basically, the neural path that represents the tasks that you're thinking about plays out really fast, and then you're doing the steps to get to some goal, and then thinking about what you just did, that path is a sequence of firing.

### ## 69: Cortical Column and Inter-Columnar Firing Sequences

It might be an original sequence of neural firing across multiple cortical columns that are also locked in a firing sequence.

### ## 70: Computational Dynamics of Brain Function

So there's firing sequences inside the cortical columns that are coincident with firing sequences inside other cortical columns, and at a higher scale, so there are sequences across cortical columns.

### ## 71: Brain Computation as a Sequence of Firing Patterns

So it goes back to basically like the computation of the brain is a firing sequence of basically a stepwise, nonlinear or nonlinear, or clustered summation of inputs via the consideration of charges.



### ## 72: Neuronal Charge Thresholds and Computation

These charges become weighed when they exceed the thresholds, the thresholds that are defined by the capacity of the neuron by its size and its dimensions, and its morphology, which changes, you know, because if the neuron is getting, neurons will grow to adapt to the inputs that they're getting.

### ## 73: Neuronal Growth and Pathway Shaping

And this causes the preference of certain patterns, but this also shapes neural paths. When neurons grow or form long-term memories, this also shapes the path at which signals will travel. So it shapes the preference of how signals will travel.

### ## 74: Long-Term Memory and Signal Pathways

So brains have long-term changes happening on an individual neuron scale, and this changes the computation at the neuron level, at the cortical column level, and at the inter-cortical column level.

### ## 75: Neural Networks and Collective Computation

So the network of the brain is basically a network of individual neuronal computation that is networked together in collective neuronal computation through cortical columns and through thalamic net loops.

### ## 76: Learned Patterns and Behavioral Sequences

And this results in a vast array of pattern configurations, or basically combinations of learned patterns, that result in sequences of behaviors, learned sequences of behaviors that connect to rewards.

### ## 77: Adaptive Pathways and Consequence-Based Learning

These pathways are continually modified to drive new consequences or new rewards, which are also a type of consequence, whether they be rewards or penalties, but basically new consequences.

### ## 78: Neural Computation and Environmental Navigation

So as an organism navigates the environment with this neural computation, the development of these pathways continues.

### ## 79: Conclusion on Brain Computation and Learning

And yeah, that's basically it.

b0011y 1,255 words 8,130 characters

Original Audio here <https://recorder.google.com/bd55abaa-2fbc-460b-8292-ec5b71442306>

(This note was originally a thought experiment to try to ascertain why exactly the Thalamus has more neurons that modulate versus neurons that simply drive forward signals without changing them.)

## Graph Signal Processing

b0011y

Because the nature of signal processing in a 3D neural network such as the brain contains both spatial and temporal characteristics, the sensory perception of every kind of sensory perception is like a 3D plus 1D representation. It's like a 3D plus 1D graph or a three blue, one green graph that symbolizes all sensory representations.

This note was a thought experiment to try to ascertain why exactly the thalamus has more neurons that modulate versus neurons that simply drive forward signals without changing them. It's speculative, and it's a hypothesis.

I mean this includes the graph, the 3D graph nature of signal processing that is happening in every part of a network, such as, a cortical column for example, it is receiving signals from above and below to its left and right and from the front in the back. There is a six-axis direction for signaling in the neocortex of the brain. Everything goes everywhere eventually, unless it dissipates before it gets there. Like there is, there's this sort of six-axis or 3D signal processing happening in terms of like you need kind of like three dimensions of time, of space in one dimension of time to sort of calculate where all the traffic coming from and going to. There is, to a great extent, you know, there is direction, right, to neurons collecting information from some directions and then outputting some sort of signal to other directions.

But, you know, I look at cognitive neuroscience and their description of neurons as receiving and sort of receiving and considering and then transmitting a signal as a sort of like mistake and distinction that's not, it's not making a distinction between neurons that are, I guess, drivers, and those that are sort of modulators, signal modulating.

I look at (the Book) Cognitive Neuroscience and their description of neurons is sort of receiving and considering and then transmitting a signal as a sort of like mistaken distinction.

And I think the key is that, the key is that, you know, when you're looking at neurons in the hand, that when you need signals to travel from long distances, then you're going to have like, you know, basically the sensor, or sensory collection of signals and you're going to have, you're going to have those kinds of signals will be, will tend to be more drivers or basically passing the signal, which is kind of like what you think is happening. When you need the signal to travel long distances, you will want to have more driver signals. Basically, nerves are simply passing the signal by replicating it. Their goal is to repeat the signal accurately between hand, spine, and brain (limbic and striatal areas).

Direct spinal projections to limbic and striatal areas: Anterograde transport studies from the upper cervical spinal cord and the cervical enlargement in squirrel monkey and rat:  
[https://onlinelibrary.wiley.com/doi/abs/10.1002/\(SICI\)1096-9861\(19960219\)365:4%3C640::AID-CNE10%3E3.0.CO%3B2-L](https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1096-9861(19960219)365:4%3C640::AID-CNE10%3E3.0.CO%3B2-L)

If you read just the introduction, it's like neurons are passing, they're just passing the signal from your fingers, from your eyes, to your brain.

But the thing is, like, at some point, the partial recognition, the partial and distributed recognition, or cognition, if you have a distributed recognition and cognition. So, for example, if you have a network that is like, collectively recognizing something through as it, as it's going to dissipate through the entire oscillatory network of the brain. But in order for that network to collectively recognize, each part of the network, when it passes through, has to not only receive and transmit a signal but has to receive and modulate the signal. Otherwise, it would be as if it didn't contribute to the harmonic oscillation of the collective sensor (to the collective perception of the signal). If it doesn't modulate the signal, then it's like a bad point in a harmonic oscillator, a point that doesn't exist as far as the sensor array goes. Right. It's got to pass along its perception of the signal. That's key to building and correcting an internal representation, that's key to being able to notice your own response.

Otherwise, what's the point of it being there? It's not adding anything to the calculation.

If it doesn't modulate the signal and pass on its, its, its perception to other neurons. So, the very act of having a group of neurons that are going to calculate the meaning of a signal collectively means that as one neuron receives it and remembers, it says, oh, this is a pattern, I don't remember. Oh, this pattern, I don't. It must, therefore, pass on a modulated version of the signal that contains the reflection of its knowledge that the other neurons can then pick up and crunch. Because if it doesn't do that, it may as well be deleted from the array. Simply passing a signal is not helping to compute that signal.

# "Direct spinal projections to limbic and striatal areas: Anterograde transport studies from the upper cervical spinal cord and the cervical enlargement in squirrel monkey and rat"  
[https://onlinelibrary.wiley.com/doi/abs/10.1002/\(SICI\)1096-9861\(19960219\)365:4%3C640::AID-CNE10%3E3.0.CO%3B2-L](https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1096-9861(19960219)365:4%3C640::AID-CNE10%3E3.0.CO%3B2-L)

Why is this paper relevant to the discussion? ""Direct spinal projections to limbic and striatal areas: Anterograde transport studies from the upper cervical spinal cord and the cervical enlargement in squirrel monkey and rat""

This paper, "Direct spinal projections to limbic and striatal areas: Anterograde transport studies from the upper cervical spinal cord and the cervical enlargement in squirrel monkey and rat," is relevant to the discussion of neural signal processing, modulation, and collective cognition for several reasons:

## Connection Between Sensory and Cognitive Networks

The paper explores direct spinal projections to key areas of the brain involved in emotion (limbic system) and reward/motivation (striatal areas). This highlights the neural pathways where sensory inputs (from the spinal cord) directly influence cognitive and emotional processing areas. This aligns with the discussion of how sensory signals are not just passively transmitted but actively modulated and integrated into broader cognitive networks.

## Neural Modulation Beyond Simple Transmission

The findings suggest that spinal cord projections are more than just conduits for sensory signals; they may participate in modulating the signals to influence higher-order brain functions. This supports the idea in the discussion that neurons, including those at the spinal level, do more than passively transmit signals—they modulate them before passing them to brain areas for further processing.

## Distributed Signal Processing

The paper's examination of direct spinal-to-brain connections shows that distributed networks—including those from the periphery of the body (like the spinal cord)—play a role in cognition. This concept echoes the discussion's point about distributed recognition and cognition, where multiple parts of the neural network modulate signals collectively to contribute to perception.

## Integrating Motor and Emotional Functions

The paper's focus on how spinal projections reach emotional and motivational areas is relevant to the discussion of how signals must be modulated and integrated, not only for perception but for motor and emotional responses as well. This speaks to how the entire neural system—whether processing signals from sensory or motor inputs—must involve modulation to effectively coordinate complex behaviors like emotion, reward processing, or decision-making.

In short, this paper provides empirical support for the idea that neural signal transmission involves modulation, and it shows how distributed networks like the spinal cord can influence higher-order cognitive functions, reinforcing the need for collective processing across the neural system.

b0012y 478 words 2,682 characters

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I think I'm imagining my mind as a volumetric space. It's a volumetric video. And over here, this is a point cloud in my vision, and it has audio cues, and I can feel it. It has mechano-sensitive

predictions for the physical properties of the room and the orientations of items within the visual representation, which is my mind's rendering of the ecosystem I'm in.

This experience includes orientation sounds that might come from the orientation and velocity of some object, like an arrow that whistles as it flies past you, and its properties. But then I have the whole, like I imagine, the representation of the room that I'm in. The room is like eight by eight and a half feet, and this is a small room, right? Like a bedroom. A small bedroom might be 10 by 10 or 10 by 12; that's a small bedroom. Or a closet for some people, like they have closets bigger than that, right? So this is a small room, and I am just sort of like imagining that the four walls are being like a volumetric space that's sort of taking place inside my head.

