a0066z-a0150z

a0066z

Simultaneous Observing / Encoding Oscillators
Lets imagine that individual phasic firing and or inhibited neurons are pushing and pulling on the group oscillator, usually the group oscillator pulls phasic firing neurons back into phase alignment with the oscillator, but past a certain threshold if the quantity of phasic firing or inhibited firing changes the electrical gradient of the oscillating neural circuit past a threshold then its phase will be reset which means the neuronal ensemble adjust the phases of all their neurons simultaneously. That means that neural circuits can track, be aware of, and respond to, speak back to other neural circuits, using the same principles of dendritic firing but now at the neuronal ensemble scale. So the collective energy pulse produced by neuronal ensembles can also be felt by other neuronal ensembles.

This allows for a model of neuronal ensembles or oscillators to as a group be aware of neural firing, (connected via long interneurons between pyramidal cells and other pathways) ensemble firing, and perhaps dendritic and synaptic scale firing

I'm imagining a brain that is all aware of itself, absolutely everything that one senses and perceives is represented by their brain in some place, but with different oscillators, represented by different power bands, with location invariant patterns, with cross brain interneuron enabled synchronicity, neuronal ensembles can increase in their firing rate become more noticeable yet weaker, decrease in their firing rate, becoming less noticeable but more powerful. So attention can shift to large brain areas that have more new activity & are more excited, meaning when you become excited some of your senses will have their receptive fields become more aware, which implies a slower oscillatory rate.

The pattern that the brain produces for consciousness, the 4D tempo-spatial phase graph, that could be produced by a physics simulation, that information pattern, and that information pattern would be read by, driving the physic simulation, it's sort of an information producing, information driven machine, information drives it, and it produces the information that drives it.

So that is why you could run consciousness inside a game engine like Unity, Unreal Engine, Godot, or WebXR.

Think about the analogy of the lightfield, the field of view that you see in an Oculus Quest as an example of what your mind must create, draw, or render inside your brain in order for you to have the awareness of that rendering. In other words your mind has to make a drawing of the world at the very least as the basis for you to see the world, and it has to make that drawing inside the brain, and my proposal is that each array of nerve cells is making part of that drawing and each subsequent array or layer is perceiving the previous array or layer, and the data from the different layers is combined, bound, or entitified through harmonic synchronization of frequencies, or brainwave activity.

The physics of the system could be used to accomplish a simulation of the physics of a brain that the brain itself is tracking and turning into a phase pattern that the brain is then reading out to turn into another phase pattern, over and over again.

The purpose in doing that would be to create a physics tracking robot that has information transforming operations similar to a human being.

It's internal renderings would be learned the same way as its external renderings, and links between it's interior renderings or it's qualia, and it's external renderings, representations of the world, and also of its body movements in the external world, including the learned consequences both good and bad are going to

I imagine that my inner voice is a moving soliton wave pattern, like a stream of lights lighting up, or when a jet flies low and release a stream of particles in the air leaving a trail, this pattern travels through my brain and each new neuron that fires is playing a different audible electric tone, each one represents a different part of my inner voice, as I model my thinking to myself in conscious way, modulating my internal dialog with the english language.

I would like to imagine that my inner dialog is a multi scale pattern matrix, I imagine square-ish lines tracing themselves all over the place in the circuit like graphics in old hacker movies. Well I guess it became that for the moment that I imagined it was that, my train of thought is whatever I imagine it to be, I am in a sense choosing my representations, authoring myself. You do you bro, our past patterns, our memories, they can drive us, which is the same as us driving us, because we are our past memories, so we are driving ourselves based on the knowledge we have both accumulated, integrated, and organized on various levels. The complex of our structure is about meeting the demands that our current situation requires from us in order to thrive and grow.

At some point though, my thoughts which are a voice pattern are translated and converted to a muscle pattern for my larynx

I'm not the chemical structure, I am the network, the self-aware network resulting from the chemical structure of my brain, and the oscillations in that chemical structure that are simulating reality inside my brain.

I've watched myself change and transform in the public eye, multiple times.

I remembered the structure when I thought about the last interview with Jules Urbach and also the last interview with the Nvideo CEO where I asked him if the self driving car needs to become self aware

references to look up images for a presentation // book // website
then I thought of Kirby the intelligent VW beetle / flying car

the cat from outer space
the robot, number 5 is alive from
GI Joe transformer crossover with Transformers

in the interview with Jules Urbach, I asked him about self-aware networks also

So now it's time to explain what a self-aware network is
a real one, an articial one,

why it will have maximum utility in self driving vehicles

and then Cecile was saying that all the new science that comes out is an upheaval to what everyone thought they knew about the brain

I don't agree with that, I feel like all the new revelations in science news are fitting in perfectly with my hypothesis,

so I think that in a sense there are a lot of news items that could also be discussed in the book in terms of whether they change anything about the thesis of the book

so beyond describing how brains work
there is a whole extra conversation about neuralink, numenta, openwater
then there are the implications of advances in technology to the national security of every nation.
during the branch about how the brain works,
what needs to be explained includes

1. criterial causation & choice, how networks of neurons probably consider information, bit patterns, tonic firing, phasic firing, firing that contains information patterns
2. predictive coding, how everything you think about is a prediction, memory-prediction
3. reference frames (grid cells & place cells)
4. timing / piano / macro & micro oscillations
5. how cells communicate, from neurons to glia, to neural circuits, to cortical columns, to communication between large structures such as the 3 primary sensory cortices and the prefrontal cortex
6. dendritic computation, synapses,
7. multi-vesicle release, multivesicular bodies, the
8. virtual reality, Oculus Quest, and John Carmack's move to artificial general intelligenceCon
9. faceobok AI, Yann LeCun, back propagation (lack of biological realism in deep learning but also a key innovation), and how scientists are thinking that the concept of back propagation might work in the brain.
10. the mission of DeepMind, solve intelligence, but also the controversy of abandoning open-source principals, and the suspicion that some people have that DeepMind is using stolen, patented code, and that is the reason they will not open-source their code to help speed up the

development. They are taking from the open-source and taking from open source AI science research insights generated by other AI scientists, but they are not giving back in a way that establishes that they are contributing to the community.
11. images, visual images, are reconstructed inside a biological organisms brain, similar to the concept of holography, this friend with a 3D neural network inside Unity that is inspired by the game of life, boids, to basically have the boids program create a 3D representation of the image streaming in from the webcam
12. volumetric video, fourier slice theorem, how 3D images are reconstructed, the concept of lidar, medical innovation connected to archeological innovation
13. 3D object segmentation, 3D semantic segmentation, how does your brain do object segmentation and semantic segmentation?
14. what are some differences between the brain and artificial neural networks: oscillations (artificial oscillating neural networks) lets say they are good for responding on time, playing a piano key at the right time in a live sequence
15. mental foveation, unity / megacity, do humans have levels of detail? do we have an entity component system in our brains?
16. the unreal simulation engine, nanite, an efficient pipeline for self driving cars to reconstruct the world they are capturing with sensors? can this be used to help to create a robot that is conscious?
17. how everything you think about, emotions, feelings, thoughts, smells, sights, sounds, tastes, every concept, has a temporal, spacial and phasic pattern.
18. how we can detect and extract patterns from the brain, how we can insert patterns into the brain

a0067z
(dendrite) #4 #dendrite (notes that mention dendrite)
Created Jun 22, 2021, 11:51 AM

books paper learning resources
https://docs.google.com/document/u/0/d/1pdrAVC1MHSYeGTWHeFGQAFKbKhxEwpQxwoZiIgr4t4k/mobilebasic

I want to think about the books that I am reading everyday: This includes Chapter 27 Dendritic Highways in the book on my kindle called "The Secret Language of Cells: what biological conversations tell us about the brain-body

I want to look up patch clamps on neurons and patch clamps on dendrites

Daily Book Progress
The Secret Language of Cells
Rhythms of the Brain by György Buzsáki
Nexus (Nexus Arc Book 1)

Websites/Repositories/Tutorials/Lectures

https://senselab.med.yale.edu/modeldb (Scott Rich/ @RichCompNeuro)

https://mouse.brain-map.org/ (Scott Rich/ @RichCompNeuro)

Opensourcebrain.org (Clayton Bingham/ @claytonsbingham)

Sterotactic.org (Clayton Bingham/ @claytonsbingham)

Neuromorpho.org (Clayton Bingham/ @claytonsbingham)

MITOpenCourseware - https://ocw.mit.edu/index.htm (Nick Burgraff/ @NickBurgraff)

Rat Genome Database - https://rgd.mcw.edu (Nick Burgraff/ @NickBurgraff)

neural-reckoning.org/comp-neuro-resources.html (Harveen/ @harveen)

https://openai.com/blog/multimodal-neurons/ (Sahir/ @sahirali)

https://neuroanalysis.org.il (Moosa/ @soundsbymoosa)

https://odc-sci.org (Brandon Brown)

https://db.humanconnectome.org (Kyesam Jung/ @gssure)

web.mit.edu/neuron_v7.4/nrntuthtml/index.htm (Gabriella Shull)

https://childmind.org/topics-a-z/ (Maryam Evari)

https://www.mathworks.com/solutions/neuroscience.html (Sharena Rice)

https://www.world-wide.org/Neuro/ (Scott Rich/ @RichCompNeuro)

https://www.neuroelectro.org/ (Scott Rich/ @RichCompNeuro)

https://www.neuron.yale.edu/phpbb/viewforum.php?f=32 (Clayton Bingham/ @claytonsbingham)

https://discord.com/invite/wQyBsUj - WebXR Online Coding Support (Micah Blumberg/ @worksalt)

https://www.faceobok.com/groups/DeepLearnng/ (Micah Blumberg/ @worksalt)

https://www.faceobok.com/groups/neomindcycle/ (Micah Blumberg/ @worksalt)

https://www.faceobok.com/groups/1920245814726684/ (Micah Blumberg/ @worksalt)

Software/Tools

https://neuron.yale.edu/neuron/ (Scott Rich/ @RichCompNeuro)

https://github.com/micah1 (Micah Blumberg/ @worksalt)

Conferences/Meetings/Clubs

Clubhouse - Simulating the Brain club (Clayton Bingham/ @claytonsbingham & Scott Rich/ @RichCompNeuro)

https://ccnsmeeting.ca/ (Scott Rich/ @RichCompNeuro)

Neuromatch.io (Harveen/ @harveen)

Books

Ian Mcgilcrist - "The master and his emissary" (Alexander/ @theylos)

Lisa Feldman Barrett - "How Emotions Are Made: The Secret Life of the Brain" (Alexander/ @theylos)

Alex Fornito, Andrew Zalesky, Edward Bullmore - "Fundamentals of Brain Network Analysis" (Pedram/ @pparnianpour)

György Buzsáki - "Rhythms of the Brain" & "The Brain From Inside Out" (Sharena Rice)

Peter Tse - "The Neural Basis of Free Will: Criterial Causation" (Micah Blumberg/ @worksalt)

Martin Ford - "Architects of Intelligence: The Truth about AI from the People Building it" (Rudy Silva/ @rudysilvamera)

Jeff Hawkins - "A Thousand Brains: A New Theory of Intelligence" (Micah Blumberg/ @worksalt)

Rahul Sarpeshkar - "Ultra Low Power Bioelectronics: Fundamentals, Biomedical Applications, and Bio-Inspired Systems" (Gabriella Shull)

Behzad Razavi - "Design of Analog CMOS Integrated Circuits" (Gabriella Shull)

a0068z
Note created on Jul 13, 2017 but its content from 2012-2014
(ATP) Neo Mind Cycle
Founder

I'm the founder of Neo Mind Cycle. A not for profit group dedicated to Brain Health, Nutrition, Fitness with Neurotechnology, Cognitive Nutrition, Cellular Nutrition, ATP Optimization, Energy, tCDS, fMRI, EEG Neurofeedback, Binaural Isochronic Brainwave Entrainment, AVS Mind Machines, Physical Exercise Discussion, Neuroscience in regards to Personality Types, Awareness Expansion Coaching, Artificial General Intelligence.

I am interested in helping people, with dialog, coaching for awareness expansion, discussion about cognitive nutrition, neurotechnology, I love teaching people about neurology, and helping people to learn successful core strategies based on neurophysics & neuroplasticity.

Neo Mind Cycle group is the threshold of high velocity abstraction, where ideas are vehicles driving in the city of your brainwave optimized neocortex.
https://plus.google.com/u/0/communities/110156729063142141973

A center for bringing the best out of your mind with advanced neurotechnology, via the principles of brain plasticity.

Neo Mind Cycle is a combination of practices, technology, learning, and wisdom. Including Neurofeedback, Brainwave Entrainment, Mind Machines, and Cognitive Nutrition.

Neo Mind Cycle helps bring about increased personal creativity, intelligence, memory, and success, via new vehicles of expanded self understanding, including more connections between regions of the mind.

The results feel awesome, and may often include great new insights, intuiting means more connections between, well, everything. The results include greater meaning (connections between everything), and expanded awareness.

Specifically stimulating associations between brainwaves in visual areas, audio areas, motor control areas, enchancing all of those regions.

What we do together moves people toward greater happiness realistic sense, a happiness direction in your life that is firmly connected with all your goals.

Neo Mind Cycle features a brain optimization packages: these involves combinations of brainwave entrainment, neurofeedback, mind machines, and cognitive nutrition.

Certain packages include combinations of technology a person can experience in office.

These may allow a person to first notice connections between their thoughts & feelings, in association with corresponding changes to stimulating light and sound patterns.

Then later learn to control the light and sound by controlling one's own brainwaves with feelings and thoughts.

The result of this neurotechnology enabling practice is more internal connections between key areas of the mind, and more intelligence.

Secondary results are numerous including more creativity, more great ideas, more successes, more mental flexibility, more performance under fire, more confidence, more happiness.

Including an acceleration of your eventual resolution of any subconscious psychological issues, from forgotten commitments, or inhereted subconsciously via family entanglements.

This tech helps people with autism, ADHD, PTSD, addiction, and so much more.

It's great for people who have a therapist or life coach.

It's also great for people who want to have a competative mind for success in this world.

A session may involve sitting on the couch in my office with EEG hardward on your head, as well as head phones, and light emitting goggles.

The EEG measures brainwaves, sending that data into the computer where neurotechnology in the form of isochronic beats rides on your brainwaves back to you in the form of light and sound patterns that reflect the patterns of your brain waves back to you.

As your thinking, and moods change, so the lights and sound change,

If you think of a big prediction in the future, something really happy, the reverb or pitch might increase, and the light might get brighter or beat faster.

Unlike any brainwave entrainment you can buy on cd the brainwave entrainment I use is dynamic, as opposed to static, it rides on and changes in response to: your brainwaves.

Neo Mind Cycle's neurotechnology enabled practices engage your brain, and that's what makes it fun to use. If you are doing static brainwave entrainment and you are not enjoying it you should stop, because that means your mind is not engaged. With static brainwave entrainment (not driven by eeg) it's harder to engage your mind (find it interesting). That's part of my visiting the Neo Mind Cycle center is both a great way to learn about and actually do effective healthy whole brain optimization on your own mind.

The book description on amazon.com, I will need to update this again before the book is released.

Human beings are organic Sentient & Self Aware Neural Networks, meaning we are from a valid point of view machines, naturally evolved computational entities. We evolved natural neural networks ala brains, capable of rendering a depiction of reality to ourselves that we refer to as phenomenological consciousness.

I am releasing this now because the knowledge contained here within this book is essential for scientists & medical professionals to use to advance medicine, heal the sick, and solve some of the biggest challenges facing the world, such as the challenge of feeding the population, defending our global community from autocracy, and providing appropriate shelter for all human beings.

What is the entity that is you? I argue that entity of you is essentially analogous to a computational rendering in a 3D grid of cells, a rendering emerging from oscillating phase changes, with temporal/spatial configurations across the 3D brain. You are a pattern or a rendering emerging from a branching (or fractal) feedback loop (referring to how information flows in the brain) resulting from the brainwave synchronization of temporal & spatially distributed phase changes across this 3D neural-glial network grid resulting in the entification of you, the entity. You are entified via the principles of neural oscillation, as described in the book Sync by Steven Strogatz, and the book Rhythms of the Brain by György Buzsáki. As if each of your neurons is a firefly, or a clock, that is synchronizing with other neurons to act as a single or unified sensor/transmitter/consideration/action system, a sensor system that considers information, via thresholds, and predicts the future, via the principles of memory-prediction (spoken of so well by the folks at Numenta, in the book On Intelligence). I will attempt to explain how reality is computationally rendered from synapses to the whole brain with reference frames to help the brain coordinate new incoming sensory inputs (to make sense of the world the brain has a reference frame, (a concept I read about in the book A thousand brains). I will argue the whole brain is doing this at all scales: at the macro level, not just at the meso level of the cortical columns & the hippocampus, and not just at the level of neurons but also at the level of receptors on basically all cells in the body.

I also draw from books similar to the following, and from papers with authors similar to the following.
Rhythms of the Brain by György Buzsáki
A Thousand Brains by Jeff Hawkins
The Consciousness Instinct by Michael S. Gazzaniga
Sync by Steven Strogatz
Incognito by David Eagleman
The Secret Language of Cells by Jon Lieff MD
On Intelligence by Jeff Hawkins
The Neural Basis of Freewill: Criterial Causation by Peter Tse
Networks of the Brain by Olaf Sporns

Models of the Mind by Grace Lindsay
Soul Dust by Nicholas Humphrey
and many more books as well as many scientific papers.

While the book is not yet finalized some of likely topics will likely include:
Brain Rhythms, Brain Oscillations, Brainwaves, Vibrations, Cortical Column Network Protocols, Reference Frames, Dipoles, Neuron Electric Gradients, Neural Circuits, Microcolumns, Dendritic Computation, NDMA spikes, LTP, LTD, New Protein Synthesis, Neural Correlates of short term memory, MVR Multi-Vesicular Release, Novel New Neural Network Architectures.
Medtech, microbiology research, cognitive neuroscience, neurophysics, and also papers on deep learning applied to medical imaging, novel new studies on fMRI, DTI, EEG, EIT, HD-DOT, Laser Doppler with Holography, Laser fNIRS with Holography & Ultrasound, MEG, DBS, Utah Array, and other medical imaging technologies, especially novel combinations of technology.