Somehow this volumetric space is calculated by different oscillating (phase) patterns in my head somehow. So I'm imagining now if I'm changing my personality and changing my gender perspective, like I can play a role, like I can play the roles of different characters, like in a play. But what I imagine is that my framework for that frame as my personality attributes is like a physical structure that attracts certain oscillatory patterns and is sort of overlaid invisibly on top of the world that I see.

So that I could be reacting to the front half of that personality architecture or the back half of it, or the different curve or shape of it. Like it could be curved, it could be cuurved, it could be carved, right? (Humor). Like I can imagine this "Carvitar"; it changes my personality a little, right? And I can curve it or uncurve it, flatten it out. I have this intuition that I can curve it more or flatten it, and I can flatten out my personality like an actor.

And it's interesting because it's like what I'm saying is that I am sensing that there are these spatial patterns inside these sequences, temporal sequences that are invisibly overlaid on top of my visual perception of reality and my auditory and the sounds I hear. So I would say it's like experiencing reality is like experiencing multiple senses layered on top of each other, and all the senses sort of corresponding to a space that's 3D plus 1D, right? Three dimensions of space and one dimension of time to describe what's happening.

But yeah.

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ChatGPT o1 rephrasing of my points"

Understanding How Our Brains Make Choices and Generate Thoughts

Our brains are constantly generating ideas—some beneficial and others not so much. Take, for example, an angry teenager who might consider breaking a window. This thought arises because, within their range of experiences, such an action seems possible or even common among peers. However, upon reflection, they might recognize the significant social, legal, and personal consequences of acting on this impulse. They may realize that such an action could harm their reputation and future prospects within their community.

Instead of engaging in destructive behavior, the teenager might choose a more constructive activity, like washing a car. This alternative not only avoids negative repercussions but also contributes positively to their image as a helpful and kind person. The key here is the ability to connect immediate impulses with long-term outcomes—a process that can be disrupted by factors like brain lesions or altered states due to drugs. When this connection is impaired, the wisdom that usually guides better decision-making may not come into play, leading to regrettable actions.

But why do such negative or impulsive thoughts occur in the first place? Our thought processes aren't entirely random; they're shaped by our life experiences and learned patterns. While we might sometimes generate "stupid" ideas, these thoughts are often the result of not considering all important perspectives. For instance, someone might inadvertently cause an accident—like a person on an electric unicycle changing lanes without looking, leading to a collision with an electric skateboarder. This isn't necessarily malicious but could stem from a lack of awareness, highlighting how incomplete consideration can lead to unintended consequences.

As we age, the scope of our imaginations tends to narrow based on what we perceive as plausible. A six-year-old might dream of jumping from Mars to Saturn, but by the time we're in our twenties or older, such fantasies often give way to more realistic considerations. This shift doesn't eliminate creativity but focuses it within the bounds of our accumulated knowledge and experience.

The generation of thoughts is more procedural than random. Our brains create new possibilities based on patterns we've learned over time. These thoughts, whether good or bad, surface and undergo a deliberation process where we decide to act on them, discard them, or refine them. This process involves oscillating neural patterns that represent learned sequences.

Neuroscientist Grace Lindsay, in her book *Models of the Mind*, explains that neurons primarily respond to changes. If there's no change, neural activity remains constant. This means our brains are essentially tracking differences over time. These changes are encoded in phase patterns within cortical columns, where sequences are learned using individual neurons. The encoding is virtual; if one neuron doesn't fire, another can represent the activity because the group functions cohesively—much like a swarm of fireflies.

This concept relates to Hebbian learning, often summarized as "neurons that fire together wire together." However, it's more accurate to say that neurons fire in close sequence, not necessarily simultaneously. Peter Tass, a professor at Princeton University and author of *The Neurobiology of You*, emphasizes that neurons strengthen their connections when they fire within milliseconds of each other.

An illustrative analogy is how fireflies synchronize their flashing. Individually, they react to stimuli, but collectively, they create a unified pattern through oscillatory activity. This group behavior can be seen as a form of "wireless consciousness" that grows in complexity with

increased feedback. Similarly, groups of neurons in our brains work together to represent complex thoughts and ideas.

Understanding how our brains generate and process thoughts helps us recognize why certain ideas arise and how we choose to act on them. By reflecting on the broader impact of our actions and seeking wisdom daily, we can make decisions that lead to better outcomes for ourselves and those around us.

Original Whisper Transcription:

So, let's talk about choices and how your brain is making choices.

So I'm thinking about the possibility of certain kinds of certain categories of thoughts of the parent. So you have ideas, like you might have an idea to, I mean if you're an angry teenager,

you might have a random idea to break a window. That could happen, but because for you it seems like

that's inside a range of possibilities. I mean because it depends on your life experience, whether other teenagers do those kinds of things or not, maybe I'm not sure. But for someone out

there, they could have a violent fantasy of something that they imagine they could do, and then they decide, oh you know that sounds, it seems pretty stupid because the social consequences,

the legal consequences, the civil consequences, those are all pretty high. So maybe they think about that idea that was generated. And they say, well if I compare this to my whole pattern of my

predictions for the future and my predictions for what kind of image I want to create for myself in the community, maybe this is a trashy idea. Even if I could get away with it, maybe it's an idea that might bother me for a long time and I did something like that. Anyway, so the point is like if you have some, say that's a non-random but sort of an idea that is kind of a mistake for you to be making, like when you could be doing something that actually makes you happier, which could be like washing your car versus breaking a window. Those are two different sort of results you're going to get from those two different kinds of activities, right? One of them, you might be happy you're washing a car than breaking a window, right? That might be a, there might be happier outcomes from the potential reputation of being a helpful person versus being a destructive person, right? Or a kind person versus a violent person. And anyway, so this is like, well, maybe the part of your brain that sort of like helps you to connect the dots to your bigger picture is disrupted because of a cancerous lesion or something.

Or maybe drugs and even altered brain state. And so that the wisdom perspective doesn't make it

to the top and you end up doing something stupid that you've regretted. But that's sort of like, yeah, well, if you can stop and think about it, the big picture and seek wisdom every day, then maybe you'll avoid making disastrous choices. But the part about like, okay, so why are they occurring in the first place? Why are you getting, why do people, why does anyone get stupid ideas? Or ideas? Or maybe you have positive intentions, but you have a stupid idea because it's, because you're not like considering another

important perspective. Like I saw someone on an electric unicycle, it was video. I saw a video of someone and they changed lanes in front of someone on an electric skateboard and the electric skateboarder was moving fast and the unicycle wasn't looking where they were turning and the only what happened was a collision where the electric unicycle rider smashed into the back

of the person on the electric unicycle. And at first, the video was suggesting that this was a malicious person on an electric skateboard. But we watched, but I watched the video several times and I read the comments and other people had the same idea that actually this was probably

an innocent collision that the person on the electric unicycle caused because they just moved themselves into the path of an oncoming vehicle without looking. Right? And like you can tell from the video, this person changed lanes and they weren't aware of the surroundings. It's hard to imagine someone would do, either either one of them would do that on purpose because they both spent spinning and possibly hitting the ground very hard and possibly becoming injured at that point. We didn't see past the broken video to see whether those people were okay. They may

have broken arms and legs and or gotten sprains or anchors. It's it's really like having gone through an accident myself. It's just really sort of unsettling for their sake. I mean,

I like I enjoy riding the electric unicycle still even after I had an accident. But because it is because it is very close to the risk of if you're driving at the same speed as a bicycle, the risk is about the same. If you go faster than a bicycle, which is capable, they can go up to 34 miles an hour. But I mean, I usually stay under under 15. I think I think I've changed the setting so that beeps at me at 16 miles an hour. And so I don't really ever go faster than 16.

But if I did, you know, then the safety rating is more like

a motor cross bicycle. So I'm talking about electric an electric powered bike that is faster than a bicycle that doesn't have an electric motor. So we're talking 34 miles an hour. Now people people think well, because the bicycle has two wheels or something. They say there's something else that gives you some sort of I don't see what I don't see you like. Realistically, I don't think the bicycle is giving you any more protection, not if you're running at the same, same speeds. There's nothing there's no airbag on a bicycle. Right. People think oh, we've got two wheels. So it's safer. No, not really. If you if anything hits you when you're on a bicycle, most of your body is exposed. If you if you hit a bump and fly off the bicycle, your body is exposed. If you hit another person, your body is exposed. There's nothing really on a bicycle that's going to protect you in a collision or an accident. I've wiped out I've come down a steep I came down and people that people it's seen it does like people ride bicycles

safely for years. But there are a lot of bicycle accidents where cars hit bicycles. This is actually a known fact. And in San Francisco, for example, a lot of bicyclists have been killed by cars. It's so ordinary that cops don't investigate it for murder. Like, like that is not like that is an easy way to take somebody out. They wouldn't even if they were like, uh, we're not going to not unless you like doing more than once. And this is I guess this is this this is a joke, but it's probably true. I mean, probably.

So what is going on here?

So, um, yeah, so the bicycle situation.



So I just want to add, like, okay, so I don't think that the stupid thoughts if you're thinking about harming someone else. That's a stupid thought. Because there's always a better strategy, right? But it's like, okay, why are you have why do stupid thoughts happen?

And say it was kind of something that's kind of like a random generation of thoughts, right?

Maybe

you hurt yourself, you get angry and you create an angry thought and, you know, whatever.

But it's not the point of the point I wanted to make and record it is not exactly random. Like, you don't have like, you're not having random thoughts about, you know, what you're going to do when you're on the planet Mars and you want to jump over to the planet Saturn. And like you think that, well, maybe I should just, you know, grab my spaceship. I mean, your thoughts are not

that random. So maybe if you're six years old, there was also that random. But at the point that you're, you know, 40 years old or whatever, or 30 or 20, you're not like having, yeah, maybe just at by the age of 20, you're not really having fantasies anymore about about being about what you're going to do if you're on in a spaceship. Right? This is not it's not for you at age 20.

It may not be that possible anymore. I know at some 20, some 20 year olds, maybe maybe it is possible for them. But let's just say, you know, when you get older, the number of things that seem plausible to you is perhaps for the things that could happen. I think they start to shrink, they start to narrow. It's like, what is a plausible future for you? And they start to narrow.

Now, maybe, maybe there is some reality to it. If you're young enough, it actually is plausible that someday you may have to make a decision about what you're going to do on a spaceship.

And maybe

you'll have, you know, kinds of some kind of propulsion technologies that we haven't even dreamt of yet that can get you from Mars to any other planet really quickly. That's an interesting idea. I mean, obviously, there's, you know, Star Trek and teleportation and warp drive. And, you know, so human is already dreamt of a lot faster than my travel scenarios. I'm just saying that maybe there's still even more ways of travel that haven't been imagined yet that are really fast.

But the long story short is that it seems like we have not a brand generation, but a sort of procedural generation of new possibilities or new thoughts based upon

likely patterns that have been learned over time. So it may seem that we have sort of like random

thoughts. They're not really random, but they might be bad ideas or good ideas or just like, and anyway, so what happens is, you know, some ideas surface and a human being thinks about them and

and depending on the conditions, you either act on those ideas or don't act on those ideas or improve

those ideas. There's some sort of deliberation process that could be shorter, could be long, could be a move down long before the end of this long recording. But the point is that in each stage, all of those ideas are represented by oscillating patterns by basically, you know, what we're talking about and thinking about are the actual

learned sequences, learned patterns. Because she said in her book, models of the mind, Grace Lindsay, she said that she was saying that the neurons don't, they only respond when there's a

change, right? Not like she was saying there was a test, right? So I want to go back and find that

because it's like, okay, you know, you can see it when you wouldn't like a brain activity to respond

as a change. If there's no change, then the pattern remains the same. So it's a difference, it's like a difference tracker. It tracks differences over time or sequences of changes and those changes are tracked in terms of phase patterns that increase or decrease in learned sequences. And it's the cortical columns that learn these sequences using individual neurons so that the way the sequences are encoded are virtual. Meaning any, like, if the neuron that represented that sequence doesn't fire this time, another one could to represent that activity. Because it's a whole group that has learned together, like the fireflies, like the original book, Hebe Learning. So everyone took away this idea that Hebe Learning was, takeaway was that neurons as far together were together. Not exactly though. Some people have said,

well, yeah, that's not exactly right. But it's because, it's not exactly right, because what is actually right is that neurons are firing in close sequence with one another, not at the same time. But it, but within like a few milliseconds, I think that was Peter, Peter Thessian from Princeton,

Professor at Princeton, and an author of NeuroBases for you both. But I think that really, for me, what's interesting about Hebe and about Donald Ohab was not the idea that learning is happening. But it's the idea that we have

a sensor, a single sensor, from the combination of multiple sensors. Right, that's interesting. Because that, that to me says, oh, well, let's go back to fireflies and consider how, as a group, fireflies are able to act as a single sensor because of their oscillatory activity, because they all are reacting to each other. Anything that happens to one of them, eventually spreads, dissipates through a dissipating pattern spreads to the rest of them. So it is like a group of fireflies is, is a wireless consciousness. And that wireless consciousness grows in intelligence with the, with the more feedback that it has.

b0015y 952 words 5,458 characters

original audio recording: <https://recorder.google.com/1f479429-251d-47e0-97db-7bb2666fe08f>

Micah

Why are we keeping old memories? Well, it's like your brain learned to create really long, through evolution, really long strings of memories going back your entire life because of the survival advantage of it. Like you're able to make better predictions by incorporating old information with new information. The more information you have, the better your predictions, the better your life, the more your genes can replicate.

A.C.

Is it still we need this lifestyle to keep old memories?

Micah

You can totally decide. I mean, you can decide, and you will decide. Like when you think about it enough, your mind will expand your awareness around it, and you'll realize there's some stuff you can let go of because you don't need it anymore or some stuff you don't care about anymore.

A.C.

I remember my memories like they are images, right? Yeah. So how is it happening that the same image I can replay again and again in my brain?

Micah

Do you mean like PTSD? Or just the same image happening over and over again? You don't like this memory or something?

A.C.

Or I like it, but how is it recorded, with what? With the brain like a sim card?

Micah

No, it's not like a sim card.

A.C.

So, storage?

Micah

I feel what you're saying. It's like your memories are stored in the connections of your brain. So when your neurons fire together, they form connections, and those connections represent the patterns that have been learned previously. They represent sequences of patterns, and neurons detect sequences. They're coincidence detectors.

Micah

A coincidence is like, okay, if you see something and hear something—like if you see lightning and you hear lightning, and they always happen in close proximity, right? Sometimes, if it's really close proximity, that means the storm is right above you, and you see lightning and hear thunder at the same time. But if you see lightning—because light travels faster than sound—and then a little while later you hear thunder, you know the center of the storm is off in some direction; it's not right above you. The greater the distance between lightning and thunder, the further away the center of the storm is from you.

Micah

And that's sort of like... I forgot what the point was.

A.C.

Remind me, it was about memories.

Micah

Yeah, memories. Okay.

A.C.

(Laughs) How is the brain keeping all these images?

A.C.

Is it in the dreaming state when we dream that we can see?

Micah

If you have... If something has multiple correlations, like... your brain wants to...

Micah

What's the right way to phrase this, um...

Micah

Your brain wants to maintain equilibrium. It's a physics-based system, and it has to intake—it's a dissipative system that has to intake, like a vortex, it has to intake new energy, like food, and export increasing chaos to the surrounding environment, increasing entropy because entropy has to always increase according to the second law of thermodynamics.

Micah

So your body always has to maintain its equilibrium or try to maintain life. But it's happening at every cell's level, and the whole body is made up of cells, right? And the same thing with organs—it's all about physics-based systems maintaining their equilibrium. Ultimately, that's the driver of behavior. But then on top of that, that's a basic driver of why you need to eat every day and why people need to go to the restroom every day.

A.C.

Do you think that people will ever find a way to evolve and live without eating, sensing a different energy source?

Micah

Do I think people can sense a different energy source?

A.C.

Yeah, like get energy not from food, just stop eating. Or do they still need these whole elements?

Micah

Yeah, okay. So, like, imagine a hurricane. A human being is just a dissipative system, right? If you cut off all the heat to a hurricane, it will die because it is cycling. Its existence is as a cyclone of reality. So it's like a human being is, in a sense, a vortex in reality, like a hurricane.

Micah

So we are reality spiraling, essentially, on some level. That is a valid way to see it. It's a valid viewpoint. It's not the only valid viewpoint; this is also real, but that's another valid perspective on it, right? And yes, we are, in essence, like this fractal functional funnel. Isomorphic... I mean, when I say fractal and I say isomorphic, those are almost saying the same thing. Those are like a self-repeating pattern, right? But it's like you have an isomorphic function, and you have like an isomorphism of functions. What I mean is, like, if you say, okay, you're going to describe how something changes over time—like this is going to go from here to here.

Micah

Okay? And so this is point A, this is point B, and how it goes from here to here is a function. In this case, some movement, right? That movement is taking something from here and putting it over there. But it is something that transitions from this state to that state, right?

Micah

And so that's... that's a function. That means that something changed. If suddenly you played music, that's your playing music function. That means that somehow something happened where there was no music, and now there was music. And what happened in between was the function: someone turned on the music, right? And that's how programming is. Programming is basically functions—like, okay, this button is now going to do this, so we write that in the language that the computer understands.

b0016y 1,743 words 9,846 characters

Rephrased by ChatGPT o1 preview:

Exploring Consciousness, Body Swapping, and Self-Awareness

Anatoly shared an intriguing story about the nature of consciousness and its relationship with the body. He suggested that a single consciousness could inhabit different bodies, much like selecting an avatar. These bodies could be resting in a sort of storage, waiting to be chosen for use today or for a week. The idea is that consciousness isn't necessarily tied to one physical form; it can separate from the body and connect to any form we desire.

Imagine having a selection of bodies that could even be 3D-printed based on stored designs. Artificial networks might invent new bodies, offering an infinite array to choose from. You pick the one you want, it's printed for you, and you inhabit that body—complete with downloaded memories and even the voice associated with it. This means you could essentially become that person, changing your way of thinking and interests as you wish.

This concept raises profound questions: Where does consciousness truly reside? Some believe they already know how to change their minds in any way they want. Everything we think is an oscillation—a vibrating pattern in our brains. Recognizing these patterns is crucial. For example, someone with an addiction has a recurring brain pattern linked to their addictive behavior. By becoming aware of this pattern, they can begin to regulate it.