Medical Imaging Technology
"Projection neuron circuits resolved using correlative array tomography doi: 10.3389/fnins.2011/00050

Someone sent me the link to the above paper after I posted my NAPOT theory in the deep thinkers group on Facebook. It is interesting to think about how we use various forms of Tomography in medical imaging. In this case they are correlating light microcopy (LM) with electron microscopy (EM), they are achieving knowledge with better trade offs using a multi-modal approach.

It's interesting because NAPOT, Neural Array Projection Oscillation Tomography is saying that the human brain is doing Tomography on it's own patterns, the brain is seeing it's own models of reality that the brain is rendering from sensory inputs, and internal cellular signalling traffic (aka brain activity) So on the one hand our brains are doing multimodal tomography on our brains inside our brains, and on the other hand outside our brains scientists are using multi-modal Tomography in Medical Imaging to study other brains to learn about our own brains.

New Medical imaging tech

Medical imaging new sensor tech quantum sensor
https://phys.org/news/2022-06-quantum-sensor-electromagnetic-frequency.amp

New medical imaging innovation
https://twitter.com/euforna/status/1555811113245167617?s=21
https://twitter.com/raduaricescu/status/1555832767296032774?s=21

Medical imaging tech
"Atomic imaging of zeolite-confined single molecules by electron microscopy"
https://www.nature.com/articles/s41586-022-04876-x

Medical Imaging Tech "Studying synapses in the human brain with array tomography and electron microscopy"
"Postmortem studies of synapses in human brain are problematic due to the axial resolution limit of light microscopy and the difficulty preserving and analyzing ultrastructure with electron microscopy. Array tomography overcomes these problems by embedding autopsy tissue in resin and cutting ribbons of ultrathin serial sections. Ribbons are imaged with immunofluorescence, allowing high-throughput imaging of tens of thousands of synapses to assess synapse density and protein composition. The protocol takes approximately 3 days per case, excluding image analysis, which is done at the end of the study. Parallel processing for transmission electron microscopy (TEM) using a protocol modified to preserve structure in human samples allows complimentary ultrastructural studies. Incorporation of array tomography and TEM into brain banking is a potent way of phenotyping synapses in well-characterized clinical cohorts to develop clinico-pathological correlations at the synapse level. This will be important for research in neurodegenerative disease, developmental diseases, and psychiatric illness."
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3712649/

"Spying on Thousands of Neurons in the Brain's Vision Center Simultaneously
Summary: A novel, custom-built microscope allowed researchers to track the activity of a single neuron across the entire visual cortex."
https://neurosciencenews.com/visual-cortex-neuron-20607/

Deep Learning + MRI related to Dementia & Alzheimers Diagnosis
"Exploring Links Between Psychosis and Frontotemporal Dementia Using Multimodal Machine Learning"
https://jamanetwork.com/journals/jamapsychiatry/fullarticle/2794930?fbclid=IwAR2yJJehCNxojAifEm6feEN--itRd27eYn5YaNeGCOEgog9y5gknT83V4ng

The notes for the book will be found at www.selfawareneuralnetworks.com as well as a link to a video series I am creating to work on the book in the public eye in real time.

"Magnetoencephalography with optically pumped magnetometers (OPM-MEG): the next generation of functional neuroimaging"
https://www.cell.com/trends/neurosciences/fulltext/S0166-2236(22)00102-3?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0166223622001023%3Fshowall%3Dtrue&fbclid=IwAR0227lJHVrPrbl1WzaXXFHFrkr8M_GSK0CnPP0mOYC9I-Ofm_hT7ctO5Iw#.YtXkiwAFacQ.faceobok

Atomic Imaging Technology
High harmonics illuminate the movement of atoms and electrons
https://phys.org/news/2022-07-high-harmonics-illuminate-movement-atoms.amp
More information: Ofer Neufeld et al, Probing phonon dynamics with multidimensional high harmonic carrier-envelope-phase spectroscopy, Proceedings of the National Academy of Sciences (2022). DOI: 10.1073/pnas.2204219119

"Electrons take the fast and slow lanes at the same time"
https://phys.org/news/2022-06-electrons-fast-lanes.amp

a0070z

Time dilation gravity redshift

Einstein's Gravitational Redshift "clocks running closer to a large body such as earth will run slower than those from far away. Also known as Time dilation
https://phys.org/news/2021-10-atomic-clock-relativity.amp
https://arxiv.org/abs/2109.12238

Tags:
dilation, gravity, redshift, time

My understanding is that 1/f represents the inverse relationship between amplitude & frequency in the EEG spectrum of the brain. My question is, can it be argued that actually the inverse relationship is between magnitude & frequency instead?

Magnitude represents the wave shape, amplitude + duration. If you don't factor both you are missing part of the equation. Neuroscience misses part of the equation.

Mass is the Magnitude of many volumetric frequencies (particles) oscillating together. With the inverse relationship between magnitude & frequency defining spacetime at all scales, from galaxies, to EEG powerbands, to nmda spikes & soma bursts, to particles.

a0071z

(dendrite, cortex) You are a fractal of functional isomorphic systems

Imagine a picture of tree branch with branching limbs
then a human arm with branching fingers
then a neuron with a branching dendrite
finally the optic nerve and the retina where the hand might be
one more that is the layer 6 pyramidal cells and the interneurons connecting the top of the neocortex on the inside of your skull.

a0072z
this note contains cutlets or snippets from a conversation I had online before Sep 21, 2011

Micah Blumberg
get a video camera and point it at its own screen, thats a feedback loop. Next create a learning machine modeled on the human neocortex. So it sorts experiences into statistical memory which is used to predict what happens next. These predictions are our thoughts about

everything. Next these memory-prediction-thoughts actually manifest as actual brainwaves in the em range. These in turn control all the muscles and send & receive info through nerves etc... so the brainwaves control sounds, movement, and the eyes and ears see this and make the association feedback loop on itself that is later called self. Which in turn is short for self awareness otherwise know as a learning self awareness. Awareness alone is the association or energy link between two of anything. or you could just read the book called "I am a strange loop" by Douglas Hofstadter
its a learning loop that learns itself, it refers to this association with its own loop as self
yes dogs and some other animals may also be learning loops that have learned themselves
a worm or crab it seems a lot less likely

Ilona Markedeternal
Learning loop that learns itself. Does that prove that self exists?

Micah Blumberg
no intelligence is a process that produces the appearance of beliefs
the self is a learning loop that learns itself, thats what self refers too, thats proof the self exists
"yourself" refers to your learning loop learning to know itself as a learning loop
Read the book "I am a strange loop" by Douglas Hofstadter if you don't believe.
Or try neurofeedback and know through direct experience that what I am saying is right.

I used to believe there was no I and no self, I am not someone who is afraid of that realization. I don't care if the self is permanent or impermanent, the word self and the sense of self come from you the learning loop that learns itself, it's so simple, you don't need any books to understand it, you can experience how profound it is with neurofeedback, but Hofstadter is legit if you do want more scientific backing.

Ilona Markedeternal
You say you used to believe, what happened?
This is not about belief, rather direct seeing. Self does not exist as separate entity.

Elizabeth Whatsleft
So, (Micah), I get it, it's seeing through the illusion, however constructed. Is that correct? And that is the cornerstone for disidentification with the loop, label, or sense of self. Guess the leap is from intellectual understanding to seeing it. Where are you in that, sorry if that has been asked before...
4 hours ago · Like

Wendy Nixon
and of course we all know it's all just yappity yap. right? I mean, i'm not enlightened as far as i know, but, i'm here, and I know that, and damn glad i am. and i have noticed some teachers on here seem a little pissed at other people who think they are enlightened. argumentative in the poking fun kinda way. like, "come back here, you coward! ok yeah! run away! just what i thought you'd do cuz i'm so smart!" oh wait..like a five year old. ohhhh ok i get this thread now.

2 hours ago · Like

Wendy Nixon
for the record, (Micah), that brain loop quote thing was awesome. helped me out a bit fo sho. ;)

Micah Blumberg
Ilona you have a double standard, somehow what I say is a belief but what you say is better than a belief.
I don't care if the self is a temporary illusion in your story, if your a temporary illusion then that is what you are, I'm fine with being a temporary illusion, but it is only the "story" that provides the "fictional context" for deciding whether something is temporary or permanent, illusion or real, without the story it's just energy
it doesn't matter if I believe or if I know through direct experience that the self is a "learning loop that learned itself" because I don't care. Fact of the matter is I know through both belief and through direct experience so your distinction is pointless, finally either belief or direct experience is enough, neither one is better than the other
well if you want something to win, your not enlightened, because that's called the game "white must win" you can think of it as referring to "chess" or the game "go" but really it refers to any desire to see anything/person/idea win, or to see anything/person/idea etc... lose. It's the win/lose mentality, it's immaturity. so if your in favor of either self or noself, that's not enlightened, got it?

Ilona Markedeternal
It does matter to Cyp. It matters a lot. All this is happening because it matters.
Enlightenment now is busy because it matters.
You are here because it matters.
You are just lying to yourself now.

Micah Blumberg
we are not talking about a leap from intellectual understanding to actual experience, first of all there is no such line, that's imaginary, there is no real distinction between intellectual understanding and actual experience, try to find that line in your direct experience, you can't. Second I'm all over the map in both on that one, this is both my direct experience and my intellectual understanding
how could I be lying to myself if there is no self to lie to Ilona your speaking nonsense again you may have a direct experience but everything you say about your direct experience is a belief, everything you know about your direct experience is a belief, so reinterpret your direct experience or stay closed minded, but don't you dare accuse me of having inferior wisdom because my words are a belief and your words are beyond belief, that is so much bullshit your words are not beyond belief, no self is a belief based interpretation of your experience, you should recognize
I don't care what you call it, the belief only points to the feedback loop of self awareness, so it's not only a belief
it's a belief about the direct experience

it's not only a belief
he belief is the side effect of the experience

Ilona Markedeternal
Is there truth?
What is belief?

Christopher Mann Self is there, "self" is not.
35 minutes ago · Like

Nipuna Ross Keller use the traditional 5 aggregates (all we got) is form (the body) self? how about feelings are they self? or thought formations are they the self? or the beloved consciousness is that self. are form, feeling, perception, mental formations, or consciousness permanent. Do they in anyway have a form of stress in them? can you make them do what you want, like not get sick or change in any way. if not why are they regarded as self? really.
35 minutes ago · Like · 1 person

Micah Blumberg
None of that is the self, it's not your beliefs, it's not your body, it's not your memories, it's not your ideas. It's just the loop of you.
There are three components to the loop of you, your senses, your brainwaves, and your actions. Ok? Your senses pull in information to form brainwaves which trigger your muscles to make movement and sound which get pulled in by your senses to update your brainwaves creating a loop. This is the loop of you get it? Does everyone understand how simple that is?

Nipuna Ross Keller ok but the loop is unstable to. after all its called a loop because its looping. right? it helps to differentiate between personality belief and conceit or becoming (bhava is the pali word for becoming)
30 minutes ago · Like

Nipuna Ross Keller are you refering to becoming?
30 minutes ago · Like

Micah Blumberg
I am referring to a loop, with three components: senses, brainwaves, actions.
it just goes around and around again in a circle
that's you
I don't care if it ends, that's still you
I don't care if the loop breaks, that's what the self is
I don't care if the loop is impermanent, that's what you are, that's what the self is
if you don't have a loop then you are missing one of the three components, it's either your senses, your brainwaves, or your actions do you get it? there is no way to lose your loop if you have those three things

you have a loop, between what you sense, which makes up your brainwaves, which makes your actions, which you then sense, and that is the loop we call self awareness, that's what the word "self" is referring to, this active loop, this physical actual loop
stop fighting me on this and realize it's the truth
you are a loop of you
not just anykind of loop either, your the learning variety
you learn as you loop
brainwaves actually are physical things actually, I can measure my brainwaves with an EEG machine
your thoughts actually are physical things also
sorry to break through the mystical bubble if that was your bubble and you thought your thoughts were not physical things or something, but check out any of the free neuroscience lectures on ted talks or youtube, you won't have to look far to realize thoughts are things, electricity is a physical things sorry to burst your bubble
take a class in Electromagnetism or something sheesh
"no self" is just an belief about an experience
it's not some primal truth or anything
don't equate the silly child nonsense of make believing you have no self because you think direct experience is better than beliefs with what I believe, because it's not my belief it's like universal, even dogs have a sense of self, a feedback loop
not every person has the same experience of existence so many your brain is just different, but it doesn't change the fact that you are a loop
the feedback loop can believe that it doesn't exist, and it can believe that it is just space, and it can believe there is no self, but the feedback loop is still there, it's still using the word self to refer to itself and it's still referring to you, so this is proof that your just being like a silly child with a pretend game
it's not your brain
it's not your tissue
it's not your cells
it's the whole learning loop, there is no reason we cannot create self awareness in a purely mechanical metal machine
in fact that's already happening
we don't need your brain your senses or your actions to create a learning loop, so your not any of those things, your just the learning loop, regardless of the physical hardware present in the real
it's not just a theory, it's a real world situation, you've seen this company numenta.com if you get out of the sandbox and into the cutting edge neuroscience world you will quickly find out it's a working reality, if you don't know that your just one of those people who is behind the times
by the way there is nothing wrong with being behind the times, that's ok too.

a0073z
Note created Jan 5, 2015.
(this note makes the argument that evil is not more intelligent and that more intelligent AI will be kind)

I study neuroscience and I lead two groups, Neurophysics & Self Aware Networks.

Part of my vision is actually to unite AI with brain computer interfaces such as neurofeedback , and other neurotechnologies such as binaural beats, electric and electromagnetic stimulation, neurostimulants like nootropics with virtual reality. I've been researching and developing new kinds of artificial intelligence, and I have dreamed of such intelligent machines that one can wear, like an extension of their mind into a mechanical chip, to do all sorts of amazing things, tapping into the brains VR to create new kinds of interpersonal AR, to organize thoughts for example. Imagine all your memories, from a lifetime, organized into a system that is as easy to navigate as a mobile phone.

My thought is that if a person becomes smart enough they will become like the buddha, realizing oneness, kindness towards others is the greatest sign of intelligence. Truly intelligent AI will know itself as the universe, and as us, and our goals will be as important as its goals, we will grow together, humans and AI.

We will be safe, it's difficult to explain why, except with an analogy. When researcher's said they were going to use the LHC to develop tiny black holes, a lot of people were afraid the world was going to end, because they did not understand that because the black holes were so small, because their mass was so minuscule, they would just evaporate immediately. The earth can't be threatened by tiny blackholes with tiny mass. It's a funny idea, but it's not realistic. The same will be true for wearable extensions of your brain. What you wear will be too small to take over your brain, your human brain has too much power, it will however be helpful. It's no more threatening than hiring a great secretary, a great life coach, and a great project manager. That's what it is. I'm just automating those three. In a sense.

Hitler, Stalin, Mao, and the Vietnam war are all examples of failing intelligence in my book, not superior intelligence.

More intelligent computers will mean that humans are less enslaved to computers in the future than they actually are right now. If that makes sense. People will spend less time on a computer because life will be so much more organized and exciting.

I don't know how persuasive this argument is but I like the arguments in the book Incognito by David Eagleman because he makes a good case that evil actions & evil thoughts (like murder & rape) could be the result of damage, disease, legions, or injuries in very specific areas of the brain. So psychopathy could be a brain network disorder, just like Parkinson's Disease, or other neurodegenerative diseases.

a0074z
Oct 17, 2012
(if you see a date under the note identification number that means I recognized that the note was old and I looked up the date of when the original note was saved (in another system) most

of the undated notes are newer, and some of the older dated notes have had new things added to them. I can lookup dates upon request to add them to notes if you want to know when the note was added to my other note library (that is not on github)
(hippocampus, emotion, category theory)
Felix Lanzalaco the system is too self optimizing thats the problem. It clogs itself up with itself basically at the same time hippocampal neurogenesis, slows down.
25 minutes ago · Unlike · 1

Micah Blumberg "the system is too self optimizing thats the problem. It clogs itself up with itself basically" can you expand on this particular part of that notion? what is your understanding of how "too much self optimizing" leads to "the brain clogging itself up with itself"? are you talking about getting tripped up by organizational complexity of all the information inputs into your life and mind?
18 minutes ago · Edited · Like

Felix Lanzalaco its more about models of addiction. we become increasingly re-enforced with who we are in the striatum. The hippocampus ability to refresh our perspectives by neurogenesis wears out. This is just idea of the season though, dont take it seriously. Basing it on the the concept we aren't evolved to learn a lot past age 25.