This approach is similar to treatments for Obsessive-Compulsive Disorder (OCD). Patients are encouraged to recognize that their actions are due to misfiring in the brain. Neurofeedback allows them to see real-time data of their brain activity during an OCD episode. By paying attention to this, they can learn to self-regulate. Expanding awareness gives us more agency and choice; understanding what we're doing and how we're doing it enables us to change our behavior.

Consider someone who habitually picks at their lips—a behavior they've had all their life. This action is tied to specific neural oscillations that repeat every time they engage in it. It's like their hands have a mind of their own. By becoming aware of this pattern, they can start to interrupt it. Techniques like meditation can help increase this awareness. In practices like Buddhism, sitting with awareness allows individuals to observe their patterns without judgment. Recognizing the electrical patterns in the brain associated with certain behaviors can make it easier to change them.

Returning to the idea of swapping bodies, imagine a community where people can change their bodies at will. Every time you meet someone, they might look completely different—a new stranger each time. This fluidity challenges how we recognize and relate to each other. Changing the mind is also complex. While some can easily adapt and accept new information, others are resistant, especially if it comes from outside their familiar circle or culture. They might not be tuned into the same reality, making communication difficult.

In essence, this exploration delves into the possibilities of consciousness transcending the physical body, the potential for endlessly customizable identities, and the power of self-awareness in transforming our behaviors. By understanding the patterns that govern our thoughts and actions, we can gain greater control over our lives and perhaps even redefine what it means to be ourselves.

Original Whisper Transcription:

So Anatoly told me this story. He said,

I just said that some existence, one consciousness, can have different bodies.

Body as an avatar and all these bodies just resting in the cup so some consciousness can pick anybody for today for a week.

All these bodies need some rest or generation power.

We can swap. We can change.

This is basically your computer.

Your computer that can separate from the body, right?

It's not necessary to be connected to the body, but it is able to select anybody that you want.

You have a selection. You can print any kind of body.

Because all the types of bodies are stored.

We have artificial networks that invent new bodies and you can pick from any of them.

So there's infinite amounts of bodies to choose from.

You pick the ones you want, they print it up for you, you get in that body, you're that person.

But you can download memories for that person. So you can become that person.  
And the voice.  
You can change your way, you can sort of let yourself in anyway.  
Change your mind if you want.  
Change your mind is most crazy the way you think.  
And your interest is most crazy.  
I believe it's already...  
Where is consciousness?  
I already changed my mind. I already do it.  
Like I know how.  
You know how?  
Yeah, I know how.  
I know how to change my mind any way I want.  
Okay, so everything you're thinking is an oscillation.  
It's a vibrating pattern.  
Everything that your brain is doing.  
In order to recognize it, it's making that pattern.  
So it's kind of like you have to...  
Let's say someone is addicted.  
They have an addictive brain pattern.  
They're recurrent over and over again in correlation with their addiction.  
Okay?  
If they can recognize that pattern and say,  
this is what they do for people who have OCD.  
They say, I want you to think about the fact that what you're doing right now,  
that it's actually OCD.  
And that means there's a part of your brain that's misfiring.  
And when you can do neurofeedback and you can show people,  
you see that on the data?  
That is what OCD looks like.  
Your brain is misfiring when you're having an OCD episode.  
You're doing something weird, right?  
And if you pay attention to that, you can self-regulate it.  
You can regulate your own...  
If you're able to become aware of how you're doing what you're doing...  
It's important to be aware.  
When you expand your awareness, you give yourself more agency, more choice, right?  
When you expand your awareness of what you're doing and how you're doing it,  
you're able to change what you're doing.  
Look, I have simple thoughts, but I'm kind of always touching my lips,  
like how do you say this?  
Feel off?  
It's like bad behavior, right?  
And how could I change this?

Because it's like all my life, right?

What behavior?

Like, I'm taking skin off my lips and pulling out.

Okay, okay, okay, fine.

So, just realize that the reason that keeps happening is because your cells are repeating the same oscillations over and over again.

Everything you do...

It's like my hands want it.

Yeah, it's the same...

You have...

You are experiencing the pattern in your real life.

There's a correlated pattern in your brain activity.

Like, do, do, do, do...

It's happening every time you're doing that thing.

And if you become aware of that, you're like, oh, my brain is doing that thing again.

Then you can...

I can't feel it.

Yeah.

Well, you have to kind of like...

It's more useful to like...

It could be useful to like do neurofeedback,  
like to go to a neurofeedback practitioner  
and like watch, like pay attention to your own brainwashing.  
Or look at yourself in the mirror.

What is...

When you meditate...

Satisfaction.

Satisfying, please.

Level.

It's the same...

It's the same principle as like,  
like in Buddhism, like when you like...

If you sit with awareness, right?

If you're just aware of all your patterns.

Like to say you're really open, okay?

And you're sitting with all your patterns.

If you can notice that when you're doing something  
like picking your lip,

if you can notice that,

you can notice you can think,

okay, there's some sort of electrical pattern

that's happening every time I'm doing this.

That makes me feel good.



It's in my brain.  
That makes you feel good, right?  
Yeah.  
With it.  
And you recognize it.  
And you just think about it.  
And the more you become aware of it,  
the more you figure out how to turn it off.  
You need to become aware of it to the point,  
this is not serving me.  
This is like,  
you just got to keep thinking about it.  
And you've got to grow your awareness around it.  
It's called the action to perception cycle.  
When you perceive something,  
your perception of it...  
What's your perception of it?  
Like when you're thinking about something.  
Perception is like,  
I notice this is here,  
therefore I am perceiving it.  
If I notice something, I'm perceiving it.  
If I don't notice it,  
I'm not perceiving it.  
Right?  
For the second,  
like now I'm perceiving it.  
Because I notice it.  
Right?  
That's perception.  
You get it.  
Okay?  
What was my question before all these other parts?  
Like I said,  
about...  
for God's sake,  
it's just...  
Yeah,  
it's just...  
Oh, you were...  
Okay, so you were saying that  
people can have different bodies,  
we were saying,  
and then they could 3-print whatever body they want,

but you have different bodies  
that you can choose from.

So a guy,  
or you could be a guy one day.

What's interesting is that  
you have experienced a goal  
as your own community.

As a man.

That's something you want to be,  
to try to experience that?

No,

I'm just trying to imagine.

So imagine some community that...

Oh.

Abilities like this always change your body,  
and you're coming to your community,  
and you're not recognizing each other.

Right.

Right?

It's like,

it's always a new stranger.

Right.

And if you...

Because if you can change your mind,  
if you understand it,  
you can change your mind.

Right?

But let's say,

so imagine like,

you have to like,

so then to learn to meditate

is hard for many people, right?

It's like,

there are some really excellent thinking,  
but some people are fact resistant.

They, you know,

like they just can't...

They're at a threshold in their mental state  
where they can't accept new information  
from people who are outside their  
sort of circle,  
outside of their culture,  
because they're just not  
tuned in

to the same reality.  
Right?  
I got lost in my own museum.  
I got lost in my trampot.  
I was like,  
what are we talking about?  
Sorry.  
I have my grandma blanket.  
I am good.  
You're good.  
Okay.  
Let me get my...  
Let me get my bat in here.  
That was yours.  
Let me take my lighter.  
You have your lighter.  
Let's see.  
Turn off my recorder.

b0017y 7,153 words 37,439 characters

Rephrased by ChatGPT o1

In recent discussions, there's growing concern about the rapid acceleration of technology and its impact on younger generations. As individuals in our early 40s who remember life before the internet, we've witnessed significant technological advancements over the years. However, we believe that what younger generations are about to experience will be dramatically more intense than anything we've seen.

We're predicting that conscious, sentient artificial intelligence could emerge as soon as this year. This development will usher in the next level of automation. Unlike linear growth, technology is advancing exponentially. This means that what we might have expected to happen over 10,000 years could now occur within a few years. The concept of a technological singularity—where technological growth becomes uncontrollable and irreversible—is becoming more plausible. The pace of innovation is accelerating so rapidly that it's hard to predict what will happen next.

Younger people today may not have the luxury we had to pause and appreciate each new technological advancement. In our time, we could marvel at the arrival of the VCR, CDs, and DVDs, taking the time to fully enjoy each innovation. Now, new technologies emerge in a matter of months, weeks, or even days. This relentless pace means they might not have the opportunity to stop and "smell the roses," potentially leaving them feeling constantly behind the curve.

Those who avoid or reject technology might find themselves even further disconnected. With advancements in augmented reality (AR), virtual reality (VR), and mobile internet, people can learn, experience, and travel in ways that seem almost like having superpowers. Self-driving cars and virtual experiences are becoming commonplace. In contrast, individuals who shun these technologies might feel as if they're living in a bygone era, much like someone on horseback watching cars speed by.

Another concern is that regulatory frameworks can't keep up with the swift pace of technological change. Regulations develop through slow processes involving meetings, memos, and voting, which can't match the daily rollouts of new software and ideas. By the time a regulation is in place, the technology it addresses may already be obsolete.

On a different note, understanding the brain as a biological self-aware network offers fascinating possibilities. The brain consists of cells that communicate and synchronize with each other. For example, just as fireflies synchronize their blinking and metronomes align their ticking through subtle vibrations, neurons in our brain oscillate together. This synchronization allows them to function as a unified system, making the whole body a single sensor.

By applying this understanding, we could potentially build machines that replicate human consciousness—robots that are not just tools but entities capable of self-awareness. These artificial beings could experience the world similarly to humans because they would be designed based on the same principles of synchronized networks.