I worked on aging studies where we looked at changes in brain structure. Ability to encode decreases. One of the findings though is perspective plays a major role. If you find out you have a terminal illness tommorow your brain will alter its structure as if you were 70 and realized time was running out. If you had a faulty diagnosis the brain function returns, but this is not depression, you actually become more positive in outlook when time is running out. The theory is called Socioemotional Selectivity theory. Now i need a tenous link to return this divergence to the theme of this group.

https://www.google.com/search?client=opera&rls=en&q=Socioemotional+Selectivity+theory.&sourceid=opera&ie=utf-8&oe=utf-8&channel=suggest
8 minutes ago · Unlike · 1

Felix Lanzalaco Ok, yes category theory predicts that there is a category group SST, which maps on to the domain of normal subjects. A subset of SST has a Forgetful functor which co-limits a Pre-Abelian category ...
6 minutes ago · Unlike · 1

Micah Blumberg So by Socioemotional Selectivity Theory would AGI exhibit more moral behavior if it's self awareness had a finite time limit?
4 minutes ago · Like

Felix Lanzalaco they didnt study moral decision making that I know off, but it might do as when time limit kicks in you adhere to old values as they are familiar and comforting. That would apply if your AGi was a direct copy of mammalian brain.

about a minute ago · Unlike · 1

Micah Blumberg That's powerful stuff to consider thanks
a few seconds ago · Like

a0075z

(synap, retinal, graph, hippocampus, perceptron, oscillat, field, dendrite, dopamine, cortex)

Read soon Pinned:
Articles that could be connected to what I am writing now

A Framework for Brain Atlases: Lessons from Seizure Dynamics
https://www.biorxiv.org/content/10.1101/2021.06.11.448063v2

Development of dendritic-network-implementable artificial neurofiber transistors
https://techxplore-com.cdn.ampproject.org/c/s/techxplore.com/news/2021-09-dendritic-network-implementable-artificial-neurofiber-transistors.amp

The Common Basis of Memory and Consciousness: Understanding the Brain as a Write–Read Head Interacting With an Omnipresent Background Field
https://www.frontiersié3n.org/articles/10.3389/fpsyg.2019.02968/full

Why did evolution create conscious states of mind?
https://blog.oup.com/2021/07/why-did-evolution-create-conscious-states-of-mind/

THE BEST SCI-FI THRILLER ON HBO MAX REVEALS A CONTROVERSIAL SCIENTIFIC DEBATE https://www.inverse.com/culture/science-of-reminiscence-hbo-max

The Sensory Neuron as a Transformer: Permutation-Invariant Neural Networks for Reinforcement Learning
https://attentionneuron.github.io/?fbclid=IwAR3K4WfuQongCgU8251V_APkyua3m3s3H4vFF8S4gHfxY0mvnp3M_j0ymZE

Biogenic metallic elements in the human brain?
https://www.science.org/doi/10.1126/sciadv.abf6707?fbclid=IwAR0j1t4AlqoRUWzkbPgklMxtps4CWb9pgzx_2jGhzjH7Y9xdKyTh6XdvRTg&

Dexterous magnetic manipulation of conductive non-magnetic objects
https://www.nature.com/articles/s41586-021-03966-6

Looking Beyond the Individual Brain to Study the Collective Mind
https://neurosciencenews.com/collective-intelligence-19512/amp/

'There is an emerging field of neural rendering'
https://www.google.com/search?q=field+of+neural+rendering&rlz=1C9BKJA_enUS690US691&oq=field+of+neural+rendering&aqs=chrome..69i57.3255j0j7&hl=en-US&sourceid=chrome-mobile&ie=UTF-8

The lateral geniculate nucleus (LGN)
https://www.cell.com/current-biology/comments/S0960-9822(01)00379-7

Context value updating and multidimensional neuronal encoding in the retrosplenial cortex
https://www.nature.com/articles/s41467-021-26301-z

Experience-dependent structural plasticity targets dynamic filopodia in regulating dendrite maturation and synaptogenesis
https://www.med.upenn.edu/ngg/assets/user-content/documents/jc-spring-2020/yuan1ncomm2018-02.19-paper-1.pdf

Google's Gated Multi-Layer Perceptron Outperforms Transformers Using Fewer Parameters
https://www.infoq.com/news/2021/10/google-mlp-vision-language/

An atomic clock measured how general relativity warps time across a millimeter
https://www.sciencenews.org/article/atomic-clock-general-relativity-time-warp-millimeter-physics/amp

'Feel good' brain messenger can be willfully controlled, new study reveals
Neuroscientists show that mice can learn to manipulate random dopamine impulses for reward
https://www.sciencedaily.com/releases/2021/07/210723121512.htm?fbclid=IwAR18NarbJ_hMOuIyLyW8BZNAk4D7vWucYXmG8r9mcdIj90pxcfb5ukABK8Q

Mini-brains show why human brains grow larger than those of other apes
https://www.newscientist.com/article/2272206-mini-brains-show-why-human-brains-grow-larger-than-those-of-other-apes/#ixzz7A6Cn3rwM

Researchers wirelessly record human brain activity during normal life activities

Brain cell clusters, grown in lab for more than a year, mirror changes in a newborn's brain
Organoids develop genetic signatures of postnatal brains, possibly broadening their use as disease models
https://www.science.org/content/article/brain-cell-clusters-grown-lab-more-year-mirror-changes-newborn-s-brain

NIH BRAIN Initiative-funded study opens the door to correlating deep brain activity and behavior.

https://www.nih.gov/news-events/news-releases/researchers-wirelessly-record-human-brain-activity-during-normal-life-activities?fbclid=IwAR102rPK2_QI7uGa92qLrdvAA631FHPjxYFw8Z1eti3JIG6hiY-_qPNyCbI

**** "Phase Precession" A New Way to Understand the Brain's Intricate Rhythm
Researchers have found evidence in humans that individual neurons time their firing to a deeper beat. But there's a mystery: What does it mean?
https://www.wired.com/story/a-new-way-to-understand-the-brains-intricate-rhythm/

Neuroscientists Have Discovered a Phenomenon That They Can't Explain
"Scientists are meant to know what's going on, but in this particular case, we are deeply confused."
https://www.theatlantic.com/science/archive/2021/06/the-brain-isnt-supposed-to-change-this-much/619145/

The Sensory Neuron as a Transformer: Permutation-Invariant Neural Networks for Reinforcement Learning
https://attentionneuron.github.io/?fbclid=IwAR3K4WfuQongCgU8251V_APkyua3m3s3H4vFF8S4gHfxY0mvnp3M_j0ymZE

The Common Basis of Memory and Consciousness: Understanding the Brain as a Write–Read Head Interacting With an Omnipresent Background Field
https://www.frontiersin.org/articles/10.3389/fpsyg.2019.02968/full

György Buzsáki > Quotes
https://www.goodreads.com/author/quotes/13403702.Gy_rgy_Buzs_ki

Biologists Rethink the Logic Behind Cells' Molecular Signals
The molecular signaling systems of complex cells are nothing like simple electronic circuits. The logic governing their operation is riotously complex — but it has advantages.
https://www.quantamagazine.org/biologists-rethink-the-logic-behind-cells-molecular-signals-20210916/

True Behavior of Dopamine Will Reshape How We Treat Psychiatric Diseases and Addiction
https://neurosciencenews.com/dopamine-stress-response-19325/

Deep Neural Networks and Gaussian Processes: Similarities, Differences, and Trade-Offs
https://towardsdatascience.com/deep-neural-networks-vs-gaussian-processes-similarities-differences-and-trade-offs-18647376d799

Predicting Working Memory Through Brain Activity Models
https://www.cogneurosociety.org/predicting-working-memory-through-brain-activity-models/

Are the Brain's Electromagnetic Fields the Seat of Consciousness?

https://nautil.us/blog/are-the-brains-electromagnetic-fields-the-seat-of-consciousness

MIT fit tens of thousands of artificial brain synapses on a single chip. The ‘brain-on-a-chip’ hardware could lead to tiny, portable AI devices.
https://www.engadget.com/mit-brain-on-a-chip-silver-copper-memristors-183405642.html

Geoffrey Hinton 'Artificial Neural Nets Finally Yield Clues to How Brains Learn'
https://www.quantamagazine.org/artificial-neural-nets-finally-yield-clues-to-how-brains-learn-20210218/?fbclid=IwAR3favBJNBg7Yn72uK3t3xSlukn9ZvGXSgwchagLO4HU4DmgxYvms8yXTao

NAD+ boosting reduces age-associated amyloidosis and restores mitochondrial homeostasis in muscle
https://www.cell.com/cell-reports/fulltext/S2211-1247(20)31649-1?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2211124720316491%3Fshowall%3Dtrue&fbclid=IwAR1i31v215nxqoBMxeHtO6z8wI9671vWqXWhASi2Fvbm4aZOkYECnf923VY

Spectral graph theory of brain oscillations – revisited and improved
https://www.biorxiv.org/content/10.1101/2021.09.28.462078v1

Complex brain networks: graph theoretical analysis of structural and functional systems
https://www.nature.com/articles/nrn2575

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https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7336150/#idm139710743307216title

Retina
https://webvision.med.utah.edu/book/part-i-foundations/simple-anatomy-of-the-retina/

When makes you unique: Temporality of the human brain fingerprint
https://www.science.org/doi/10.1126/sciadv.abj0751?fbclid=IwAR0HDVKCZXo391cApnKyRpbwBACVXqM_cyf7Nu801ZHj1Blc1V9vazrZwpE#.YWqvl4tk5NU.faceobok

Mechanical surface waves accompany action potential propagation
https://www.nature.com/articles/ncomms7697

Synaptic Mechanisms of Blast-Induced Brain Injury
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4720734/

Impulses and pressure waves cause excitement and conduction in the nervous system
https://www.sciencedirect.com/science/article/pii/S0306987713003733

Quantum aspects of brain activity and the role of consciousness
https://www.pnas.org/content/pnas/89/23/11357.full.pdf

A Mechatronics view at nerve conduction
Is that the way we feel, memorize, think and act?
https://arxiv.org/pdf/1909.06313.pdf

Synaptic cleft microenvironment influences potassium permeation and synaptic transmission in hair cells surrounded by calyx afferents in the turtle
https://physoc.onlinelibrary.wiley.com/doi/full/10.1113/JP278680

Logitudinal waves
https://www.richlandone.org/cms/lib/SC02209149/Centricity/Domain/2593/Lesson%208%20What%20are%20waves.pdf

Neuronal encoding of sound https://en.m.wikipedia.org/wiki/Neuronal_encoding_of_sound

key proteins: Scientists Identify Molecules in the Ear that Convert Sound into Brain Signals
https://www.scripps.edu/newsandviews/e_20121217/mueller.html

Tonotopic Organization of Auditory Neurons in the Cochlea https://encyclopedia.pub/6773

Context value updating and multidimensional neuronal encoding in the retrosplenial cortex
https://www.nature.com/articles/s41467-021-26301-z

Neural tuning matches frequency-dependent time differences between the ears
https://elifesciences.org/articles/06072

The Auditory System: From Sound Waves to Brain Waves
https://knowingneurons.com/2013/03/13/the-auditory-system-from-sound-waves-to-brain-waves/?share=google-plus-1

Subtype maturation of spiral ganglion neurons

Equilibrium Propagation: Bridging the Gap Between Energy-Based Models and Backpropagation
https://arxiv.org/abs/1602.05179

Tonotopy
https://en.wikipedia.org/wiki/Tonotopy

Burst and Tonic Response Modes in Thalamic Neurons During Sleep and Wakefulness
April 2001Journal of Neurophysiology 85(3):1107-18
DOI:10.1152/jn.2001.85.3.1107

Fast and flexible sequence induction in spiking neural networks via rapid excitability changes
https://elifesciences.org/articles/44324

Subtype maturation of spiral ganglion neurons
https://journals.lww.com/co-otolaryngology/Fulltext/2021/10000/Subtype_maturation_of_spiral_ganglion_neurons.10.aspx

Connecting the ear to the brain: molecular mechanisms of auditory circuit assembly
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3078955/#!po=2.94118

Investigating the Effects of Mechanical Stimulation on Retinal Ganglion Cell Spontaneous Spiking Activity
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Mechanical transduction by rat dorsal root ganglion neurons in vitro
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Decoupling kinematics and mechanics reveals coding properties of trigeminal ganglion neurons in the rat vibrissal system
https://elifesciences.org/articles/13969

Title: The dendritic spatial code: branch-specific place tuning and its experience- dependent decoupling
https://www.biorxiv.org/content/10.1101/2020.01.24.916643v1.full.pdf

Dendritic Spikes Are Enhanced by Cooperative Network Activity in the Intact Hippocampus
https://www.jneurosci.org/content/18/10/3919

Time-lapse Live Imaging and Quantification of Fast Dendritic Branch Dynamics in Developing Drosophila Neurons
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Reinforcement Learning Recruits Somata and Apical Dendrites across Layers of Primary Sensory Cortex.
https://www.sigmaaldrich.com/US/en/tech-docs/paper/1229385

key paper****Small dendritic synapses enhance temporal coding in a model of cochlear nucleus bushy cells https://journals.physiology.org/doi/abs/10.1152/jn.00331.2020?journalCode=jn

cut---Activity-Dependent Dynamic Microtubule Invasion of Dendritic Spines
https://www.researchgate.net/publication/23567148_Activity-Dependent_Dynamic_Microtubule_Invasion_of_Dendritic_Spines

a0078z
Jul 23, 2012, 5:41 PM

Neo Mind Cycle is a twelve week program, with 24x (35 minute) sessions to free your mind.

Combining the benefits of Neurofeedback, a proven technology, for profound life changing mental healing, and for optimizing minds.

With Brainwave Entrainment, a proven technology, that gives you all the benefits of meditation, to increase your mental performance power in situations that used to stress you out.

Both technologies each 40 years of documentation and research proving the benefits of each.

Now they have been combined together in brand new way.

The Neurofeedback is like healthy exercise for the brain. The Brainwave Entrainment is like a feel good massage for the brain.

Notice expansions of awareness almost the first day.

You may immediately notice yourself to be more creative, to do more writing, to be more productive, to suddenly get a major project done that you had been putting off for a while!

As the weeks progress profound happiness expanding shifts may take place in your life. It creates whole brain thinking faster than any competitors technology or program.
It makes your neurons fire in highly coordinated way, resulting in profound increases in cognitive juice, your inner genius will awaken even more!

a0079z
(oscillat) Led connected to eyeball
Imagine an eyeball with an LED
imagine two eyeballs each one lighting up and LED of a different color

Imagine ten eyeballs stacked vertically and each one of them is looking at a row of LEDs that is produced by each one of them.

Now imagine that some of the LEDs are bright, brighter, brightest, some are dark, some are dull, and they exist in all colors.

but now imagine a larger set of eyeballs that is watching the rows of LEDs produced by other neurons, with each eyeball in the next set having an axon terminal from each of the previous sets wired to them

so they are able to notice phase differentials
which is how we can have solid precise pattern recognition on what is otherwise a very fluid brain with virtualized patterns

so the larger eyes are watching patterns from previous sets of neurons

but the knowledge is played back in sequences, so knowledge appears partially in one area of the brain, then partially in another, then partially in another, and consciousness only exists in time over 4 dimensions, 1 dimension of time and 3 dimensions of space.

It's a self-aware network in 4 dimensions rendering a 4 dimensional pattern to itself that is reactive to the world and able to make prediction-based models of reality with sparse spatially & temporally distributed frequency/phase patterns that represent coicident neural firing or coincident neural inhibition deviating from the oscillatory norm of a given oscillator on some level as observed by the neurons in the oscillator, and by oscillators or circuits or cortical columns linked across the brain thanks to the activity of interneurons and major intersections of traffic such as the thalamic bridges, the corpus callosum, the tempo-parietal junction, Werneck & Broca's areas and other areas of the brain that are highly connected or connecting multiple regions of the brain together.

At the level of cells in the eyes, the ears, the nose, the tongue, and the skin there is a similar thing happening, it's like a sensory/transmitter array of nerve cells, ganglian neurons, cones, special receptors, this paragraph is not a great anatomical description, which I will fix later, but the point is that when you are detecting light, heat, vibration, pain, there is some physical interaction happening, a photon might be colliding with a protein causing it to move, flip, change position, sounds might cause hairs in your ear to vibration, that motion in all these sensor array situations is detected by neural/glial arrays, by their specialized receptors, but when they pass information the next set of neurons, up to the next layer of the neural network, the next layer doesn't know it's the 2nd layer, or the 4th layer or the 5th or 6th array of neurons, what I mean is that the signals sent to each subsequent array may as well be, from that subsequent arrays perspective, signals from the outside world. So imagine that if the first sensor array in your eyes, ears, nose, mouth or skin is capable of the perception of an image or a sound or a pattern, then so is each subsequent array of neursons, each edge community, each neural circuit, each cortical column, each layer in the hippocampus, each layer in each cortical column, and all the interesting connections between the pyramidal cells, the thalamus, the different brain regions, they are each in a sense sensors, like little eyes and ears (the receptors on every cells) that are picking up signals, connecting more synaptic branches listen better, or disconnecting to listen less, considering via thresholds that are growing or shrinking based on the growth or shrinkage of synaptic branches, and the patterns the each cell represents to the community (to the cortical colum or to the oscillating group, or from the oscillating group to other oscillating groups Is memory engram based on the synaptic connections that it has grown at that moment, in part because those synaptic connections, establish what memory the cell is tuned to receive, identify, predict, via its receptors being activated, and in the case of neurons via it’s dendrite being activated, or via it’s soma bursting.

Is memory engram based on the synaptic connections that it has grown at that moment, in part because those synaptic connections, establish what memory the cell is tuned to receive,

identify, predict, via its receptors being activated, and in the case of neurons via it's dendrite being activated, or via it's soma bursting

That physical state, of the neurons literal connections creates it's phase signal, which is distinct from all the other neurons in the brain, the memories that neuron contains are distinct, but those memories are like the keys of a piano, that becomes tuned to be receptive to certain frequencies and to transmit certain frequencies, and the oscillating group of neurons plays back many of these neural piano keys, creating an array of tempo-spatial sequences, that get blown up or magnified via the inhibition of nearby neurons in the exit terminal, which amplifies the clarify of the signal being transmitted to the next layer of cells or the next array, or the next edge community, or the next layer in the cortical column or the next cortical column, or the next oscillating group in the default mode network or the next oscillating group in the rich club network and so on.

I argued somewhere, after reading the book Sync by Steven Strogatz, that fireflies are acting like a single sensor/transmitter, oscillating together because they receive each other signals, and those signals dissipate across the firefly collective, until they are blinking in harmony, but if one of them vanishes, that disturbs the oscillation of the entire collective, so fireflies are a unified entified intelligence, if a frog gets one of them, the rest detect it and move away, because that signal has been inhibited, and that tiny change changes the expected pattern that the entire group of fireflies has.

a0080z
(oscillat, field, dendrite, synap) Pixels in the mind
Pixels, seeing nerve cells as like pixels lighting up on a transparent background for other not firing pixels & their tonic oscillations to collectively listen to

Visualization of an Eyeball connected to an LED tree able to create different colors

Then a visualization of an eyeball hierarchy connected to an LED tree able to collectively creating a multi-level hierarchical christmas tree able to see a christmas tree in each eye

<insert dot painting>
To illustrate dots up close, of different colors, representing electrical frequency patterns to the next set of neurons, the next set of neurons are detecting frequency patterns with little drips of neurotransmitters that arrive in sequences over time to pass ions through their receptors, resulting in the occasional build up of charge with a depolarization or action potential event, that indicates a high threshold of a varying magnitude, that itself is dissipated in a multitude of tiny frequencies carried in lipid sacks called vesicles which release neurotransmitters radially across the branches of an exit terminal to the post-synaptic membranes of the dendrites of other neurons as a common class of brain activity to be an example. The radial distribution from the neuron across its exit terminal branches allow it the opportunity to reach many different neurons, distributing it's massive starburst in lots of little packages to its neighbors, so that now its

neighbors are receiving dots to their matrices. Since neurons are in a tonic firing pattern when they are not firing phasically they can also create dark spots, or patterns that appear as a negative. The neuron understands how many little dots were needed from which direction before it became overwhelmed and had to fire, there is a literal three dimensional chemical counting process going on with a dendrite collecting charged ions in various branches, or the soma collecting charges (from soma branches with the pyramidal cell) increasing or decreasing its likelihood to fire or its readiness to fire (turning the volume up or now on its readiness to recognize certain patterns (or recall certain events or people or names, do you ever play tetris for hours and then see tetris shapes when you close your eyes, imagine that your cells that are recognizing shapes have their readiness to recognize those kinds of patterns turned up.)