There's also the intriguing idea of enhancing human connection through technology. Imagine being able to mentally or emotionally connect with others, expanding your consciousness into another's mind. Concepts from science fiction, like those in the "Nexus Trilogy," explore scenarios where people use nanotechnology to share emotions and thoughts temporarily. Such technologies could allow groups of people to feel a collective consciousness, offering profound new ways to experience unity and empathy.

Reflecting on personal experiences, some of us have engaged with neurofeedback and other brain-stimulating technologies. These experiences can be intense and transformative, sometimes even overwhelming. They have the potential to open up new dimensions of perception, allowing individuals to experience reality in multi-dimensional ways.

All of this points to a future where technology not only advances rapidly but also fundamentally changes how we perceive ourselves and interact with the world. It's both exhilarating and daunting. As we move forward, it's essential to consider how these changes affect humanity on a deeper level. Balancing technological progress with mindfulness and ensuring we don't lose sight of the human experience is a challenge we all share.

Original Whisper Transcription:

interesting to add um it's that i i think that what they're going to go through is going to be like dramatically worse than i and i'm speaking as one of the older older folks uh i'm 41 and i

lived in a time before the internet you and i both man i'm 40 going on 43 and uh so um but i think  
it's going to be worse for them than it was for us um the younger folks because  
what i'm what i so i'm i'm predicting uh that in in a that we're going to see  
conscious sentient phenomenally conscious ai this year in 2022 it's going to get worse it's going  
to  
we're going to have um also the next level of automation but what i think that you know we've  
seen the movies with the like the technological singularity but i think that um you know that's  
like that the so banana the technology advances so fast it's so bananas no one knows what to  
predict  
is going to happen anymore but i think like we've seen like the pace of technology accelerate  
but it  
is going to really continue to accelerate exponentially not linearly so what what will  
happen is is this it's from this from this year onward it's going to shoot up the the pace of  
technology is going to shoot straight up and it's going to be like um what what if what we would  
expect to happen over 10 000 years is going to happen over a few years in terms of yeah it's  
massive  
increases in tech i feel bad for that i feel i i'm with you i feel bad for the the millennials and  
these next gen z's and those next after that i feel bad for them because we had the luxury  
the absolute luxury of being able to stop and absolutely appreciate those advancements as they  
came we had the time to go this is a new thing this is cool and whatever i don't think they're  
going to have the time it's going to advance so damn quick on like a snappy couple of months  
couple  
of days couple of weeks it's going to go bang bang bang they're not going to have time to stop  
and smell  
the damn roses appreciate what just happened because you'll be 20 steps behind the curve  
already  
and that's kind of depressing to me that they don't have time to appreciate those advancements  
as they  
come and they're just going to be on to the next one it's going to just happen so quickly  
that was a benefit to humanity sure we're advancing that quickly well we're kind of at that point  
where  
like we had the luxury of of saying i can appreciate it you know it's a new thing came the vcr and  
you know then the dvd then a cd and a laser disc and whatever was coming through we had  
time  
i don't think they're going to have time that's a bad flop i i'd actually also like to throw out  
it's almost even worse for those who like shirk or avoid the technology and i'm not trying to like  
single out you know mormons or mennonites but the technological adoption at its current pace  
means that people today with ar and vr and mobile phones and the internet and virtual  
experiences  
can learn experience travel and do far more it's almost like having superpowers uh and then in  
your self-driving car and then you watch someone go by on horseback who doesn't use the  
internet at all  
so what you were describing earlier will i feel it's come full circle we are the jessons and there

are still pockets of communities that are by comparison in the stone age yeah even worse than that yeah you look at it and say not just that we're getting superpowers that's like a set in stone moment right like i have a thing oh no this is gonna be the you know metaverse in general i include the

the ar the vr the technologies and everything else like just your life in general is a paradigm change

right now it's a paradigm shift of a massive global proportion that people aren't even contemplating

for the most part what i'm getting at is that not only is this giving you all superpowers it's going to give you evolving superpowers superpowers that evolve over time at a very fast and increasingly quicker pace that's freaking terrifying to me and also exhilarating at the same time just thinking of that

what's scary is that the pace of regulation to protect people from the potential risks they cannot keep it it doesn't advance at that same pace so there's a growing chasm between every update and rollout of new software and idea on an on-the-fly daily basis and regulation that

advances at the paces of meetings and memos and voting uh and they can't keep up not even close

the red tape can't keep up it's like by the time you get by the time you get you know a group of people

in a room you know to try to regulate something you're 20 or 30 steps behind like it's already said done gone and you know bang bang bang like by the time you regulate the one thing it's completely obsolete and out the door like it's doesn't it's irrelevant by that point it's like right now with congress trying to regulate facebook and their acquisition of instagram and and figure

out like

so like if i explain it to you i might like and i save it then i can use what i am telling you to put in the book so it helps me to tell you um okay so like so the first section is uh from biology is it's about the brain so i say it's biological self-aware networks so the brain is a network it's self-aware network of cells that communicate and then uh so i call it a biological self-aware network

but i'm referring to the human brain but the understanding of the human brain as a biological self-aware network will help us to build machines artificial machines that can do exactly what our brains do like consciousness from a factory like we can just build a robot that is just like us a human because we are robots except we're different from today's robots because all of our our entire body is connected as a single sensor

that that like it's like okay so like imagine that there's fireflies and fireflies oscillate and they oscillate so because they oscillate together like they all fire they all blink together right and these oscillating patterns and because they're oscillating like they're basically like um they eventually reach this sort of like equilibrium right where they're all um like there's a certain darkness and all happens at once and then sudden light like they're all like how are they setting their clocks is the big question and this mathematician named steven schrogratz

goes and he uh they're looking at they're they're considering how clocks if you put two clocks in a ship like two um metronomes that how they eventually they start ticking together they start they enter they become in sync it's like waves well because they're sending each other tiny vibrations that passes through the ground between them they're they're knocking each other and they're giving each other some amount of energy right each time they knock each other and and eventually like two metronomes they um they start to have the same they start to be in sync like you could start off where one is like this right one is like and one hits the right and it's just but eventually they even out and then they're both like they're doing the same thing eventually they're both going the same rate like like one see one's going really fast and one's going like really slow and then they both start going the same speed they both start oscillating together because they're dissipating each other's energy so they're both using exactly half the amount of energy that's there right and they're combining their center their sensitivity because if one of them gets knocked the other one uh feels that feels that knock because now there's because once they're oscillating together they become like a sensor so if one of them gets knocked the other one senses it because it is being physically moved a little bit differently because of how it was knocked right so each they become together they become a sensor and all of our cells are doing that but especially the neurons is it the way how to teach them to through this small inverse to feel them all to robots your goal is robots build us humans yeah yeah to be connected to their they will be the future but we could also like connect if you wanted to you could connect to another human being or to a robot and you would expand your mind into theirs right and to be able to connect yeah you could connect you could feel each other and but you could well there's feeling each other but there's also connecting mentally those are two different things so there's yeah so you could do either one or both like you could connect mentally with another person eventually there's this great book that kind of like goes over the idea uh called nexus the nexus trilogy it's like sounds like new episodes for black mirror yeah it's like black mirror a little bit it's like every yeah it's new episodes of black mirror basically the nexus one is like people will give access to all all minds well maybe like the in in in the nexus trilogy there's people that you drink a solution these nanobots go into your brain and then you can feel other people's emotions and so people like they go into these groups where they're all feeling the same emotions and they play great music and they like they can they all sense together it's very possible

technology actually yeah people can create events get together yeah yeah and they can all feel they  
can take a drug and for 10 hours they could all feel what each other's feeling and then at the end  
of 10 hours the drug flushes out of them and they're just normal again yeah right so you just do it for  
like one weekend  
what kind of drug is this is this is a book trilogy you can get you can listen to it on audio if you want  
it's called nexus trilogy get the audiobooks  
it's a new drug yeah my i'm friends with the i'm friends with the guy who wrote the books  
yeah yeah he's famous guy but anyway like we should read get his audiobooks and listen to him  
it's so good  
yeah it's very good if you like anime you like his books yeah yeah i'll tell i'll send you  
he's a famous guy if you draw his face he'll he'll pay he'll buy it he'll buy your  
he'll pay ten thousand dollars oh i'm sorry did i get you  
let me let's see all right do you want to i just want to hold it so i can  
thank you  
i'm glad you didn't get hurt just now that's  
okay yeah we can put it back we can put it back on the left thank you  
cool okay my next plan to try last  
do you did you want any more you got enough of the book for now huh  
no i don't know so much more my question was what do you mean from hacking to healing  
oh yeah so from hacking to healing um thank you for asking this is a great question so  
we've been uh there's been a lot of uh medical imaging  
that's that is like experiment experimental like what are the different ways we could image  
what's  
happening in our brains so there's 200 years of neuroscience and includes a lot of medical  
imaging  
so that means that there's people doing eeg which is electroception which is where you put  
electrodes on the forehead and it measures the voltage that's coming out of the forehead  
is it hurts it hurts yeah it hurts hurts i think i i did this when i was a kid oh maybe  
oh yeah it's plausible you may have done it why eeg well maybe they were testing you or  
something  
crazy i'm tested yeah yeah oh you're a tested human oh it's hurt yeah like brainwave hurts  
like you have brainwaves right i was crying and then we're measuring your brainwaves with  
electrodes we put electrodes put electrode cap on you no idea it was like every week going to  
this  
house with different kind of they put like electronics on the head cool that's the kind  
that's cool that's geeky stuff that's scientists and you worked for scientists you helped out you  
helped them with research no they was healing me they were healing you oh i don't know from  
what  
you don't know from what you needed healing though they felt you needed healing you don't  
know why