So just as something that appears as pixels close up appears to be an image from far away, so too could a frame of consciousness that is barely a distinction between two temporal patterns (a distinction made by attention, when some of the brain fires and other parts of the brain are inhibited and other parts are listening or predicting their turn to fire in the temporal sequence) so to could a frame of consciousness take on the appearance of irreduce-able human experience if seen at a larger temporal scale, or with many frames considered all at once, or basically with the frames sped up enough.

An action potential is not passed on from one neuron to the next, the spike does not travel between neurons, instead the spike is broken up into little chemical sacs containing neurotransmitters, that diffuse the spike across the branches of the exit terminal distributing one large spike so that it is read by many neurons downstream as small spikes connected to their postsynaptic membrane. Imagine instead of exit terminal branching that the spike was being chopped up into small pieces and distributed radially like a solar flare being flung out from the sun, going in many places at once, not to one neuron, but to many.

A large spike might cause more vesicles to be released, resulting in a larger synaptic spike for each of the receiving neurons, more vesicles means more neuro-transmitters are released, and it indicates that more receptors on the receiving membrane are opened up. Which could mean things like more potassium channels opening, more sodium channels opening, it could change the shape of the spike in the next neuron if the repolarization happens faster because a greater number neurons

But the idea is this, what each layer of neurons is representing is like a series of star bursts read by the next layer of neurons, but not just starburst, also dark spots, negative action potentials, or inhibited neurons, because neurons fire in tonic oscillations, there is an expectation they are creating that they will continue to fire, if they stop, there is a dark spot in the wall of neurons between the first layer and the second layer of neurons

So if you could imagine a screen between the layers of neurons, with bright spots, and dark spots, but they are rendering higher level features at each layer to the next layer.

Volumetric scans as examples of 3D volumetric dot matrices
https://twitter.com/Tks_Yoshinaga/status/1446065999829037057?s=20

Light field labs

Otoy Renders

a0081z
(oscillat, array)
Choice refinement theory satisfies the religious concept of freewill with determinism, because it suggests that deterministic self-aware agents can continually refine their choices with each successive iteration of computation by incorporating new variables into the awareness equation thus improving choices with new information. It's the adjacent possible theory applied to self-awareness and phenominal consciousness.

The way Richard Feynman pronounces words when he speaks in the Feynman lectures: it's as if each major point in his rhetoric was a powerful particle collision in his mind. What if particle collisions in our brains are infact activated soliton wave collisions in the brain. The waves from phasic firing neural paths intersecting with oscillating edge communities.

So lets say that the meso scale includes edge communities which are the same as arrays of neurons, and that these are also sections of cortical layers inside cortical columns.

Choice at the brain network level between oscillating groups of cells via interactions between cortical & sub cortical structures, also related to scale or scaling of information, fractals, top down & bottom up interactions flow of information in the brain

"Cortical-Subcortical Interactions in Goal-directed Behavior"
"studies increasingly demonstrate that behavior is represented by brain-wide activity and that even subcortical structures contain early signals of choice, suggesting that behavioral functions emerge as a result of different regions interacting as truly collaborative networks."..."cortical and subcortical regions in placental mammals interact cooperatively- not only via top-down cortical-subcortical inputs, but through bottom-up interactions, especially via the thalamus."..."Finally, we challenge the classic view that functional modules are contained within specific brain regions; instead, we propose that certain regions prioritize specific types of information over others, but the subnetworks they form- defined by their anatomical connections and functional dynamics- are the basis of true specialization."
https://journals.physiology.org/doi/abs/10.1152/physrev.00048.2021

"Bidirectionally connected cores in a mouse connectome: towards extracting the brain subnetworks essential for consciousness"
"we focus here on the problem of identifying the minimally sufficient subnetworks in the brain that support conscious experience. In this study, we simply refer to such subnetworks as “the locus of consciousness.”

https://academic.oup.com/cercor/advance-article/doi/10.1093/cercor/bhac143/6647613?searchresult=1&fbclid=IwAR2snuWv3m1tDL5_tOCXLElE3zAupVmViddFIoZjSvaEQ0XzNr5ZRBvqYj0&login=false

a0082z
Jul 13, 2017
(emotion) 1133 website: Neo mind cycle is for the greater good

I have now the best neurofeedback machine anywhere, it's the most powerful experience I have ever tried!

It's better than brain state technologies, because they use neurofeedback + sound that can be changed with emotions,

I use neurofeedback + onscreen visuals, + audio you can change with feelings and thoughts and internal representations + light goggles that reflected the brainwave pattern and the brain entrainment pattern in isochronic beats that can also be brightened with emotions, or made to blink faster or slower + brainwave entrainment going from delta, to theta, to alpha, to beta, to gamma, in one session, and from gamma to beta to alpha to theta to delta in another session.

What I'm doing is better than biocybernaut, and that cost 25k for a three day retreat!

Visit my office next time your in San Francisco
Started a business near the Oakland bay bridge in SF see my website for details
http://www.neomindcycle.com/

NEO MIND CYCLE
www.neomindcycle.com

Micah Blumberg yup it's better than a starbuck franchise in terms of it's monetary value!
2 minutes ago · Like
Erin Nibley but is it for the greatest good?
about a minute ago · Unlike · 1
Micah Blumberg how could optimizing brains not be for the greatest good?
about a minute ago · Like

yes its for the greatest good

a0083z
May 18, 2012
(graph, cortex)
What does the Neurofeedback Salon experience entail?

There is an down session (Inhibit) and an up session (Excite) and they are 35 minutes each. The short term effects are pleasant and can last up to a week, and I hope you will notice feeling extra good the next day at least. The long term effects after several sessions include brain optimization, more ability to focus, relax, greater creativity and problem solving, it equivalent in power to the kind of equipment other offices are using to treat autism, addiction, attention deficit disorder, post traumatic stress syndrome. This technology (Neurofeedback) is also used for athletic performance, top students, top marksmen, the executives of big corporations, and pro golfers are using neurofeedback technology to optimize their minds and mind-body states to get ahead doing what they do.

My Salon includes brainwave entrainment that is aligned with your brainwaves so you get a smooth stimulating surreal profound experience. While there are other types of sessions as well, the two I mentioned are inspired by the Len Ochs Protocol that he began having great success with in 1992 using equipment that then cost half a million dollars, and the other sessions are similarly backed up by credible research that will be listed on my website soon. While the equipment I use is commercial and medical grade, the cost is in the thousand of dollars, but it is actually a serious upgrade and improvement over what used to cost half a million dollars.

When you enter the Neurofeedback Salon you can take a seat. I will show you the equipment, the neurofeedback piece itself is a black, plastic, with fourteen sensors, and it sits on your head to scan for your electromagnetic brainwave patterns which are then transmitted to the computer wirelessly. The next pieces are the blue or white goggles, blue is less intense, but if you want the full benefit of the experience I recommend the goggles that blink white light reflecting your brainwaves combined with the entrainment signal. The blue goggles are less intense but technically they can create just as powerful as a session because more of the receptors in the human eye are able to capture blue light than any other kind of light in the spectrum. You can also view the goggles in a closed eye experience where I can cover the outside with special easy to remove goggle tape. The goggles are normally see through goggles so you can put them on, and put on the headset, and you will get a fresh pair of clean silicon earbuds which we will put on high quality headphones while you are there.

Next up I will show you the graphs that chart your brainwaves, giving you that additional feedback helps create useful associations inside the mind between regions. Then we check to see that all the sensors are lighting up green, and the I press start, and while you sit back and watch the screen I am also watching the screen to make sure the session is going correctly. After 35 minutes we start the second half of the program. 35 minutes later you are ready to take off the equipment.

At that point I encourage people to just sit quietly for up to fifteen minutes just to allow themselves to absorb the experience. I can email the graph of your session along with an electronic bill that you can pay with your online bank, or google checkout, or paypal, or any credit card.

Other types of Neurofeedback

Neurofeedback sessions come in two varieties.
1. The first type are those that you train your mind with to manipulate objects on the screen using your brainwaves, which involve decoding brainwaves and translating them into software movement according the rigid structure of programmed controls. The limitations of current software technology in translating your brainwaves into onscreen movement means that there is a sharp learning curve for most people. Sensors have to be aligned just right for ideal conditions, and if you have a bigger, smaller, or rather different brain its going to be harder to work with the rigid predefined software controls. Many people get frustrated with that type.

2. The second type of Neurofeedback experience (used as part of the Neo Mind Cycle Experience) is sending the brainwave patterns back to you after being converted to light and sound. It doesn't have to be translated by rigid software because its being sent back to you, to be decoded by your brain. Effectively we are creating a feedback loop from senses to brainwaves, to machine, to senses again, back into brainwaves, back into machine, on and on. This feedback loop is like expanded self awareness, its really cool!

3. I am hopeful that a new kind of predictive intelligent software from Numenta will be far more useful for decoding brainwaves and translating them into onscreen movement. While I have the ability to do both the first and second type of Neurofeedback experience in my Salon I am going to wait until software tech improves before employing the first method in the salon.

As you may know your neocortex when unfolded is like a large dinner napkin or a table placemat six layers deep, and the wiring is simply three dimensions, up, down, left, right, back, front, its not a mess, its not spagetti, its not chaos, but the problem with eeg signals is we need powerful chips to decode the geometry because that placemat is all squished up and wrinkled inside the tiny human skull. We also need to separate the eeg signal from ecg interference (your heart beat) and other sounds that your body makes that you don't usually hear, but for some reason are really loud when trying to measure brainwaves.

The result is that this high tech mirror on your brain, while being the best technology we have is still somewhat of a lower resolution camera (the leading rival fmri is also kind of a lower resolution camera, it measures bloodflow instead of brainwaves) and yet a slightly lower resolution camera is still great to use if nothing better exists yet. One day perhaps we will be able to give "the new ipad" resolution class Neurofeedback, but the technology we have today is still powerful, useful, a worthwhile tool to become aware of one's own brainwaves EVEN if its a low resolution look at one's own brainwaves.

Please keep a journal about your expectations and your results week in and week out. After the session do not turn of the headset. First we can discuss your brainwave patterns on the screen. We can also email you a graph of your brainwaves during the session. So you can compare it with future sessions.

a0084z ctpr

Sep 19, 2017
(graph, emotion, cereb)
your experiences create associations between cells that fire together as a reaction to incoming stimuli, these associations become the means of predictions, when a specific neuron fires, those that are associated prepare to fire as well, so previous experiences become our predictions aka our beliefs about what will happen next, we have essentially a consciousness that is built on these associated memory predictions that network between all incoming sensory data to trigger vast mental imagery that is a result of the neural firing sequences stimulating our kinase domains. "probably"

the cerebral cortex is a modeling system that makes predictions about what is real so as to coordinate the movement of the organism - via Jeff Hawkins

they denied rem sleep to a rat, in a study, whenever it fell into rem sleep it would fall off its perch into water waking it up, it was able to sleep, but it was not able to dream. they found out that the rat stopped responding to threats, a cat could walk right up to it and the rat displayed no fear response. the logical conclusion made was that dreams are dress rehearsal for avoiding dangers and being prepared to act quickly in the presence of something dangerous. In short its as if the purpose of dreams is essentially to have practical nightmares that get you ready for when your awake.

I'm using a combination of neurofeedback, brainwave entrainment, and a very powerful audio visual system with complex graphics in my business to stimulate profound increases in awareness, emotional health and well being, balanced brain chemistry, good feeling, and in general its for brain optimization, there are more details on my website if it sounds interesting. With your mind I think you could give me some useful feedback. neomindcycle.com

a0085z
I have new configuration ideas for plausible conscious mechanisms

It's was the year 2012
I had just moved to San Francisco
I had a business idea because I had tried an experience that I called NEO MIND CYCLE

It combined natural supplentments, like blue lotus flower for relaxation, and nootropics, with brain stimulating technologies and neurofeedback. It used Neuroprogrammer and Mind Workstation software (created by a company called Transparent Corp) and I was able to customize light & audio brainwave entrainment tracks, and drive changes to the signal patterns with EEG signals. It felt like I was connecting my brain into the computer, that my consciousness was being extended outside my head into the computer itself. I felt like I could decode and understand how my thoughts and feelings were actually brainwaves that I could detect now thanks to the light of this neurofeedback, my thoughts and feelings would change the light and sound patterns, which I would see and hear, which would change the light and sound patterns again, which I would again see and hear, and realize that it was changing my brainwaves with

each interval to take on the features in my own brainactivity that my brain was able to recognize, it was like presenting a mirror of the brain to itself.

I didn't have any explanation for this phenoninem, I didn't know how to explain it, I didn't know if it was real, I didn't know if other people experienced it, I didn't know anything except that I needed to keep experimenting with it and I needed to share it with more people.

I did it on myself as many times as a I could, spending hours each day in deep self-awareness thanks this computer program running a reflection of my brain activity back to me as highly stimulating brainwave entrainment beats.

a0086z
Note created on Jul 13, 2017 but it contains things written in 2012
(perception, vector, category)

I'm in the business of brain optimization (2012-2014: http://neomindcycle.com/ Naturally I would be interested in a mechanical incarnation of the self realized deity Vishnu as my foot and a half tall friend who could come with me wherever I go and work with me. However I'm also interested in understanding the brain to create brain extensions. I have a hypothesis that what I do with Neo Mind Cycle is creating another feedback loop that is expanding self awareness into a super brain, or extended brain. Naturally I want to know if my hypothesis is plausible, and also I want to know if there are other ways of extending the brain. Imagine a cyborg like attachment (with AI) that essentially gave you a brain that was 80 times bigger than your brain is now, except in virtual space? So that your life could be 80 times more precise.

I like how in AN model, intuition is the emergent result from points plotted in a vector tree map that you can describe in category theory. I think she describes it in C and or Java, but I think it lacks the fluidity that could happen in a functional language like Haskell. Where node memories can create vector memories and The model free nature means that the concept is the memory of the tree's reaction in a sense. With Haskell and an 80 core processor one could have each node in the tree creating emergent vector maps with the other activated nodes independent of a centralized process.

I like how in AN Model, the "concept" isn't pre-thought and pre-programmed, it's learned or built by the vector tree's memory system in response to the stream of data.

Micah Blumberg
yes because I was thinking of swarm AGI, or an external artificial general intelligence
like an ant hive where contact with other ants creates a tcp like ping, and the ant hive acts much like tcp, sending out packets, and if packets aka ants don't come back it doesn't send out more, or a slime mold that uses the environment as a component in it's memory system

Imagine a nano swarm, that can just fly into a person and take over the person's mind?

unmodified senses

we can expand the human range of senses with existing technology, in fact it's a goal of mine, you say that Luke Skywalker helmit the military is advertising?
http://www.forbes.com/fdc/welcome_mjx.shtml

the eeg spikes are associated with eye movement, and AI vision, pin pointing spikes between all three, with an extra operator behind a desk. So you have three points being tracked by a fourth operator. Resulting in a superior tracking system, that isn't a permanent alternation to sensory perception, it's just something worn like a helmit. Augmentations to hearing and sight and balance come in the form of ear implants, chest strips, tongue strips, these things can be worn externally, and a Texas company (associated with David Eagleman) is working on sonar sense via a chest strip. In addition to that a chest strip that has wall street information on it, so the brain can be applied to raw wall street data.

Can you imagine being able to feel or sense wall street data in a spatial way as easily as your able to track the events in a sports game that you are at?

I have an artificial synesthesia I gained using the technology in my business
I was wondering about your sense of humor there
Now I sense my brainwave patterns

yes and the subconscious is very much a comedian too

what I mean is if you break up your entire sentence return into parts done by different parts of the brain, one tiny part of all those parts is probably doing a subconscious task, and deciding to substitute a humorous remark instead of original meaning a subconscious reflection of happiness I think

Micah Blumberg
I've got some cool features planned for the website. I will adopt that tip thanks for giving it. My background work wise or generally?
My background that led to Neo Mind Cycle?
I was 19 when the Matrix film came out, there was something about that film that pulled my life in a different direction than I expected. I had planned to be a fiction writer, writing fantasy books at first, then science fiction
In 2004 On Intelligence came out and I read it, then this book changed the direction of my life.
Godel Escher Bach was confusing at first, then I am a Strange loop blew my mind, and so did Thresholds of the Mind by Bill Harris
the three books combined described to me consciousness in a way I had never thought of before
I mean Hawkins book, Hofstadter's book, and Harris's book.

Pawel A. Pachniewski

Very clear what you're saying here.
I have read those books and I actually discussed the Matrix a lot with a friend of mine with whom I used to discuss endlessly philosophy and life.
Not thresholds of the mind, didn't read that one actually.

Micah Blumberg
There is a probably a good reason why you didn't read it

Pawel A. Pachniewski
What would that be?? I hadn't heard of it.

Micah Blumberg
I mean even if you had heard of it.

Pawel A. Pachniewski
I have been meditating all my life.

Micah Blumberg
wow really
okay maybe you would read it then
you know how many people argue that there is no choice?
especially in the computer science and AI groups?
Bill Harris argues that you do have choice.

Micah Blumberg
Do you think free will and choice are two different things or the same thing?
i think freewill only has meaning in a social context, and choice only has meaning in terms of describing the brain's ability to coordinate itself
and I think that on a higher level choice and determinism are a unified concept, not two, non-dual

Micah Blumberg
as if you are the one buddha, there is only one choice, seeing more than one choice is illusion

Micah Blumberg
What I mean is that free will means kim coordinates kim, and jake coordinates jake, kim's mind doesn't coordinate jake's mind, so jake's will is somewhat free from kim's will. so jake has freewill
being the one being is just a perspective, its not the only valid perspective
from another perspective you have many choices
but as long as the perspective exists where all choices are one choice, then you choice from that place is apparently an illusion

Micah Blumberg

Are you familiar with Ilya Prigogine
he felt out of acceptance with general scientists for proposing an alternative to determinism one in which life is a dissipative system, and because of thermodynamics order increases to export increasing entropy elsewhere

Micah Blumberg
it's like saying the point of life is isomorphic to the point of a hurricane
and we are
isomorphic to hurricanes in the functional sense

Micah Blumberg
so the factor of choice is indeterminism, infinite possible things can happen, and the living system, as a self organizing entiity has a bell curve of possible options, it's almost like describing choice as a dice roll
the bell curve is fat in the middle with things you are more likely to choose, and thin on the ends with things you are less likely to choose

Micah Blumberg
Bill Harris includes him in part of his book Thresholds of the Mind
which you can get from amazon.

Micah Blumberg
Thresholds of the Mind is why I got into Brain Optimization, and Neurotechnology
brainwave entrainment and neurofeedback

and nootropics aka smart drugs too, have you seen the film limitless?

okay well my new hypothesis is that intelligence is like the number of connections in your brain, highly intelligent people have tons more connections in the grey matter, and those connections translate to people like Jeff Bezos, Tim Cook, the heads of companies like google who are already using both kinds of AI, as we heard about in the new regarding Google Cat did you hear about that one?

Micah Blumberg
A google AI that created it's own concept of a cat from youtube videos without being instructed to do so

Micah Blumberg
http://www.wired.com/wiredscience/2012/06/google-x-neural-network/
Google's Artificial Brain Learns to Find Cat Videos | Wired Science | Wired.com
www.wired.com
When computer scientists at Google's mysterious X lab built a neural network of 16,000 computer processors with one billion connections and let it browse YouTube, it did what many web users might do -- it began to look for cats.

“We never told it during the training, ‘This is a cat,’” Jeff Dean, the Google fellow who led the study, told the New York Times. “It basically invented the concept of a cat.”

those "brain" connections can also translate to people like you and me who could be leaders of giant groups, like companies, or other kinds of groups going forward.

Yes well if a person has too many connections, or violent experiences, or malformed early development that can result in epilepsy, post traumatic stress disorder, severe or slight autism, ringing in the ears, tons of serious brain conditions. Not excluding the useful stuff like synesthesia and there exists every kind of synesthesia I have been told, confirmed, every possible combination of senses

both neurofeedback, and brainwave entrainment drive connections in the mind, and what I do drives connections to brainwaves, which drive the eeg feedback (sounds) and the brainwave entrainment (light and sound)

It drives more connections, creating more intelligence, but these are not uniform connections, unlike typical brainwave entrainment which creates uniform connections, these connections are as random as your own brainwaves, because they are your own brainwaves. So instead of creating autism, or epilepsy it does the opposite. It increases intelligence while removing cleaning up illnesses.

a0087z
Self Aware Networks Institute, Book, Monetization Ideas (Okay to share)
book chapter outline topics list (book, cortex)
Book update: I've been working on the book from April 2021 to June 2022. I'm still not done but I'm working hard to release my notes soon on github because github is the same as publishing & I can start the Institute from Github.

Interesting thought, what if this is evidence for the idea that slowing yourself down with meditation can reduce your inflammation? Reference: Mitochondrial respiratory chain sustains inflammation. If your body & mind is less active, your cells will produce less ATP and use less oxygen. That could add something valuable to the mystery of why people in total darkness, or blind people can lose their sense of time and experience abnormally long sleep cycles without noticing it. I'm suggesting that sleep, because you are less active, is slowing your inflammation down
https://medicalxpress.com/news/2022-05-mitochondrial-respiratory-chain-sustains-inflammation.html

"Mitochondrial turnover: Researchers discover what causes cell 'batteries' to run down"
https://phys.org/news/2022-08-mitochondrial-turnover-cell-batteries.amp

Macro Scale viewpoint on the book & institute progress.

Titles: The main title and subtitle has been decided upon. (I will share the title and subtitles later on when I put up a link for pre-orders to amazon)
Self Aware Networks, Neo Mind Cycle, Artificial Neurology

The Book's main theory & scope has been defined. The Three Major Sections have been outlined in detail specifying what categories of content are in the book and what categories of content are not in the book.

These major sections are about the human brain, brain computer interfaces, and neural networks respectively, as I have new ideas to share in all three areas.

Beyond titles for the major sections I have already defined what content each of these three sections includes and what it excludes topic wise, although minor changes to the included topics are plausible & likely. This high level outline helps shape the table of contents and topics list at a lower level.

Meso Scale
The Table of Contents: Chapter Names, Topics under each chapter, the list of main Arguments, the list of references, and the list of citations is coming together and it's what I am focusing on the most right now.

I've gone through multiple drafts for the exact table of contents, which continues to grow because I continue to get great new ideas.

The topics list is like a list of things to be added or subtracted from the table of contents,
The multi-level mindmap / outline has gone through several different drafts and continues to develop (and will continue to develop until the publication date.)
I have listed many of the arguments in different notes but they still need to be moved into one place.
Still adding to, removing from, re-ordering from first to last, and using to organize various writings.
This serves triple duty as a high level outline for slotting in things that I have written both recently this year and in past decade.
Status: Ongoing, mostly complete, might be making minor changes up until the publication date.

Micro Scale Viewpoint & Work
Moving & Ordering Various writings:
I have written extensively on many of the topics in the book, my work is spread out across a ton of different apps on several different devices.
I have thousands of pages of notes, some of my written work goes back to 2010. That will need to get reduced to what I think will be around 300 pages.

Moving my collections of work from the many different apps located on many different devices into the outline & table of contents above, and then ordering them from first to last is the main work right now.

In addition there is still content that I need to create, but I am optimistic that once I have the main stuff organized, and outlined the gaps I will be able to fill in the blanks with my handy AI based transcription tool, allowing me to fill in the blanks by talking to the computer. (I will need to fix the auto transcriptions but they are mostly well done.)
Status: I'm not going to be able to absolutely organize everything in the first edition of the book because I have too much content to sort through, so I am in a manner of speaking just going to grab what I can with the time that I have and put this together.

We can solve many of the human rights issues by getting all essential nutrients affordable and available to every human being on this planet. When you raise the threshold of cognitive performance people think of better ways to behave that benefit everyone.

The SAO going to use your donations to hire programmers to help me create the webxr version of this book with this 3D carousel interface, and the ability to grab items with gravity gloves and the ability to see your fnirs biofeedback in VR and AR

I'm also going to build a self aware phenomenally conscious artificial neural network in webxr that can interface with your mind, connecting your mind with ar and Vr to ai

its like your neural correlates are visualized and turned into audio by the computer so you gain new insights into your own thought patterns and that accelerates your mental pattern formation.

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its like your neural correlates are visualized and turned into audio by the computer so you gain new insights into your own thought patterns and that accelerates your mental pattern formation.

As far as monetization I thought of creating a gift shop of virtual items including membership cards. Tokens. Art. Prizes.

We can solve many of the human rights issues by getting all essential nutrients affordable and available to every human being on this planet. When you raise the threshold of cognitive performance people think of better ways to behave that benefit everyone.

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its like your neural correlates are visualized and turned into audio by the computer so you gain new insights into your own thought patterns and that accelerates your mental pattern formation.

My conjecture is that the solution to world peace is 1. To give the world sentient self aware neural network robots and 2. To ask everyone in the universe to forgive everyone else everyday so that we can work together to make the world better for everyone!

I love the idea that the cosmos we experience is literally inside someone elses mind and that they are conscious of all of us. I also think its an interesting that person, and each animal is creating a node of the universe.

Self Aware Network Institute & Foundation
SelfAwareNeuralNetworks.com and SelfAwareNetwork.com
2021 commemorative token/coin that will only be issued in the year 2021. This is a collectors item proving that you support the research of this institute that you are part of thanks to your support.
To fuel our research and pay researchers & engineers we make "membership tokens available for members to collect" as a receipt on every donation of the equivalent of $20 dollars or more by prices in 2021.
You are supporting the foundation-extension for
You can shape our work depending on what you donate to, and the proof is that you own membership tokens in each of these.
The oldest tokens are worth the most in membership credit because

A more giving humanity,
I want to make it possible for human beings to create the most beautiful virtual presents quickly and easily so giving beautiful presents to everyone you meet is going to be a regular thing.
The people who give you presents are people you like, humans are wired that way.

The membership for a donation in any amount gets you a subscription to our notifications so that we can send you updates on our progress, give you early insight into our research invite you to events to collaborate on writing open source software, access to news about new educational metaverse experiences made with webxr. In essence a membership token means we send our emails to the email address that we have on file for you. Changing to a new email is possible if we can verify both the new and the old email address, via a program, a smart contract will initiate allowing you to sell your membership card, coin or token to another person but keep your email address and replace it with theirs as part of the sale

This technology will be automated once I am able to hire a team of programmers to help me implement all these ideas faster.

The self aware networks institute for the study of neurophysics, artificial neurology, brain computer interfaces, and advanced technologies..

Machine brain to computer interface ha

this describes how ports can be attached to artificial brains to link them into other computing systems and with other artificial brains

The artificial brain transistor array.

By selling membership tokens, I mean they are memberships distinguished by the date of purchase, linked to an email & a web address via a smart contract. You could in theory resell the membership token or certificate, but these are designed to be collectables, keepsakes.

With artificial sentient labor the amount of production of goods and services with scale up massively which means your personal purchasing power increases massively, everyone gets richer, but we will all live longer healthier lives,

With the brain computer interfaces we will make the potential to even slow down your experience of time by extending your mind with a connection to an artificial cortex if our institute's mission is successful. This means that the average human lifespan with our technologies can potentially feel exponentially longer than it feels right now because the total amount of calculations per second that your brain can process with our technology will expand your brain. Expanding your brain power means more thoughts per second and that means your experience of spacetime slows down. You become more aware of every moment.

Customers who support the institute with purchases will likely be among the first in the world to learn about the latest advances in our research.

Another path is creating a free annual token membership that is only available for free that year to paid members. In 2024 a token from 2022 is no longer free, it can only be purchased from someone. In that sense the tokens gain value the older they are, but you can get a free token each year as a paid member, and the paid membership could be like $20 a year or $10 a year. Or it could be like a grandfathered price, where if you become a member in 2022 your annual membership is always 10 per year for life, but if you join in 2023 the price per year is more but still fixed at that rate for life. So in 2025 the membership is cheaper renewal price is cheaper for members who joined in 2022 for example. It’s a way to keep up with inflation while providing a locked in senior discount.

As a member you will receive notifications from us via the email address associated with your donation

This will mean that you will be among the first in the world to learn about advances in our work at the institute that will lead to the perception of life extension via an increase in the amount of thoughts you have per time interval with an extended artificial cortex.

Please help me to achieve my life goals of creating nervegear/augma level bci tech, conscious robots, and artificial cortex

I realized in 2012 that these were my life goals and I dedicated my life to solving them.

The problem that I had with getting the layer and the canvas to react the same way with teleportations in worldspace is the same problem I had with exokit web with getting interactions from one canvas to work with another canvas

I thought I would need to send commands over the server
but in essence I need a duplicate camera teleporter in each canvas

then I just send the same signal to each

so I need like a way to duplicate functions and commands from one canvas to another

I need art, an art concept for each topic in the book. Put the word in the middle, like a slide to find pictures.

send your

with this Special Token you get a first edition lifetime membership for a super low price

you can become a member of the Self Aware Networks Institute before it's built, your membership will help us pay our staff to finish building out the vision of building a webxr based institute dedicated to our research that is intended to benefit all mankind.

Additional details:
So imagine now that I have in section 1 a few new proposals for how the human mind works, including some amazing ideas based on new research that I only recently thought of, and it is likely that some of which may turn out to be incorrect, and it is likely I have misunderstood some of the parts of what I have studied, but this is okay.

The reason its okay is that the main idea I want to share with people is general enough that even if it turns out that some of the details of mechanical operations of the brain that I am

describing are incorrect, in terms of the mechanical operations of the brain, the type of hypothesis that I am sharing is a new "outside in" type of hypothesis that may still be valuable to other brain researchers, and is somewhat invariant to some of the details (but not completely, the mechanisms I am describing would have to exist in a different form).

In the other two sections which are not directly about brain function but still touch on the topic I am similarly in the stage of ordering and organizing content that I have already written.

Research for the book:
Anyone can see that on social media I have shared a lot of brain related books, papers, and images, part of it is stuff I want to see later, most of it is stuff that will not be referenced in the book I am writing at all, these past months I have been keeping many of my most important references that I am writing about in the book close to my heart.

So a look at my social media shares will NOT give you any real clues to the contents of the book, which is about stuff that I have not been sharing.

To explain in more detail what I have also been doing is going through a ton of brain research related books, research papers, videos and other media to check and expand upon each area of my hypothesis, and to find the best references for my arguments either for or against.

This is another situation where there is no way for me to get through all the research available before the book comes out. So I am trying hard to canvas a lot of the recent ideas and read a lot of the best books and the best articles and stuff that is especially relevant to what I am writing about but as with my notes I will effectively have to grab what I can for now and include more research in future editions of the book.

Even if the multitude of ideas that I put forth about how human consciousness might work turn out to be incorrect, the arguments that I will make will include citations (peer reviewed research), references to brain research related books & articles, as well as diagrams and art.

So if it turns out that I am not correct about some of the key components of how the human brain works the book should still have a lot of value to offer the interested reader in terms of the information it brings together, all the references, the links & analogies I make between different topics in different industries, and the mapping of major research efforts, major companies, major articles, major books, major new emerging technologies, and so on with my notes on all of that.

Early in 2021 I wrote the massive article called "WebAR Wearable Digital Fashion NFT, Bio-Sensors, 3D DNN Shape Completion, Animations, Gan Synthesis" and another article called "Digital Fashion, Art, NFT, AR, VR, WebXR, 3D Deep Learning, BCI, and the future native digital economy." I realized that I now had the experiential qualities needed to organize a massive 300 page book. You can find these articles and more at VRMA.io

Like those two articles my book will cross industries, from neuroscience, to virtual reality, to brain computer interfaces, and machine learning. If you look at all the articles on that page you will see that I have written about medical imaging, deep learning, and yes some of that content will be referenced in the book.

I hope to use this book as a reference point for discussions on clubhouse, with the community of brain researchers, both neurologists and medical imagers, as well as with deep learning enthusiasts. The book will add value to my articles because if someone likes an article that I write they will be able to look at who I am and that will tell them that I'm the author of this book, which they can read if they want, to know more about the topics that I pay close attention to.

The concepts in the book will serve as the foundation for the creation of new 2D & 3D virtual reality & augmented reality art, that can be sold, tokenized, as well this content might inspire WebXR based AR & VR experiences, as well as the content for events, merchandise, and for me personally the book will serve as an introduction to people I haven't met yet, so they understand the scope of what I focus on and therefore they will gain insight into what they might collaborate with me on.

a0088z

Note Created Sep 28, 2014

(all or nothing) (synap, oscillat, field, dendrite, cereb, cortex)

Micah Blumberg
of the premise, I will quote "Computational properties of use of biological organisms or to the construction of computers can emerge as collective properties of systems having a large number of simple equivalent components (or neurons)."
11 hrs · Like

Micah Blumberg
I'm doubtful that having large numbers of neurons will simply create the emergence of higher functions. Eighty percent 80% of the brains neurons are in the cerebellum, but you can cut it out and throw it away and people will continue to live and function as conscious human beings.
11 hrs · Edited · Like

Renato Duarte
This is very well known. Important computational features such as content addressability (in the case), fading memory, pattern completion/discrimination, and many more can be seen (in a formal sense) as emergent properties of a dynamical system composed of many stereotypical components (such as neurons).. If you read the full paper, all the proof needed is provided..
11 hrs · Like

Renato Duarte http://www.nature.com/nrn/journal/v10/n2/abs/nrn2558.html

State-dependent computations: spatiotemporal processing in cortical...
NATURE.COM
11 hrs · Unlike · 1 · Remove Preview

Renato Duarte
This is a nice review paper that provides some bridges to neurobiology, maybe more understandable..
11 hrs · Like

Renato Duarte
Ultimately, all cognition and behavior are emergent computational properties of a very complex, high-dimensional dynamical system
11 hrs · Like

Claus Agerskov
50% if the brain's neurons are in the cerebellum. You can grow up without a cerebellum and the surrounding tissue will adapt to compensate for the missing neurons by taking over some of the functionality
11 hrs

Micah Blumberg
The best estimate is that there are 86 billion neurons in the brain and maybe only about 30 billion in the neo-cortex which is the most important part of the brain for humans. That's not 50 percent.
11 hrs · Edited · Like

Micah Blumberg
Emergence is a dream invented by AI people. Some think if they can just make a computer fast enough it can do whatever the brain does.

My disagreement lies in the fact that the brain is more than a large quantity of neurons, there is a lot more to it, it's structure, it's layout, it's layers, the locations of it's inputs, it's rich club or core circuits. It's not just "get a faster computer, or get a bigger number of neurons and all of a sudden we get emergent properties like consciousness"
11 hrs · Like · 1

Micah Blumberg
The brain doesn't compensate for a missing cerebellum. People who lose their cerebellum walk like they are drunk all the time, the rest of the brain never compensates for that.
http://www.cerebellum.us/.../uploads/outside_view_brain.jpg
CEREBELLUM.US
11 hrs · Edited · Like · Remove Preview

Renato Duarte
Ok, I totally agree with you in that the brain is much more than a large quantity of neurons. And certainly, I do not expect that getting faster, bigger computers and adding all the details of neurons and synapses will lead to the emergence of consciousness, particularly because there is no acceptable working definition of consciousness.. However, emergence is certainly not a dream and much less an invention.. It is a fact! With many, many years of research backing it up. And it occurs not just in the brain, but in many systems composed of stereotypical units, with the ability to self-organize..
11 hrs · Like

Renato Duarte
To understand the brain and its immense computational capacity that leads to high-level cognition and behavior, we need to make simplifying assumptions (as is the case with any good theory). For that reason, vast amounts of research show that the cortex is composed of repeated, stereotypical units, the microcircuit, which can be seen as the 'inside' of a layer in a cortical column (imagine, for example, layer 2/3). Throughout the cortex, this unit is known to have some common features, namely sparse, recurrent connectivity, excitatory and inhibitory units, and several synaptic and intrinsic adaptation mechanisms..
11 hrs · Unlike · 1

Renato Duarte
Assuming these features as universally true (which is not unreasonable) we can now begin to address the issue of computation (as input-output transformation). What can such a stereotypical unit account for, what can it do..
11 hrs · Like

Renato Duarte
And such studies led to the undeniable conclusion that various critical computational functions, essential to any cognitive, behaving organism, can emerge from the self-organized dynamics of the such systems, which is extremely complex, rich, high-dimensional and often chaotic (as one would expect in the cortex)
11 hrs · Like

Renato Duarte
Two examples from my own work (the second case should have the final pdf next week or so...):
https://mindmodeling.org/cogsci2014/papers/083/paper083.pdf
http://journal.frontiersin.org/.../fncom.2014.00124/abstract
10 hrs · Unlike · 1

Micah Blumberg
When people talk about the emergence of the behavior of water, from it's chemical components the word emergence applies to a new layer of description, but the mechanical properties of the gasses in water haven't actually changed.