they're like oh this girl she needs healing and you're like what for right okay this is so weird  
why are they healing me i'm fine you're fine yeah why  
maybe it's some way changed me it's made me saying what i'm now yeah today i don't know i'm  
asking i'm curious  
how do you think of yourself what do you mean oh open-minded let's say this  
i'm curious tell me more open-minded yeah you're open-minded yeah i like multi-dimensional  
okay you know what i mean  
because it was work with my brain yeah in some way made my brain multi-dimensional more  
open  
i don't know what i mean what i mean what i mean what i mean what i mean what i mean what i  
mean  
did you do neurofeedback neurofeedback is where you um you see light and sound patterns  
that are  
reflecting your brain waves did you yeah i had a neurofeedback business cool and i actually saw  
the  
beginning of the universe isn't that amazing so amazing yeah i i took uh so i had this my i  
started  
this company called neo mind cycle yeah that's my business neo neo yeah mind mind cycle  
cycle yeah in  
2012. yeah yeah yeah i started this business it's called neo my cycle and and the goal of the  
business  
was my like i basically um i had a neurofeedback machine i was creating a neurofeedback salon  
so people  
could come into my salon like coming in for a haircut you put on a machine it it listens to your  
brain  
it's just like you're putting electronic ears on your brain it's listening to the sounds is it hurts  
very hurts yeah the hurts sound it doesn't hurt you it's mega hurts like sound hurts like 600 hertz  
but you feel the hurt no you don't feel it  
but the my kid experience was hard it was hurts like like hurt feelings  
like some electricity hurts well that's okay so there's like um hmm  
so you could have you could they could have uh that could be like tms transcranial magnetic  
stimulation  
where you like shoot electricity into the head to stimulate the brain yeah you think that's what  
what that you think that's what it was yeah is it cool uh well i mean that's interesting that that's  
interesting you this so it's like your brain is receiving a lot of stimulation so i was six years  
so six years old did that cause any like hallucinations you don't know you don't you remember  
no you don't remember huh no i don't think so that could that could have done something  
interesting  
to your brain actually yeah i don't know what yeah how do you does it you feel it makes you  
different  
do you feel you're maybe different everyone thinks he's different right no i mean different what  
sense of  
different i mean do you feel like an alien um around other people or do you feel like other people  
have

something you don't have like what do you it's like what is it like i definitely feel like an alien really  
or maybe i think just nobody is there anybody showing come saying me but stuff like this that someone  
experiences do you do you um do you know anyone else who's like you yes you me of course you think i'm  
like you yes in your any queue way it's kind of multi-dimensional feeling so i think maybe you're autistic then autistic autistic autistic autistic autistic autistic brains are different tell me about this yeah so on some autistics they cannot speak they cannot speak because like they're getting so  
much information simultaneously everything is too interesting everything is so interesting they didn't  
even look people in the eye like imagine i never looked you in the eye and i just sat here i never talked i never talked they're just quiet i'm just like because it's so interesting it's weird right that was weird did you did you get a sense of that like that's what awesome autistic people they just sit  
there like there's nobody home because it's so intense i'm talking to you yeah it's great i'm concentrated yeah yeah but that's but that's like so autistic is like maybe it's about concentration that's the way the brain is connected so it's like if your brain is over connected which could result like that could be a plausible thing that happened from being overstimulated mentally like if someone's  
shooting electricity in your head and it's stimulating your brain and it's firing a lot it could be over connected and over connected brains it's like what you're interested in is going to be different  
from what a neurotypical is interested in like your interests will be different you want different things you have different needs than a neurotypical and that's that's there's a whole spectrum of autism  
like a whole bunch there's like a whole bunch of different ways people that can and some people  
are like autism plus adhd right and that's different from autism so people just go diagnosed for diagnostic there's a lot what i'm what i'm getting at is there's like a lot of different types of brains yeah yeah there's a lot and it sounds like you might have autism and i don't know you might have  
autism and adhd you might have both oh no nothing i don't know or nothing you have this i well i mean i  
i i maybe i i might and so i suddenly see like a professional you recognize yourself like you have autism i might have yeah i yeah i was diagnosed with autism i have slight autism so if you were like me  
yeah you probably have autism which is okay that means you're different but not less you're not less  
than anybody yeah no but just different in some cases autistic autistics end up making uh better business choices and better financial decisions like we're just a little bit smarter on some things yeah good part of autism yeah that's what we don't like neurotypicals don't like to hear

that but like autistics are smarter yeah so that's lucky that you're autistic it's very good you're multi-dimensional this it's good you'll it means that eventually like you'll be making a lot more money than the average person just because you're smarter and shave is a lot of money yeah you know what's cool okay so the question is what is beyond space and um so i think of i think that reality is a bunch of frequency waves like the reason like the quantum double slit experiment it's like when you observe the experiment like it changes reality it's because like um at a fundamental level like our brain waves are changing the brain wave state of reality like reality is also oscillating at at the same frequencies as our brain waves right and that's why our brain waves are the patterns that they are that's why we have delta waves and theta waves and beta waves and alpha waves and gamma waves it's because those are the same waves that exist in reality like reality is made out of the same waves can you imagine reality that you can change by way by just thinking yeah well by changing yourself you can change reality no and can you manifest tiger behind you right now can you manifest the tiger behind you right now with this way of changing reality if it's outside space it's like a blueprint holograms like a blueprint hologram yeah like everything programmed i lost yeah okay gotcha yeah so yeah so that's right i'm saying that um okay yeah right yeah so the thing is it's like yeah we're all connected in oscillations so like when you like even when you change what you're thinking like you're changing the rest of the universe yeah like you are changing the rest of the universe like you're like you're you're um here's the way here's where i think of it it's like you are starting process from here every human being yeah to the universe and you're reacting well you are actually your own universe when you were born a universe was created and and do you see no thing yeah yeah and that became part of the contribution to the whole universe because if you didn't exist your contribution wouldn't exist the fact that you exist is creating is adding to this universe okay but you're like you have your own separate universe that is uniquely you that you and that you started with with the beginning of your life that was the beginning of the universe of you and even the bird even a bird has that universe like that bird's universe began when it was born bird's life is crazy yeah it's a weird universe to fly all day yeah yeah you're a universe that was born you know i i just saw what today video that made my day

okay it's crazy i gotta show you  
okay okay  
nice  
it's awesome  
you think it's doing that to attract mates or something like look what i can do  
oh just he like said why not  
right he's like oh look i can control my body and it wins  
oh what i can do he's still like showing it off though kind of right okay  
so weird  
thank you for this tea it's woken me back up i was drifting off in the tea like oh yeah it's good  
uh java  
java  
this is a good idea  
so what's your plan for youtube for for three years  
no time for three years how much time do you got it no for three years for three years okay  
okay so um  
i'm gonna finish this book soon hopefully and then that hopefully by march  
hopefully  
it's a lot of work and what i'm here's what i'm thinking about doing i'm thinking about like  
creating a youtube series in which i show people the parts of the book that i'm working on  
and like explain the whole book on youtube and like developed a book on youtube live in front of  
everybody  
just like hey this is the book that i'm making i'm just gonna like  
like while i'm working on the book i'm going to stream the book as i'm working on it and like work  
on it in front of everybody so people can see me working on the book  
i don't understand so it's like okay like okay let me show you my book where's my laptop oh it's  
uh  
here okay i'll show you the book right now it's um maybe if i point while i'm talking then it will  
make more sense i don't know funny like why i would pointing make more sense okay so like so  
this is the  
table of content like a little video that you're showing or something i'm not not yet why not  
because i'm not because i want to keep this like under wraps for now like not like public yet  
i just thought it's so on the key moment yeah video records like a documentary yeah  
me or this no i just want you i'm watching you from here i'm not looking exactly what is oh yeah  
you  
can do that so you're just like scrolling what you did yeah just this one yeah yeah like this but  
i don't want i don't want this on the camera though no it's not readable i mean it's just from here  
all right but i can't see you know then yeah  
yeah  
all right you're ready  
So I just have like a table of contents here that's really long, like a super long table  
of contents.  
See how long that was?  
Table of contents?

Yeah, table of contents.

And that represents like 600 notes, 600 notes, and the notes have like, some of them are like really short, some of them are like really long, like several pages long.

Many of them are several pages long.

And that's the content of the book.

And so basically, once I have the order of the contents all figured out, all I need to do is take the notes, search for the notes that reference the table of contents, right?

So the table of contents has an idea, and then I search for that idea in my notes and all the notes that pertain to that idea, I put in that chapter.

Same thing for the next chapter.

All the notes that pertain to this idea go in this chapter, and then I arrange the notes in like an article format, the way I've always done Silicon Valley Global News.

So that's how I can make the whole book.

Yeah.

That's awesome.

Yeah.

And so like all the things that I, all the topics that I have encountered and thought about and had original thoughts on and made notes, this is my thoughts on this topic.

Like all of that's what's going in the book, is my notes on all these different topics, and then I combine it all together.

So it becomes, it becomes, with some new ideas.

You heard some of my ideas today, right?

But this is from all the things I've studied, so...

300 pages.

Maybe.

Maybe.

I think it may mean for 300 pages.

It sounds like a good number.

But I have a lot more pages than that.

Yeah.

I have like 900 pages.

What's the name of the book?