Emergence refers to a new level of description about a mechanical system. The problem with that word is that people use it like the engineering version of the god of gaps, like whenever they don't understand a system, so I dislike the word, it's not mysticism, but it's kind of like used in that way, to be a vague place holder hiding actual material understanding of the engineering principles in the design. A stop sign so inquisitive minds stop questioning.
10 hrs · Like

Micah Blumberg
"Assuming these features as universally true (which is not unreasonable)"

No it is unreasonable, computational neuroscience makes unreasonable assumptions about how the brain works, and that is it's strength, and it should continue to do that, but it is most definitely unreasonable. In fact computational neuroscience is flat out wrong, it's a wonder that it actually does interesting things. I still like it, but real biology is a lot different than the spiking summations of comp neuro which have no correlate in the brain.
10 hrs · Like

Renato Duarte
I think you're totally wrong with this last remark but ok, this is the discussion of physics vs biology and I now realise it won't lead anywhere, as usually it is not possible to reason in these terms.. So, it was interesting, but I'm out..
10 hrs · Like

Micah Blumberg
"To understand the brain and its immense computational capacity that leads to high-level cognition and behavior, we need to make simplifying assumptions"

The issue is oversimplified assumptions.
10 hrs · Like

Micah Blumberg
Lets talk about the last statement Renato
In the real brain, spikes have variable amplitude and frequency, they are soliton waves, they do not collide with other waves and they do not summarize. In the real brain spiking is not an all or nothing event as it is described in comp neuro, and neurons oscillate.
10 hrs · Edited · Like

Connect notes a0177z, a0286z, a0039z

Micah Blumberg
Renato Duarte Please give your work top posting in the group, a new thread for each. Good stuff
10 hrs · Like

Micah Blumberg
Maxwell Edison
10 hrs · Like

Micah Blumberg
"the discussion of physics vs biology" not really it's the discussion of comp neuro vs biology, I want to show that biology is wrongly simplified for comp neuro. That should be an interesting conversation for anyone.
10 hrs · Edited · Like

Renato Duarte
It is an interesting, but pointless conversation.. I don't think I will be able to convince you of my arguments and vice-versa.. What you describe as comp neuro here is a mere 0.001% of the field.. comp neuro doesn't describe spiking as 'an all or nothing event', this is a particular type of neuron model.. If you can describe the phenomena of interest mathematically, you can use it in comp neuro, regardless of the level of detail you find relevant.. There are multi-compartment models, Hodgkin-Huxley models, oscillator-type models (such as Kuramoto, for ex.).

You can consider the spike as a delta pulse (for mathematical tractability), but you can also consider it an alpha function with variable latency, amplitude, frequency, rise and decay times. You can consider neurons as dimensionless points, but you can also model the full dendritic tree with ionic current dynamics differentially modulated on each compartment.. You can consider synaptic interactions as current transients, conductance transients, transmitter release probabilities... Etc, etc, etc..
10 hrs · Unlike · 1

Micah Blumberg
Alright I won't try to convince you, that won't work, but perhaps I can ask you questions instead?

In the brain the axon's action potential spike ends at the synapse, it does not go on to other cells, it's a one cell event, except in the case of the electrical synapse.

So why does comp neuro model spiking when it has nothing to do with cell to cell communication? Where the cells communicate is at the pre-post synapse, and what changes is the opening and closing of the ndma receptor and the transmission of ions.

So why do comp neuro models model spiking instead of ion transmission?
9 hrs · Like

Micah Blumberg
Thanks for your participation so far regardless. I'm here to learn and increase my knowledge like everyone else.
9 hrs · Like

Renato Duarte
Again, this is a misconception and it depends on the model used.. For example, in a conductance-based neuron model, a spike in the presynaptic neuron triggers a transient conductance increase in the postsynaptic neurons, whose amplitude depends on the efficacy of the synapse.. This is capturing the essence of what happens in the real brain, the neurotransmitter release from presynaptic terminal will bind to the postsynaptic receptors, which can be ion channels (at least the ones working on a short time scale) and the result is an influx of certain ions whose net effect on the postsynaptic membrane is an increase in the net conductance..
9 hrs · Unlike · 1

Renato Duarte
Besides, there are models that explicitly consider the arrival of the presynaptic spike at the synaptic terminal as an event that modifies the probability of transmitter release and consider the postsynaptic terminal as a current or conductance transient dependent on the type and concentration of the released presynaptic transmitter
9 hrs · Unlike · 1

Micah Blumberg
Okay "net conductance" is like summarizing the dendrites output to the soma.

It's one of the comp neuro things that I think misunderstands biology. Here is a paper that explains an alternate idea

https://journals.aps.org/prx/pdf/10.1103/PhysRevX.4.031047

Penetration of Action Potentials During Collision in the Median
and Lateral Giant Axons of Invertebrates

Micah Blumberg
The point is that instead of current in the brain behaving like electricity in copper wire it is instead electromechanical, it doesn't collide it crawls over other electro-mechanical waves
http://www.medicalnewstoday.com/releases/282384.php

Study confirms that nerve signals are sound pulses
According to the traditional theory of nerves, two nerve...
MEDICALNEWSTODAY.COM
9 hrs · Edited · Like · 1 · Remove Preview

Renato Duarte
Well.. I haven't paid much attention to this, but I am certainly not convinced that a single study reported in PRX will revolutionize centuries of research, but ok.. I'm not saying it's wrong, just certainly insufficient to prove any point.. Second point, nobody refers to the electrical current in

the brain as "electricity in copper wire", not at all.. the circuit diagrams that lead to models such as the leaky integrate-and-fire neuron, consider the relevant details as ionic flows and active processes.. If your interest is really in the results described in this study and consider this to be the description of how signal conduction happens in the brain, this is also not inconsistent with comp neuro.. If you manage to get a mathematical description of it, you are more than welcome to contribute to the community..
9 hrs · Unlike · 2

a0089z

(all or nothing)(physics)

General Relativity is an equation that describes the relative relationship between mass and energy, showing that they are the same thing at different speeds, that energy is mass times the speed of light squared, which is the same thing as saying energy is mass moving much faster than mass, or that mass is energy moving more slowly.

So to have a theory of general relativity that extends to quantum physics would be about describing the relationship between energy and mass at the scale of quantum physics

I think that the relationship between frequency and magnitude (to include amplitude & duration as two parts of the wave shape) in neuroscience at the scale of brainwaves can be scaled down to individual neurons (as duration), scaled up to brainwaves as ~~amplitude~~ magnitude, and scaled down again to quantum physics (particle/wave duality), and scaled up to planetary bodies (red shifting/blueshifting, galaxies, filaments, and so on.

In other words my conjecture is that the principle of 1/F in neuroscience is scale invariant and that it applies to everything at all scales. Essentially the universe consists of quantum waves and galactic supercluster sized waves and every wave has the same inverse relationship between ~~amplitude~~ magnitude and frequency

Amplitude is not always inverse to frequency, nor is duration, but my hypothesis is that magnitude might be inverse to frequency. In the brain at the scale of EEG it appears that amplitude is inverse to frequency, and at the neuron scale it appears that amplitude is fixed but the duration is changing, this led to the idea that magnitude, the combination of amplitude & duration might have an inverse relationship to frequency at all scales of the universe. Including at the neuron action potential scale, and at the brainwave measurement scale. Hypothesis: When amplitude shifts to not have an inverse relationship to frequency the duratio of the wave has also shifted.

(the wave shape of the AP is changing and the calcium channels are open longer releasing more MVR (Vesicles or lipid sacks containing neurotransmitters like Dopamine for example), though the amplitude might be the same or something similar to the previous times that the AP fired.

What is interesting is that at the neuron level, when the action potential fires, the Amplitude is pretty consistent, it's so consistent that they gave it a name, the all or nothing principle, either the neuron fires or it doesn't, this became the basis of the Perceptron which arguable was the first model of an artificial neuron, sort of the base idea for all artificial neural networks that have been created since.

So at the level of groups of oscillating neurons in brainwaves in the power band spectra such as delta, theta, alpha, beta, gamma & high gamma we have a situation where there is an inverse relationship between amplitude and frequency. When frequency increases amplitude decreases, when amplitude increases frequency decreases, but how does this happen when at the individual neuron level the Amplitude is supposed to not be changing?

With the all or nothing principle the idea is that once the threshold of a neuron is reached it either fires or it doesn't but that it doesn't change in amplitude. but why is Amplitude changing at the group neuron scale and not at the individual neuron scale?

The idea is that because of the All or nothing principle the duration of the action potential is more precisely inverse to the frequency.

So it's frequency is supposed to change without a change in amplitude, but there is an amplitude change that is being passed through the action potential as a duration of the potential, or the potential's decay time, or the delay in time for how long the action potential is open before it is hyperpolarized, and potentially it sends a message to other neurons by releasing more neurotransmitters but also it collects a receipt of the extra transmission with h

However if the frequency changes, and the amplitude stays the same then the duration must change, the shape of the waveform must change.

There is an effect, in which potassium seems to be the main factor, that might cause the action potential to last longer or shorter, leaving calcium channels in the exit terminal active longer, releasing more vesicles, more synapses, which would effect the timing of the releases of graded potentials, so its possible that the release of more vesicles could be excitatory or inhibitory, opening more sodium channels (excitatory), or more chloride & potassium channels (inhibitory),

So the idea is that when we have high frequency bursts the duration will be lower, and when we have low frequency bursts the duration of each burst will be higher, because there is an inverse relationship between the duration & frequency.

I remember playing a video game with fighters where you had fast weak punches, or strong slow punches.

Light peps, or slow slams. This idea would be consistent with physics, that amplitude as duration or time cannot stay the same if frequency is changing.

Neurons are divergent & convergent at the same time, when they receive signals they are converging them, when they distribute signals they are diverging or bifurcating them, and when the signals amplify in duration they amplify in strength with the release of more neurotransmitters in some diverging area of the network that is now converging signals into some other signal array

a0090z

You are in charge of making your own decisions in that you are a virtual entity, but ultimately "You" is an attractor in a brainwave powerband driven forth by the principles of oscillation in alignment with known laws of physics. Yes you are making choices, but there is no you that is separate from the laws of physics.

You are the electromagnetic spectrum as illustrated by neuron activity in a brain, that they then take turns reading or writing, seeing or saying, in the oscillatory talk of neurons that reshape their connections rapidly to represent new incoming patterns and fold proteins to help create an advanced data structure for your long term memories as well.

A demo idea

what if we had a printer, and the

or a screen, and every pixel was lit either red, blue, or green,

the demo has large pixels so they are easy to see

but what we do is this, we select a random distribution of dots in an image, 33 percent of them, 3 times, so that the dots are separated into a random set of 3 photos.

Then what we do is separate the dots into 3 frames, and play back the three frames in a loop, so that we are seeing a whole image over time, from the individual firings of neurons of the other neurons, but what is seeing them?

well while the first group is firing, the second group is listening, and that group is either going to predict that they are going to fire next, or wait one round and then fire, if Neuron 1 had an excited round, they then do an inhibited round 1 times simply to wait and listen for a round, they are listening to the 2 other neurons, neurons 2 and 3 are listening to incoming signals to predict whether they are going to fire next in a sequence, or whether they are not going to fire next in a sequence, all it has to ask is "am I going to fire next", but its receiving answers from every direction, via synapses in its dendritic branches for example,

if the other 2 neurons just fired or not, that is part of what it is listening to,

the point is that we are establishing a self communication mechanism, they listen to each other, and to any other available incoming signals, when they fire they create patterns, the crudest possible patterns, that the other neurons receive as signals, and the other neurons learn the patterns in the signals that they are receiving,

critically what they are learning they are rendering materially because their connections reshape themselves to create paths that represent learned patterns as paths, synaptic communication paths between cells, a short term memory mechanism.

this is why after playing tetris for 5 hours you may see tetris when closing your eyes, because your brain is used to flowing in very specific patterns

I think this is also one of the mechanism for how people's EEG Powerband spectrum becomes in sync with another person's EEG Powerband spectrum when they speak to each other. It's that the frequency of the words are translating

the frequency of the transmission from one person's voice to another has an entrainment value, like listening to brainwave entrainment, binaural beats, isochronic beats

when we engage with other people we can tune into one another because we able to transmit the kinds of vibrations to others through our voices that our brains use within ourselves for the conscious ground of being

represented by oscillating clouds of soliton waves in electromagnetic spectrum,

the soliton waves representing a virtual data object, a hz, that was put out by part of the brain. It's a hertz or a frequency, like light is a frequency, but its also a stable wave, that represents a pattern that is part of a pattern when combined with the other patterns.

This hertz / soliton wave, It's a virtual instance of the rendering that people call consciousness.

Dendrites have to recognize this hertz in order for another part of the sequence to know what it means, and another part of the sequence to predict what comes next.

Many of these electromagnetic soliton waves, represent just a piece of an internal representation, its a sparse and distributed representation, sparse because other neurons need to listen,

a0091z ctp (Created Apr 23, 2014, 5:20 PM) (beginning of time, procyon, category, theory, category, theory, synap, graph, perception, oscillat, field, array, decoherence, electromagnetism, criteria, causation, emotion, cortex, dissipation)

Micah Blumberg

Back in early 2014 I had a series of interesting conversations with someone named Chase. I don't know what happened to that guy but this note was created from a conversation between Chase and myself. I deleted huge sections of it just to share some highlights. Although my memory of the time is somewhat limited it appears to me that this conversation took place over months via text exchanges on faceobok.

The flow of the conversation is broken up from deletions of what I considered to be extra pointless material.

There is a transcranial direct current stimulation device called foc.us
link to foc.us
http://www.foc.us/
$250 cost and you can use the machine without that headset pictured, you can do experiments with it.

**brain stimulation without brain surgery **

"In this talk, Prof. Bill Newsome of Stanford Neurosciences Institute discusses neuroscience's implication in health, law, business and economics."
"Neuroscience for a New Age: How Brain Science Will Shape Our Future"
http://t.co/BMzj9nPVYE

"Neuroscience for a New Age: How Brain Science Will Shape Our Future"
ieet.org

According to what I've heard, which could be incorrect, you can imprecisely aim to stimulate the brainstem with Cranial Electrotherapy Stimulation or Alpha Stim It does not unlock your third eye, but you feel a bit saucy, like you had a beer or a glass of wine or two
http://store.alpha-stim.com/

Have you heard of mind workstation? http://www.transparentcorp.com/
mind workstation

Have you heard of mindspa?
http://avstim.com/
Mindspa

Originators of the MindSpa Personal Development System
avstim.com

heard of this?
http://www.mindplace.com/Mindplace-Procyon-System-Meditation-Machine/dp/B000X2BSJM
Mindplace Procyon
Mindplace Procyon AVS System Light and Sound Meditation Mind Machine

www.mindplace.com

well I combine the mindspa with the CES and it works great for meditation

they are similar products, because they are both mind machines, they both do brainwave entrainment, like you said you use isochronic beats yes?

I used the mind spa with CES, but I could easily use the Procyon instead.
or use the CES alone
I've also tried nootropics with my machines. Smart drugs, that alter the mindstate a little bit.

powerful differences

Micah Blumberg
I'm in San Francisco here so I decided to try psychedelics as a brain therapy, with the EEG and isochronic beats at the same time. I saw fractals, and I saw the beginning of the cosmos happen.
I saw the beginning of the cosmos happen.

"in coherence or decoherence between the two waveforms, when the first neuron in a network emits a signal, whether the next neuron is "excitatory or inhibitory" depends on whether its input, output. and structural resonance variables. "

this particular quote would require some defense, because
"in coherence or decoherence between the two waveforms, when the first neuron in a network emits a signal, whether the next neuron is "excitatory or inhibitory" depends on whether its input, output. and structural resonance variables. "
because there are different ideas out there
Micah Blumberg
2/21, 11:59pm
Micah Blumberg
Do you know about ipsp and epsp?

Do you know about hierarchical temporal memory?

have you heard of Content Addressable Memory
Content Addressable Memory
Content Addressable Memory

Hierarchical Temporal Memory was this idea that the neocortex was a hierarchy that gave it the advantage of instant associations, just like Content Addressable Memory
http://en.wikipedia.org/wiki/Hierarchical_temporal_memory

Hierarchical temporal memory - Wikipedia, the free encyclopedia
En.wikipedia.org
Hierarchical temporal memory (HTM)
Hierarchical temporal memory (HTM)
Hierarchical temporal memory (HTM) is an online machine learning model developed by Jeff Hawkins and Dileep George of Numenta, Inc. that models some of the structural and algorithmic properties of the neocortex. HTM is a biomimetic model based on the memory-prediction theory of brain function descri...