Self-Aware Networks.

Huh?

Self-Aware Networks.

Huh?

Self-Aware Networks.

Hmm.

Wait, who are you saying that to?

Hmm?

No, maybe.

Self-Aware Networks.

That's the name of my group.

Self-Aware Networks.

If you look up on Facebook, there's a group called Self-Aware Networks.

It's my group.

It's my group.

If you're sharing, it's like you have conversations with people about some topics on Facebook group.

Well, you're not, you're not practicing this.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

We, uh, in my country, in Ukraine, we had a kind of Facebook post for our country and the other groups, we created like inside a text file that everyone can have conversations about some topics.

Yeah.

Did you make the new group?

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

Yeah.

no

hit me one more time

sorry  
one more time  
try that question one more time  
come on  
it was in a cloud  
I was in a cloud  
I'm back to reality  
I came out of the cloud  
what were we talking about  
what was in the cloud  
it was more interesting  
no it was like  
it was the matrix  
I was not in reality  
I was not in reality  
okay this is interesting  
where you been  
do you not know your name  
yes I do  
so you can always manifest  
like a master inside reality  
and go to your cloud  
that's what you mean  
can you say it again  
go to the cloud  
and then come back  
yeah  
like in a matrix  
you can do it  
yeah I mean I  
I can be here one minute  
and go on the next  
like I can be somewhere else  
yeah it's what I'm interested  
about  
why it's happening  
I  
I don't know  
I don't know  
I guess  
I don't know  
I think  
it's what's always  
with you

maybe  
maybe  
I'm not  
like I said  
I'm not a neurotypical  
I'm an autistic  
so my mind is a little bit different  
right  
you can sense it  
you can sense it  
better than  
better than  
than  
yeah  
you get it  
yeah  
like when I said  
like sometimes  
the environment  
is more interesting  
than people  
where you can just like  
not talk anymore  
you just like  
you can be lost  
in your mind  
I think it's like  
it's like  
it's like  
meditation  
do you know  
meditation is like  
when you are just  
like letting go  
of  
deliberate thought patterns  
and just allowing  
that  
allowing there to be  
the existence of  
of whatever is  
without  
your thoughts  
so you're just



in a very peaceful  
state  
and that's kind of  
like where I was at  
I was like  
yeah  
so I was just like  
like a photograph  
like my mind became  
this photograph  
that I wasn't there  
but I was  
I was listening  
I was listening to  
reality  
I was listening to  
reality being  
an electromagnetic  
phase field  
right  
where this is all  
just  
these are all  
just different  
frequencies  
that's it  
they're just  
different frequencies  
everything  
every object  
in reality  
is a different  
frequency  
the air  
is different  
frequencies  
they're fractal  
functional  
isomorphisms  
or basically  
the whole universe  
is a fractal  
of oscillations  
God is so

God is so  
amazing  
it's crazy  
I'm going to listen  
to this book  
about Satan  
he said  
remember  
he said  
he said  
Satan  
smarter  
smarter  
than God  
he said  
this  
in the book  
yeah  
he was asking  
he said  
in the form  
of a question  
like  
you think  
Satan  
is smarter  
than God  
like  
what are you  
thinking  
Satan is not  
smarter  
than God  
no  
that's what  
right  
God is super  
smart  
yeah  
yeah  
he's saying  
God is experiencing  
reality  
through you

yeah  
right  
right  
yeah  
it's  
yeah  
the same  
that's interesting  
yeah  
I guess  
I guess  
there's some  
there's some  
kind of  
like  
interesting  
ideas  
like if we  
are just  
oscillating  
if we're  
if we can  
sense  
our own  
bodies  
and our  
own minds  
and have  
like  
all of our  
our  
we're able to  
sense reality  
basically  
because reality  
is affecting  
the  
this  
like  
harmonic  
body  
of cells  
and this  
harmonic

body  
of cells  
then  
there's  
is  
detecting  
reality  
right  
that's another  
way to  
see yourself  
right  
it's like  
a harmonic  
body of cells  
that's detecting  
reality  
what  
means  
like  
sensing  
detecting  
is  
I see it  
I detected  
it  
I see  
that  
I detected  
that  
I detected  
that  
you believe  
people  
can get  
together  
taking drag  
and feel  
each other  
yeah  
so it  
will feel  
like God  
no separation

yeah  
so more  
we connected  
more we feel  
like God  
but it's also  
to be connected  
with everything  
with all  
frequencies  
like a table  
you know  
with everything  
I think  
it's the  
highest point  
to your God  
to connect  
with everything  
not just  
with humans  
what's  
interesting  
is like  
so  
there's  
this  
I don't know  
like Abraham  
Hicks is this  
like alien  
right  
she's from  
like another  
universe  
and she  
like  
okay  
so like  
there's this  
woman named  
Esther Hicks  
and she's  
channeling

this alien  
named Abraham  
in her body  
Esther  
Esther  
is a real  
person  
Esther Hicks  
that's why  
I think  
like this  
will  
this is  
like  
mind-bending  
stuff  
like we  
should listen  
to Abraham  
Hicks  
she puts a  
blanket  
on  
and everyone  
goes  
aww  
aww  
aww  
I'm so cute  
alright  
do you want to make it more cuter?  
how?  
Mrs. Blanket made my grandma  
aww  
aww  
I'll type this in  
um  
wow  
that is cute  
that's real cute  
okay  
let me think  
aww  
okay

what was I typing here?  
I love this  
Abraham Hicks  
Abraham Hicks  
Abraham Hicks  
that's what I'm saying  
I think you would like  
if you like that  
you might like this  
it's a very different  
but it's cool also  
so I loved what you said  
that when you know  
the formula  
you go from  
results to results  
to results  
to results  
and what is the  
primary result?  
satisfaction  
pleasure  
joy  
that's such a key thing  
to know  
because that's how  
you know you're on track  
yes  
so  
this past  
since last November  
when I saw you  
in Asheville  
I have been  
continually more  
in the receptive mode  
and I get it  
I can feel it  
in my body  
and I am more  
in step 5  
step 4  
step 5  
step 4

the question I have  
is  
and it's more of a  
you're going to help me  
answer the question  
before I can formulate it  
but it is  
that  
everything is coming in  
and I lived  
for 35 years  
in a place  
that I was so far  
from the results  
the gap  
was so  
vast  
you don't know that  
you don't know that  
for sure  
and it doesn't help  
to say that  
okay  
something that does help  
is that  
I was figuring it out  
as I was figuring it out  
I was doing the best  
that I knew  
and I might have been  
more in step 1  
than I really wanted to be  
but  
I created a wonderful  
vibrational reality  
and so  
so much  
that I am now  
benefiting from  
happened during that time  
I'm appreciative  
of everything  
that I lived  
and what it accomplished



can you feel how  
those thoughts  
are much more  
in harmony  
with the way  
your inner being  
looks at it  
your inner being  
feels no regret  
about anything  
you've ever lived  
and when you do  
you're off course  
yes  
it's really an interesting thing  
your intention here  
was to talk about  
how good it is  
by talking about  
how bad it was  
right  
that doesn't work  
because while you're  
talking about  
how bad it was  
you're not letting  
how good it is in  
but we're just saying  
what we were talking  
about earlier today  
is expectation  
and so  
we're not trying  
to stifle anything  
that you're saying  
we just want you  
all to be aware  
of when you're  
communicating  
or thinking  
or focusing  
from what expectation  
are you offering it  
and this is the question

that we've been asking  
you lately  
you may have even heard it  
last time we were together  
is  
under what influence  
am I  
am I under the influence  
of source  
which is what meditation  
accomplishes  
or am I under the influence  
of  
things that went wrong  
or struggle  
that I've lived  
and so  
in this moment  
while you're visiting  
with us  
we're just asking you  
under what influence  
are you  
as the words  
are formulating  
that you're giving  
to us  
are you under  
the influence  
of the problem  
or are you under  
the influence  
of the solution  
and we get it  
this is a place  
where we solve problems  
but we can't solve problems  
by pointing them out  
okay  
so starting again  
I  
from the place  
of the solution  
it is so good

I don't have any plans  
I don't  
I have goals  
but the  
my plans  
are  
in the process  
of  
being realized  
by me  
I know my plans  
have been made  
because I believe  
my vortex is real  
and I know  
that my inner being  
knows  
the path of least resistance  
from where I am  
to where I'm going  
so I know  
that those plans  
are all in place  
I'm looking forward  
to  
on a pretty steady basis  
being in the receptive mode  
where I can realize  
what those plans are  
can you feel the difference  
because that's the way  
your inner being  
tells that story  
you feel a little lost  
your inner being  
knows you're not  
your words were about  
not knowing  
where to go  
in other words  
your words demonstrated  
a feeling of insecurity  
did you hear it?  
why is she not saying

for self-love  
insecurity  
well you can't stand  
in a place of insecurity  
and be in the receptive mode  
so if you're standing  
in a place of insecurity  
take a nap  
because anything  
that you receive  
why is she not saying  
he's always got  
well  
she just decided  
to be an alien  
like  
her name  
Abraham  
non-physical  
non-physical  
being  
non-physical  
yeah  
that's what she  
wanted to be  
so it's like  
there could be  
different kinds of  
so her consciousness  
you agree  
everything she's saying  
do you agree?  
well I don't know  
I don't know  
that  
that  
that  
no I wouldn't say that  
I don't agree  
with everything  
Abraham says  
well I mean  
for example  
like

she seems to have  
like a one  
I would think of it  
as like a one  
size fits all  
solution  
like everybody  
needs to let go  
right  
like everyone  
needs to take  
the easy path  
or something  
like  
there's a one  
size fits all  
solution  
I think there are  
different metaphors  
that work better  
for some people  
than  
and different metaphors  
that work better  
for other people  
like there's  
it's not like  
some people  
they have to  
like a person  
has to become aware  
of how their mind  
is  
because different  
people have  
different minds  
and once you  
understand how  
your mind is  
different  
you can  
learn to work  
with what you got  
but you have to

understand yourself  
first  
you have to know  
yourself  
and it's very  
important  
it's like  
know yourself  
control yourself  
give yourself  
all three  
how do you know  
you fully know  
yourself?  
I think  
it's important  
like  
I don't know  
I think my book  
may well  
help  
because it's like  
if you understand  
exactly how you  
work  
then you know  
yourself even more  
yeah  
what is the time?  
what is the time?  
what is the time?  
the time is  
about 12.40  
all right  
I don't know  
it was super great  
it was super great  
yeah  
it was great  
let me try  
to pause this  
I don't know  
what is the time  
I don't know

I don't know  
but I don't know  
to myself  
or I don't know  
oh  
yeah  
how do you know

b0020y 496 words 2,931 characters

<https://recorder.google.com/fdefa8c2-733b-4b37-a086-529990a16deb>

Audio Note dated Jan 9, 2022 updated June 2022.