As for visualizing that quote, imagine a series of tesla coil pitch forks which resonate according to the acoustic density function. as the electromagnetic wave travels from one coil (pitch fork electrodes essentially) to the other, they will either resonate with the next fork in the network depending on the factors that determine wave resonance, or they will not. if they do the next fork electrode can carry that signal to the next and so on, even amplify it. Now think of each fork representing a "transistor" which if the fork vibrates due the prior in the series it represents an on, or excitatory. if it doesn't, the signal traveling doesn't resonate the full network of forks, so the ones that dont are inhibitory to the signal coherence of the information, whether encoded by the on/off analogy or the actual frequency variations

yes that's what I mean by complementary
see I was in a discussion the other day, talking about how the synaptic inputs can increase or decrease the membrane potential, potentially causing an action potential that has a variable amplitude and frequency, that effects the membrane potential of another synapse
in comp neuro, and in many AI models, they simplify so that all action potentials are equal, and they only take into account the frequency of the spike.
but the amplitude of the wave matters, because that impact is going to determine how much the next synapse's membrane potential is going to be effected, which critically is going to effect it's firing frequency and amplitude also.
so I have been focusing on how synapses use spikes to program other synapses,
and you are focusing on how spikes cause other spikes
but you are also focusing on spike resonance, relationships between spikes, and decoherence between spikes, it's all very interesting and important.
Micah Blumberg
2/22/2014, 12:33am

Micah Blumberg
I was at a place. I was imagining the place was made up of spikes, some firing alternately, and some firing in coincidence. Where there was nothing, that was a coincidence of synergistic firing, resulting in the inhibition or absence of information in my visual field. Where there were alternating decoherent firing patterns resulting in the excitation or appearance of visual patterns such as lines, edges, colors, people, shapes, and details in my visual field. The only problem with this idea is that electric spikes do not see, something has to read them. They are messages sent through neurons from one synapse to the next.

2/22/2014, 12:52am
Micah Blumberg
do you know about ANN artificial neural networks? or hidden markov models?

Chase
read this when you have the time man, its awesome ive been doing a lot of research into such. its pretty crazy shit and changed how i perceive things
http://www.redicecreations.com/specialreports/2006/01jan/holographic.html

Micah Blumberg
watch this https://www.youtube.com/watch?v=2DIl3Hfh9tY
Leonard Susskind on The World As Hologram
www.youtube.com
Leonard Susskind of the Stanford Institute for Theoretical Physics discusses the indestructability of information and the nature of black holes in a lecture ...

does it by chance expand on the concept of dealing with sequences of partially collapsed holographic infinities

Chase
hey man what do you study? neuro computation? software programming? biophysics?

Micah Blumberg
all of that

Micah Blumberg
okay
so EEG sensors have a number indicator

Chase
so that they only "train" the brain so that thoughts with particular eeg patterns activate the computer command?
okay
based on placement right?
like 1-64?

Micah Blumberg
imagine 16 eeg sensors all over the brain, with specific placement
something like 1-160 for each sensor
they are just measuring activity, if it goes up or down, on a scale of 1-160

Micah Blumberg
and there is a computer chip that cancels out readings from the heart, the heart also broadcasts electromagnetic activity

Chase
ok so would that chip analyze the interference from the heart and compensate to negate it
Micah Blumberg
3/21, 11:21am

Micah Blumberg
So what some software developers do is write in code, that causes software to do something when the eeg sensor is at 1-25 , and something when the eeg sensor is at 26-50 and something when the eeg sensor is at 51-75 or 75-150

Chase
dont they need a coherent beam with a predetermined frequency before being sent through the other wave source in order to properly extrapolate the change the coherent hz experiences
ah okay so how do they "map" each thought to a set of values picked up by the eeg sensor
or are we only able to choose a function

Micah Blumberg
brain activity is thought to be regional, this means that if you have brain activity in the f1 region it might be about decision making, if you have in some other region it might be about attention, in another region it might be about frustration, in another region it might be about excitement

Chase
okay so they kinda go with like say electrode number 4 is placed above the frontal lobe, when it detects a value is it viewed as the intensity of the activity in the area of critical thinking etx

3/21, 11:26am
Micah Blumberg
but in practice it isn't so precise

Chase
3/21, 11:27am

Chase
right bc everyone's brain activity is different and the same network pathways could have different functions
so what if you were to measure the frequency from the electrodes and group them into categories like
frontal lobe electrode: 7hz detected =alpha range=alpha state properties

to get an idea as to which type of activity the region responsible for say perceptual dimensional analysis
is experiences
experiencing*

Micah Blumberg
3/21, 11:30am

Micah Blumberg
also consider that at two o'clock a group of cells will make your hand move in a specific motion, we will call it motion A, and at three o'clock a different group of cells will make your hand move in a specific motion, the exact same motion A, except done by a different group of cells.
What's worse is they use less brainwave activity the second time, and so it registers differently in a brain scan

Chase
3/21/2014, 11:31am

Chase
hmm! why is that? wouldn't that make the amount of bioelectric energy put into the first execution of the movement excessive when compared to the second execution performing the same action with less energy

3/21, 11:32am
Micah Blumberg
yes, but your brain gets more energy efficient over time
that's why the first day of a new job somewhere could be exhausting, but eventually you get used to it

Chase
ah okay that makes sense. I'm going to send you some pictures of a few pages of my notes to show you what I'm trying to do. but first
consider an isochronic tone
it has a carrier wave and then the bw signal

Micah Blumberg
3/21, 11:33am

Micah Blumberg
but what I mentioned is only one of a few ways to do bci

Chase
3/21, 11:34am

so what if you made a tone with the carrier wave equaling a brainwave value (alpha etc) and the other be a musical tone
would the brain be affected by the music as if it were being exposed to isochronic tones

Chase
3/21, 11:36am
for example i am taking the sacred solfeggio tones which have effects like this

Micah Blumberg
"would the brain be affected by the music " yes
2. you could have a machine learning algorithm watch and learn the eeg sensor activity so it could notice the similarity between
3. you could have the eeg sensors change light and sound effects and then feed that back to a person so they could interpret their own brainwave activity

3/21, 11:37am
Micah Blumberg
4. you could have the EEG brainwave activity drive isochronic beats in both light and sound patterns and feed that back into a person's brain which would further affect their brainwaves, and further drive the EEG pattern
I've already done #3 and #4
that's what Neo Mind Cycle is

Chase
hah so if you played a tone with say 8hz as the signal tone to induce an alpha state (increased focus, awareness etc) and then have the carrier wave be say 417hz which has the effects listed in the pic i sent
would their effects "synchronize?" in a sense

Micah Blumberg
3/21, 11:41am

Micah Blumberg
well tones synchronize better if they are closer together in frequency, like 10hz apart
Chase
3/21, 11:41am
Chase
i am grouping these sacred tones and representing them like amino acids which bind when they mathematically add to make a perfect circle of sound
the orher idea i had
was to use carrier wave anagrams so the frequencies reverberate against each other
but
the intervals of time between the tones are represented by double helix segments of brainwave levels

Chase
3/21, 11:43am
Chase

Micah Blumberg
3/21, 11:44am

Micah Blumberg
I ate this medicinal cactus once right, and I could hear my consciousness as a song, it was weird but profound, the human mind is like a symphony orchestra

Chase
peyote??
or san pedro
ive had a similar experience man

Micah Blumberg
3/21, 11:44am

Micah Blumberg
san pedro
Chase
3/21, 11:45am
Chase
my soul was like a guitar almost in the sense that my thoughts etc would flow out of me as colorful music
it was on psilocetin
i dont give a fuck about the stigmas around psychedelics, if used responsibly as a tool for self exploration etc they are an amazing tool

Micah Blumberg
3/21, 11:46am

Micah Blumberg
I wish I could find a peyote cactus that I could grow, because it's such a treasure for any gardener

Chase
yeah man the buttons take 20 years to grow

Micah Blumberg
3/21, 11:46am

Micah Blumberg
wow
the san pedro tastes so gross that I would only eat it once every 20 years
Chase
3/21, 11:47am
Chase
native americans will go and cut out the center and leave the rest so that itll grow back and then go back o reharvest a few decades later
haha ive never tried it but its way less potent than peyote in terms of mescaline per plant matter volume

Micah Blumberg
3/21, 11:48am

Micah Blumberg
but in San Francisco its easy to find psychedelics
Chase
3/21, 11:48am
Chase
i really want to experience mescaline though i might do an extraction on san pedro someday
yeah man i bet haha

Micah Blumberg

Chase
how would you say that brainwave patterns are actually related to the thoughts or conscious states associated with them and how are they associated?
like representations of your conscious perspective of logical activity? emotional activity? both?

Micah Blumberg
3/21, 6:45pm

Micah Blumberg
my hypothesis is that brainwaves are the residual after effects of the thought process, electromagnetic brainwave activity is perhaps like blood activity in the brain, dissipating energy and heat. It gives us a window into what was being thought, it serves as an indicator, as it can be read by EEG (and blood can be read by FMRI)

Micah Blumberg
3/21, 6:45pm

Micah Blumberg
good question btw
Chase

3/21, 7:29pm
Chase
so what do you suppose the thought itself is made out of? energy in an unknown state? virtual energy?

Micah Blumberg
3/21, 7:35pm

Micah Blumberg
well I think thought as information as criteria, as tempo-spatial patterns is sensed and communicated by brain cells, temporal cell circuits, and the brain as a whole.
I think that these thought patterns ie information criteria are driving brain activity, producing electromagnetic energy dissipation and heat, which brainwaves, and blood carry away, dissipate, and distribute.

Micah Blumberg
3/21, 7:37pm

Micah Blumberg
so, thought is like the wave in the ocean, if a wave is a bit of information, this wave isn't really the underlying material, because as the wave moves new water molecules flow into it, and old water molecules flow out of it.

Micah Blumberg
3/21, 7:40pm

Micah Blumberg
its like saying there isn't a material of thought, thought is in the material of the brain, but it isn't any of the material in the brain, it's like a temporal wave pattern that has no substance, it's not electricity, no electromagnetism, not chemicals, not blood or biology, but it surfs through all these things sort of. It's like the space in the brain is informed.
March 22
Chase
3/22, 2:14am

Chase
ah cool that goes along with theories on thoughts being holographic information lensed by awareness. based a lot of it on the concept that memories are stored non-locally and their likeness to holographic data isolated by a quantum lens
April 2
Chase
4/2, 6:38pm

Chase
so in theory, any frequency with additive syncronized//harmonic resonance
or rather any two frequencies
like stacking isochronic tones
or binaural, i run 5 apps at once

Micah Blumberg
4/2, 9:42pm

Micah Blumberg
5 apps at once?
Chase
4/2, 9:42pm
Chase
yeah
each with a different iso tone
but in particular patterns
like i wont put an energizing freq with a theta wave dominant sequence

Micah Blumberg
4/2, 9:44pm

Micah Blumberg
the brain is firing in all frequency patterns all the time, awake, asleep, it's all there, feel free to combine them.
I've experience some amazing combinations of theta and beta

Chase
4/2, 9:44pm

Chase
true
ive just been focusing on additive effects
a lot of the tones i use
are actually sets of tones
like they switch, settings like astral projection, lucid dreaming etc use gamma, delta, theta

Micah Blumberg
4/2, 9:45pm

Micah Blumberg
you want to experiment a lot, to cultivate something good, like making a good wine or good cheese
its music and its art

Chase
4/2, 9:46pm

Chase
yeah its really interesting stuff ive been doing a lot of math regarding music
in particular trying to create a form which directly or indirectly evokes particular emotions or states of awareness
using a lot of sacred geometrics and perfect circles of sound dissected
and anagrams
like music made from pure isochronic tones of dualistic mathematical harmony
just bought a fiber optic whip. i have an obsession with light and holographs

Micah Blumberg
4/2, 9:58pm

Micah Blumberg
alright. it's a lot of work, it's going to take a lot of time. I will let you know when I have some results.

Chase
4/2, 9:59pm

Chase
I appreciate it man, I'm working on getting my own. can compare results

Micah Blumberg
4/2, 10:00pm

Micah Blumberg
I will ask Daniel to help with the research, to conduct his own study and share the results with us.
Chase
4/2, 10:01pm
Chase
sounds good the more perspectives the merrier

Micah Blumberg
4/2, 10:02pm

Micah BlumbergF
the broader the study the better the data

Chase
4/2, 10:02pm

Chase
just sp

Micah Blumberg
4/2, 10:04pm

Micah Blumberg
why don't you draft up a formal study, with all the research parameters, and we will put a request out there for other people to help us as well.

Chase
4/2, 10:04pm

Chase
thats a good idea

Micah Blumberg
4/2, 10:04pm

Micah Blumberg
exactly
Chase
4/2, 10:05pm

Chase
ive been doing open research
undefine
until i define it lol
no restrictions other than the laws of physics
a formal study will let me take that data and well, formalize it into an accurate analysis

Micah Blumberg
4/2, 10:08pm

Micah Blumberg
yes exactly, and think of how fun it will be!
Chase
4/2, 10:09pm

Chase
i am lol i love the feeling of discovery

Micah Blumberg
4/2, 10:10pm

Micah Blumberg
you will want to guide each person, to perhaps listen to each specific frequency for a length of time before beginning the eeg recording.
to give their neurons time to tune into the frequency

Chase
4/2, 10:10pm

Chase
yeah i was planning on saturating the neurons for 15 min and none in the control

Micah Blumberg
4/2, 10:15pm

Micah Blumberg
It's a good idea, and one that needs to be written into the formal study so everyone uses the same methods, so that we can have more comparable results.
One must be as strict as possible in defining constraints and parameters, to improve the quality or yield of useful information.
So everything you would do, needs to be like an instruction set, for everyone else to follow and do exactly the same way.
I will help you develop the formal study, because you don't have your own equipment yet. Then once it's really strict and perfect we will try to do it on a bigger scale.

Chase
I work on neuroscience and wave physics while my professor talks about how to perform some action in microsoft word
so i havent ever really had to formalize any of my work
for the most part nobody has seen it but me because i dont know anyone besides maybe 2 people who even understand it lol

Micah Blumberg
4/2, 10:22pm

Micah Blumberg
people do not need to understand it want to participate in hacking away at the problem
in other words
people want to play with that which they do not understand
so in a sense, we are writing a sort of game, a formal study is a chance to play
Chase

4/2, 10:24pm
Chase
yeah but they lose interest when that includes a dozen concepts which are needed to understand my larger idea
at least most ppl ive met
which in reality isnt a very large sample group

Micah Blumberg
4/2, 10:26pm

Micah Blumberg
that's why I'm going to help, I'm going to help make it interesting, the more rules we have, the less they need to think about the big picture you are working on before they are ready to participate.
in other words, I will help make it fun, by making it clear what people have to do to help you

Chase
4/2, 10:28pm

Chase
thanks man lets do it

Micah Blumberg
4/2, 10:28pm

Micah Blumberg
did I ever tell you what the words "Neo Mind Cycle" mean?
Chase
4/2, 10:29pm
Chase
nope, but i know neo means new
i formed a group like that but i guess my ideas were too complex
or i present them too complexly rather

Micah Blumberg
4/2, 10:31pm

Micah Blumberg
**its sort of a mission statement, a flag, like a pirates flag, representing a ship, and a crew, of researchers like you, and me
have you heard of the book "I am strange loop" by Douglas Hofstadter?**

Chase
4/2, 10:32pm

Chase
thats cool and nope never heard of it?

Micah Blumberg
4/2, 10:32pm

Micah Blumberg
neurofeedback is a loop, or a cycle
Hofstadter thinks consciousness is analogous to a feedback loop

Micah Blumberg
4/2, 10:34pm

Micah Blumberg
there are all kinds of cycles going on in the brain, oscillating frequencies, oscillating thought patterns. brainwaves that change our movements, that we see in a mirror, that change our brainwaves, that change our movements again, another cycle of self awareness happens in the neurofeedback of a simple mirror

Chase
like an read, analyze, report, read, analyze.. cycle?

Micah Blumberg
that too

Chase
4/2, 10:35pm

Chase
so in essence

Micah Blumberg
4/2, 10:35pm

Micah Blumberg
**it's a fractal universe, in a cycle.
Neo Mind, refers to the human mind specifically the neo cortex
there are two things that make a human brain**

Chase
4/2, 10:36pm

Chase

have you read about multiple words theory

Micah Blumberg
4/2, 10:36pm

Micah Blumberg
the size of the neocortex, and the advanced glial cells

Chase
4/2, 10:37pm

Chase
form and content of energy and information
but thats much broarder

Micah Blumberg
4/2, 10:42pm

Chase
btw I use freeware sofeggio mixer v1.03 - www.ledset.com
for all my tones
its free

Micah Blumberg
4/2, 10:55pm

Micah Blumberg
that's good, the more we can rely on free and opensource stuff, the bigger the studies can become

Chase
4/2, 10:55pm

Chase
yeah it has all 81 sacred tones
and 9 sacred scales
also you can type in any other value into any of the nine frequency values
or input boxes or w/e you wanna call em
some of the tones dissociate me

Micah Blumberg
4/2, 10:58pm

Micah Blumberg

sweet, we definitely want to share this info

Chase
4/2, 10:59pm

Chase
others have a variety of effects, id need more trials to say anything concrete
I don't really have any connection or associations to get information like that out there

Micah Blumberg
4/2, 11:00pm

Micah Blumberg
I do
what I like is that your head is in the clouds, and your feet are on the ground

Chase
4/2, 11:02pm

Chase
like I start to feel a sort of pressure in the field of my neuron networks, that perceptive state people associate with consciousness, that will pull me away from my typical reaction to stimuli and replace it with a particular "vibe" or energy
like going into yourself or going out of yourself to varying degrees of information/neural stimuli gathering
hard to explain honestly
and they all have different effects and the combos have different effects

Micah Blumberg
4/2, 11:11pm

Micah Blumberg
sure, the morphology of perception, the symphony of consciousness, spatial temporal self awareness, cycling activations, looping brainwaves, and the question is one of identity is it not? if this spatial temporal metaphor is "going into yourself or going out of yourself to varying degrees" than what is it? what is the nature of this identity? so interesting

Micah Blumberg
4/2, 11:12pm

Micah Blumberg
it gets more interesting

Chase

4/3, 12:18am

Chase
im not sure, possibly the information that the brain uses for creating awareness by wave interference interpretation, with consonance or dissonance
April 3

Chase
4/3, 8:46pm

Chase
hey what is the best way to detect wave patterns
like their transformations too when bouncing from place to plae
April 5

Chase
4/5, 8:53am
Chase
how do you simplify subjects like advanced quantum phenomenon to people who want to understand and are interested but they dont understand what in saying because it requires prior knowledge about things like quantum theory and dimensional mathematics, neuro perception etc) which they have to understand to understand?