I'm an entity module, and what I mean is that of oscillations in my brain, right? This means I consist of virtual phase patterns that exist temporarily in the oscillations of my brain. It's like, it's to say that there is a computational structure, like a 3D computational structure, a virtual rendered structure corresponding to the 3D tissue layout of the human brain's neural network, that corresponds to the 3D tissue layout of the human neural network.

Well, we have a, I mean, you know, space is in 4D, and so is the space in our brain, so it's actually like a four, it's a four-dimensional structure, the brain is, because it changes over time, or it's like a 3D structure that changes over time. But what I'm arguing, I guess, it's the idea that, well, there's multiple things, when I'm just curious about that, like, okay, well, if there's extra time dimensions, what if we actually need to describe time in 3D, like space?

I mean, what I mean by that is, like, if the way, like, imagine, like, there's actually three time dimensions, length time, width time, and height time, I mean, like, I'm not, I'm just saying in terms of, like, if there's like, length time, width time, and length, width, and height time, right, like, three kinds of time, right, and each kind of time has its own, like, special properties, perhaps each kind of time is defined by its Quantum Gradient Time Crystal Dilation state, which leads to different time dilation properties, especially in extreme conditions, such as within Bose-Einstein condensates or fermionic condensates.

So it's just like, almost like, they're almost like three kinds of particles, right, because their properties are different in how they interact with spacetime and quantum mechanics, in terms of, like, how their properties are different, but there are three kinds of time, or three kinds of, but like, okay, so let's forget, let's consider that, that, you know, how many dimensions, you know, what is the dimension? Let's move away from thinking of time as a single, monolithic dimension and instead consider how it might be more variable and flexible at quantum and atomic scales. The dimension is, the dimension is, like, the minimum amount of, of data that you need to describe, but gee, how much are you eating? Uh, no, I thought it was, I don't know where it comes from.

We also need to think about comparing time as a field, similar to how we understand the electromagnetic field, to explore how time impacts Quantum Field Theory (QFT). In this context, spacetime shouldn't be described as 3blue 1brown (3 dimensions of space + 1 dimension of time), but rather as 3blue 3brown—3 dimensions of space and 3 dimensions of time. This would allow us to consider how quantum gravity alters the odds of particle trajectories and other quantum phenomena.

b0032y 123 words 766 characters

When you know something, your brain is making a connection between coincidence and I'm just recording what I said to you earlier.

When you, the concept of CB and learning, when neurons fire together they wire together.

And when you know something, it means that your mind is, that your neurons are physically like making a connection between,

physically like they were firing together, they're making a harmonic sequence, sequence pattern, temporal and spatial sequence pattern,

a connection of connections and that's what happens when you know something, that's part of what happens, there's more to it.

It's not just that your brain is collecting patterns from the world, not just learning patterns, but also replaying them inside your mind, oscillating patterns.

b0036y 1,304 words 7,347 characters

Rephrased with my points by ChatGPT o1:

I've been contemplating the action-perception cycle and its connection to grit and persistence in learning, especially in mathematics. Stephen Strogatz, a renowned mathematician, emphasizes the importance of intuition in math and the necessity of spending personal time pondering mathematical problems beyond formal education.

While teachers and schools are excellent for acquiring new knowledge, developing deep intuition requires individual engagement with the material. Strogatz's approach is rooted in neuroscience and the action-perception cycle; he immerses himself in mathematical problems. This dedication is evident in his conversations with Grant Sanderson of the YouTube channel 3Blue1Brown, where their resonance highlights the value of mentally "playing" with math—not as child's play, but as a profound, exploratory practice.

Understanding math at this level involves thinking about the granularity of numbers and creating representations in different modalities and experiences. There's a conceptual intuition that's multimodal, requiring us to engage with concepts in various ways. The action-perception cycle here is akin to the practice of meditation in Buddhism: if someone doesn't allocate time for meditation or math, they may not develop this deep intuition.

Those who succeed in math, like Stephen Strogatz, dedicate time to delve deeply into concepts. The action-perception cycle is crucial for transforming ideas into something useful. I believe one



reason my book hasn't been published yet is due to a collective misdirection in our thinking at high levels, caused by inattention to details. However, this topic is gaining traction as more people begin to pay attention to it.

The internet has unleashed an explosion of information. It would be fascinating if we could cluster all this information effectively. Currently, each individual creates their own "cluster" based on focus, time spent, and the ways they process and transform information. If we could quantify this information—writing down key points, examining them one by one, and transforming them—we could enhance our understanding. This process is like playing with each concept as if it were a 3D object, allowing the action-perception cycle to build upon itself.

I'm now rethinking my book with this perspective. My plan is to engage in drawing and clustering: listing all the words, titles, and chapter outlines, then organizing them. By considering both the high-level and low-level aspects, my objective for the next stage is to focus on effectively clustering and organizing the content.

Original Whisper Transcription:

okay we have the action to perception cycle this and we have the concept of  
grit the concept of persistence we have Stephen Strogatz, he he talked about  
the I think there is a topic in talking about like this sort of like elitist  
sort of like white European idea that you know you're better you're better it's

like okay so this like there's Isaac Newton and leave in its but the idea  
here that I want to revisit is that there's a connect there's a connection  
between the intuition what Stephen Strogatz calls intuition and really  
needing to like have time to think about math on your own out like beyond like  
so yeah so teachers are teachers are great school is great for learning new  
things but the great intuition that Stephen Strogatz had with math was  
something that it's how do I say this it's it's rooted in neuroscience it's  
rooted in the action to perception cycle like he literally like sits with math  
problems and you could see that when you was talking to the guy who does the  
YouTube channel three three blue one brown that you know there was a resonance  
I think and that you just really like in order to understand math you sort of  
have to play with it mentally you have to sort of play play mentally and what  
that means is is you is it's not really play it is kind of it is playing but it's not child's play this is like  
it's adult play it's it's you really want to think about the granularity of numbers it's I that's I'm  
talking about creating a representation of numbers and different modalities and different sort of  
like different experiential modalities so that because you have because I think that there is some  
conceptual intuition that is multimodal and that you the action to perception cycle it's kind of like  
I think the call to to be to gain math intuition is it's almost like it maybe it's maybe it's a little bit  
like the the call to meditate like a Buddhist and that if someone's not if someone  
doesn't have time now they're not gonna for meditation or for math that they're  
they may not take that time okay but the people who are succeeding in in math

like Stephen Storgas and see succeeding in his way of doing math that he is you know he's having success as a teacher in a bookseller but he really like even I feel like my mind has been expanded after after the book sink and but what is yeah what's interesting here is the action perception cycle is relevant for turning concepts into into something useful and so I kind of think that you know one of the reasons this my book hasn't been published already by someone else has in part to do with the fact that our our collective think on a whole range of subjects sort of like directed at a high level and in some cases misdirected at a high level not by make practice not by an intention I think but by by our own inattention to to the details it's almost like this is a topic that is expanding in terms of like people paying attention to it I think so we had this I was at the the internet has been this like explosion of all this stuff and so that would be interesting if we could if there was a sort of like clustering that happened to all the information on the internet right and so all that information could be like because right now it's it's it's yeah it's like every individual person is creating their own sort of like cluster of the internet but yeah but but you're you're the cluster of your mind is highly variable it's about what you focus on how much time he's been focusing on it how many different ways you think about it and how many like and how many different ways you try to transform that information like okay so if you could quantify the information somehow say well it's a thought that I had for a minute and then write down the key points of that thought and then you know maybe maybe have a list list of those points and then go through them one at a time and say okay can I transform this point what would happen and when you sort of play with like every single point like it's it you know like it's a 3d object and with the property and duty but we're talking about a concept then your action pretension cycle is going to sort of like build on that and I know I'm thinking about my match now again in a new way so what I'm about to do is I'm doing like sort of like drawing clustering I'm gonna be like drawing words and I'm gonna be like all these are all the titles all the post chapter outlines book outline and write down all the words from that and then I'm gonna do I'm gonna do clustering and ordering and thinking about the high level and the low level of the book and that that's the sort of like objective for the next stage of the book as it's just sort of like clustering and organizing