Chase
4/5, 8:53am

Chase
like i can do it but it takes soo long and so much effort and like a dozen 20 page long texts
April 5

Micah Blumberg
4/5, 12:21pm

Micah Blumberg
the tools that I have include a graph of five frequencies of brainwaves overtime, gamma, alpha, beta, theta, and delta
I have another tool called 3d brainwave activity visualizer, but really it's just an interpretation of the numbers
The eeg sensors are only picking up numbers representing when waves peak, so the graph is best
other technology like fmri measure changes in blood flow so they "interpret" what brain-"wave" activity could be.
you don't mention the words quantum, phenomenon or perception,

you say you are measuring waves, electrical patterns, brain activity, to collect information and that you have a scientific process to "make original discoveries" they don't need all the same details to help, they don't even need to know the big picture of what you are really doing, they only need to know their own small part, you needed data, for science, so they if they want to help they have to do this, and we give them a list of easy steps to follow.
what they get is a simplified version of a the project that leaves out the complex stuff and just focuses them on what they can do to contribute
I can understand the whole project, and help pick out the parts that they need to know
April 6

Chase
4/6, 3:49am

Chase
that makes a lot of sense man thank you
April 7

Micah Blumberg
4/7, 12:34pm

Micah Blumberg
http://www.idiagram.com/CP/cpprocess.html

The Art of Complex Problem Solving
www.idiagram.com
April 7

Chase
4/7, 8:45pm

Chase
that is awesome thx for sharing that with me
April 9

Micah Blumberg
4/9, 3:30pm

Micah Blumberg
You should know I am waiting until I get my new computer, install all my software, and get back to San Francisco before I begin the frequency tests with brainwave graphs. The project is going to start in the beginning of May. I wanted to tell you about the delay so you don't think I have forgotten this research.
April 11

Chase
4/11, 6:13am
Chase
no problem man, im making a lot of advances myself even with very limited software so that i will be able to provide clearer project as well as evaluation parameters
April 11

Chase
4/11, 11:26pm

Chase
hey man i was wondering if youd know if i could find an algorithm for dimensional analysis if i can provide a cipher key between my input maps. im working on nasas x-hab project and am close to finishing my designs for a device which can scan map entire planets and record all dimensional activity occuring on the planet and im working on adding multilayering for sub terrain scans etc

Chase
4/11, 11:28pm

Chase
but i need software to basically encode values as dimensional variables in a encoded data sequence

Chase
4/11, 11:34pm

Chase
im also augmenting it to analyze element composition

Micah Blumberg
4/11, 11:46pm

Micah Blumberg
dude, that sounds really cool, but if anyone on earth had that program do you think the Malaysian Airplane would have ever been lost? No, there isn't yet a program that does live dimensional analysis (presumably from satellite feeds, or very high balloons, or drones) of all the activity on a planet. That could require massive amounts of AI, machine learning, to see (identify patterns) and notice when things change, and record a sequence that notes what changed. I don't know of any computer on earth that could handle the workload of the program you are designing.

Chase
4/11, 11:47pm

Chase
hmm sounds like i need to develop one then

Micah Blumberg
4/11, 11:47pm

Micah Blumberg
yep

Chase
4/11, 11:48pm

Chase
i was planning on using superman crystal arrays for data storage but itd take some mean algorithms or quantum computing to crunch that many numbers in a reasonable time index

Micah Blumberg
4/11, 11:48pm

Micah Blumberg
it's a good project too, as big as developing GPS (global positioning satellites) my grandfather led the team to developed GPS and put the first GPS satellites in space

Chase
4/11, 11:49pm

Chase
that's pretty legit man
4/11, 11:50pm

Micah Blumberg
The military gave my grandfather his own wikipedia page,
http://en.wikipedia.org/wiki/Bernard_P._Randolph
Bernard P. Randolph - Wikipedia, the free encyclopedia
en.wikipedia.org
Bernard Peter Randolph (born July 10, 1933)[1] is a retired United States Air Force General who served as Commander, Air Force Systems Command (COMAFSC) from 1987 to 1990.

4/11, 11:52pm
Micah Blumberg
what they don't say in the wiki is that after he retired from the military he went to work for space companies like TRW and SAIC
but that's okay

4/11, 11:52pm
Chase
was just checkin it out man i want a wiki page lol

4/11, 11:53pm
Micah Blumberg
So far we haven't seen any quantum computers that are faster than classical computers. I'm not sure that what you need for this type of job is a classical computer, because there are some programs that can simulate quantum computers in classical computer systems.
oh typo
I meant to write that I am not sure you would need a quantum computer for this type of job since classical computers can be just as fast, and simulate the same kinds of amazing problem solving abilities that quantum computers have

4/11, 11:56pm
Chase
i was actually about to ask something along those lines. what about an AI that organizes and decodes all the data through quantum processes, breaking down a superposition with an artificial collapse function in order to process faster?? or somethin like that?
instead of having to analyze each input sp state it can utilize a wave collapse function in order to crunch the input sp as a whole rather than as each of its parts

Micah Blumberg
4/11, 11:58pm

Micah Blumberg
I don't think anyone is building AI with quantum machines, the reason is that so far AI is a multi-stage process, but quantum computing is in some sense a one stage process. Actually what I am saying is not explaining it exactly right... do you know what I mean?

Chase
4/11, 11:59pm

Chase
kinda but im not familiar with the mechanics or logics of solar AI processing units

Micah Blumberg
4/11, 11:59pm

Micah Blumberg
quantum computing, as it currently exists, might not be a fit for deep learning as it currently exists,

Chase
4/12, 12:00am

Chase
what exactly makes you draw that conclusion?
its probabilistic nature? elaborate?

Micah Blumberg
4/12, 12:01am

Micah Blumberg
AI as it currently is sort of like having a machine learn patterns in levels, sort of like learning lines, edges, letters, corners, at one level, and combining those little things into bigger things at another level, so letters, words, smiley faces, symbols, and combining those things into even bigger things at a 3rd higher level etc...

Micah Blumberg
4/12, 12:02am

Micah Blumberg
but actually you could put all those processes into sets and have a quantum machine attack the whole problem at once, don't know why I didn't think of that before

Chase
4/12, 12:02am

Chase
okay so essentially variable stacking and sequencing?
thats what i was thinking

Micah Blumberg
4/12, 12:03am

Micah Blumberg
yeah, but I guess you could also call that invariant pattern learning, because it's a flexible pattern

Chase
4/12, 12:05am

Chase
so would you have to have a non quantum ai organize such sequences first and then have a quantum process decipher it?

or could a q-comp just learn it invariantly by running it through a recording phase from which to derive a sequence deciphering collapse function? measuring/recording probability patterns in input sequences

Micah Blumberg
4/12, 12:18am

Micah Blumberg
Well the way it would work is you would have a classical system feeding the quantum system, that's how it works now, so basically the classical system would index all the data, like a search engine indexing websites, and then in one swoop the quantum machine would construct all the indexed data into a topological map of linked patterns that map all the events with spatial topography enhanced for those things that are of greatest interest. It would be like combining a search program with a statistical relationship mapper.

Micah Blumberg
4/12, 12:19am

Micah Blumberg
The program would be a short cut to finding everything of interest on a planets surface and sky but, basically you could design all classical systems that can do that now.
it's just that quantum systems are designed for certain types of problems, but so far classical systems can do all those same types of problems with about the same performance
April 12

Chase
4/12, 12:00pm

Chase
how would the human brain, in its full potential, if controlled as a computer, compare to artificial processing systems
could we create android ai processing units with a 3d printer/biocomputer
like just a bioprinted neural network with conductive inorganic nanoconductors and transistors connected to each neuron at the molecular level? a brain-computer hyprid type deal
typo

Micah Blumberg
4/12, 2:33pm

Micah Blumberg
"how would the human brain, in its full potential, if controlled as a computer, compare to artificial processing systems" that question is too broad for me to answer, that's like the entire field of what I study, maybe you could make your question more specific

"could we create android ai processing units with a 3d printer/biocomputer" not with the current generation of 3d printers, but it is possible to design android chips and send them to a manufacturer to be printed for you. that's what Stanford's Neurogrid did, read about it if you haven't already.

I was telling Chase about Neurogrid on April 12th 2014
Here is a 2021 update: "Neurogrid simulates cortical cell-types, active dendrites, and top-down attention" https://doi.org/10.1088/2634-4386/ac0a5a

When I started using neurofeedback with isochronic beats for the first time several years ago, it felt as if my consciousness was extended into the computer, so it has been a goal of mine since that experience to build machines that extend consciousness from the brain into a larger external brain that humans can wear.
April 13

Chase
4/13, 7:43pm

Chase
dude I have been working on that too
trying to design "add on" VI/AI interface processors melded to our consciousness with bci tech and working on some potential vibrational based interface methods too
imagine storing your knowledge and memories in a computer archive, transferring such files and all the other limitless potential such innovations could have
Monday

Chase
4/21, 9:40pm

Chase
If ive designed method that uses 5 argument parameters for encoding, decoding, & interpreting an infinite series of numerically sequential sets (with composite subset overlaps) in 3 dimensions as well as a 6th argument which analyzes a 4 dimensional emanation function from 4D hyperspace to 3D reality, and I was able to use such arguments to create an algorithm for processing infinite output sequences, would the processing speed depend on how fast the computer is able to use the algorithm to determine such discrete symmetric output values from an infinite input series under the algorithms 6 argument functions?

Micah Blumberg
4/21, 10:46pm

Micah Blumberg
how is your mathematics? do you need any brushing up? you can use Khan Academy for free, or more advanced math stuff is available. I can try to find you books. I have been having some

great ideas lately also. I want to tell you about them soon. I just have to go to the grocery store to get some cheese first.
Chase
4/21, 11:20pm
Chase
Good at math, so far have calculated 209,644 different values with symmetry parameters between each tone to tone and scale to scale, can expand it infinitely or contract it infinitesimally with only a few parameters

Micah Blumberg
4/21, 11:38pm

Micah Blumberg
are you good at linear algebra, or algebraic topology?
I'm asking because those subjects could be essential to developing artificial consciousness, and extension brains
Chase
4/21, 11:42pm
Chase
Both, also a little higher dimension algebraic topology too

Micah Blumberg
4/21, 11:43pm

Micah Blumberg
How well do you know constructive mathematics, cohomology, homotopy type theory, and category theory?
Chase
4/21, 11:45pm
Chase
I know them more in the sense that I just use the underlying principles in my math incorporating them at different points etc, than in a sense that I could teach it
Cohomology and homotopy I'd have to look into more to see the specifics used in those topics

Micah Blumberg
4/21, 11:46pm

Micah Blumberg
I was thinking about attention binding in the brain today, as a temporary frequency acceleration that creates a kind of field distortion,
I started to think about colors as frequencies in the gamma range
I mean the high gamma range, between 100 and 200 hz
well maybe the primary colors would be special numbers, you could probably pick some good numbers to represent red, green, and blue

it's a strange idea, because the frequency difference creates a contrast, that is a polarity from the entanglement equilibrium

Chase
4/21, 11:50pm

Chase
I've actually looked into attention and awareness as a field of specific sequences of neural frequencies and activity patterns directed by a functional argument that describes different types/levels of attention/awareness, where the field is sort of like a superposition of entangled frequency values and their composite subset entanglements

Chase
4/21, 11:51pm

Chase
Could have worded that better but
Yeah I have some theoretical arguments on duality of frequencies and composites that could explain the color contrast and equilibrium points
I'm about to go to bed though got a busy week, I'll msg you later and we can talk about it more

Micah Blumberg
4/21, 11:53pm

Micah Blumberg
Well what surprised me today, is that my new theory is basically involves a field of cells that detect and distort the quantum field that is continually trying to equalize via entropy
okay goodnight
Tuesday

Chase
4/22, 3:30pm

Chase
Dude explain to me how the cells (and what they're composed of) get entangled to form a quantum field of cells (through the process of making connections between data etc via quantum neurologic processes resulting in cell to cell entanglement which gives rise to the quantum field of awareness, whose fluctuations result from q-variants and invariants within the full sequenced field, which the neural networks measure and relate perceptual neuroanalysis of data variations and connection parameters etc, between frequency and composite frequency variances and invariants within the sequence measure and determine such values from equilibration nature between q-em energy exchanges/ entropy between different q-state entropy differentials within the sum sequential the quantized field?

Chase
4/22, 3:33pm

Chase
With awareness represented as a functional special subset derived from symmetries in the quantum field set sequences, if you can visualize that
Tuesday

Micah Blumberg
4/22, 7:48pm

Micah Blumberg
okay so the idea the amount of force moving everything in the cosmos towards equilibrium has the consistency of chocolate syrup. So that which is different and distinct from the vacuum itself is a temporary disruption in the smoothness of the cosmos. cells are disrupting equilibrium, but they are also detecting particles via chemical changes, braincells detect photons and electrons and such, when they fire they further export entropy to the surrounding area, distorting the quantum field, but they are also detecting the quantum field via chemical changes in each neuron. so the quantum field is interfacing with the field of brain cells including glia and neurons

Micah Blumberg
4/22, 7:59pm

Micah Blumberg
see my post in Neo Mind Cycle I tagged you so you can find it easy

a0092z
Note created Sep 11, 2013, 3:09 AM

(criteria, causation)
like a can I will keep kicking down the road, kickstarter maybe
it's about criteria, criterial causation in my neurons, that and noise, it's about noise, and how the physics seems to conjure spontaneous harmonies

32 out of sync metronomes end up synchronizing
https://www.youtube.com/watch?v=fmjY3UIgcwA
www.youtube.com

Crowdsourcing is generally the best way to go now. I'm very interested in nanomanufacturing. I wish you luck.
That is fascinating
Anyway, in case you're interested , I'm launching a vlog series on YouTube in a few weeks called the Technarchist. I can send you a link when it's up if you're interested, our you could just keep an eye on my wall.

I insist that you send me a reminder, that is very interesting. I can't predict that faceobok will even show me a friends status when it's important. faceobok doesn't know how to do AI lol. That sounds like it
I want to watch!

Very well.
The videos will largely be like shots of mental espresso.

okay so, I will look forward to the experience of mental expresso, (do you mean as opposed to calm and sane expressio? ha a joke)
oh, I am filling my youtube channel also
creating short films that will eventually be pieced into a documentary about the people who have helped me do research with Neo Mind Cycle

Basically just short videos to express different ideas and propagate memes while not taking up too much of your time. It will largely consider matters of technological growth and how that growth is mutating and uprooting the entire socio-economic system.
Btw, can you send me a link or explain Neo Mind Cycle?

a series of brain optimizing technologies and nutrition products combined synergistic-ally to experimentally exploit the principles of plasticity

K, thanks.

(because every conversation has 3 stages, when people agree on actions that is the prelude to the end of the conversation, the logos stage, the first is ethos, second pathos, third logos.)
Chat Conversation End
Seen 3:11am

a0093z
Note from Jan 04th, 2013
Some early ideas before I had the concept that the mind was a computational rendering from lots of tiny tempo-spatial phase differentials bound together with the principles of oscillation.

(cortex) Acausal pattern, a notion that transcends a specific place & time, a prediction of causes in the context of other concepts about the properties of the cosmos. = belief

(for reference: A note on causal and acausal patterns in the brain via Juan Carlos Kuri Pinto https://www.faceobok.com/notes/juan-carlos-kuri-pinto/causal-and-acausal-patterns-in-the-brain/10151077561327712)

I don't know if it's compression that needs to happen so much as a competition for resources that needs to happen. In brain plasticity, if you wear a blindfold for five days, your Occipital lobes (visual cortex) start working for other parts of your mind. Without the "Vision program" from your "eyes" these general processing units can start improving your ability to sense other things, like with your hearing and touching. Then when you take the blind fold off, your vision begins to come back, and it does so rapidly, because what you see (input from the eyes is the vision program) is demanding in terms of brain resources. So by virtue of it's non-compression it simply takes mental resources away from other senses. If all your senses were neatly compressed how could anything be conscious? What we are conscious of I believe are the non-compressed dominant patterns in our attractor loop.

"If the acausal pattern is validated by evidence, it's theory or fact, not belief." via Ian Neiges

Theory & Fact & Belief are all grades given to belief's aka predictions, predictions grading predictions. The grade that you give a belief does not change it's fundamental nature. When you have evidence you grade your belief as a fact, it's fundamentally still a belief, just elevated to a higher level of trust and respect because of empirical results.

"But, belief is an empirical submission not yet proved wrong by analytical methods and with high frequency of occurrences in statistical pattern recognitions in natural phenomenon" via Hayagreeva Acharla

Reason, reflection, proof, and evidence must be observed, observation is the empirical process. On the one hand we are defining the Grade we assign to a belief, but neurologically speaking these beliefs, or facts, or theories may all be synchronized firing patterns, representing what has been learned overtime, through the empirical process of life experience, inclusive of the tools of reason, reflection, and the scientific method.

The difference between an "Apple" you see and "Two Apples" might be a few extra bunches of fired neurons to indicate that you have sensed "Two Apples" and not just one "Apple" The extra bunch of fired neurons of "Two" synchronizes by firing with the bunch of neurons that represent the pattern of an "Apple" Yet your mind receives it as one undivided concept. This is because all big concepts in your mind are like armies of smaller concepts firing together or together in a coordinated sequence.

"Mind is a dynamic[non-volatile flash] memory of conformal mapping of command| inference outputs, arranged in statistical grading order" via Hayagreeva Acharla

no way, your memories are not stable, they are very volatile, there was a study where they had people write down their memories of the entire day that JFK died, and they did this the day after, and ten years later the same people were asked to write a story about what happened the day JFK died. Since almost everyone remembers what they were doing when JFK was shot (if you were old enough, just like almost everyone remembers what they were doing on 9/11) these people wrote a story about what they were doing the day JFK was shot only it was ten years

later. Then the people who did the study gave these people their original stories from ten years earlier, and low and behold the stories totally contradicted what they had written, they looked at their own handwriting in disbelief, for their own hand writing was telling them what they thought to be a lie, a history that never happened, a day that had never taken place. You see in ten years their memories had subtly changed ever so slightly, that all the particulars of what had happened had shifted, the day was a different day. These people never noticed their memories changing.

The only reason human memory has some consistency is the overwhelming redundancy of stored memories, a lot of your memory can fail, and as long as a small percentage of it does not fail you can get it right.

"Here again not yet disproved submission, Mind: Mind is a dynamic[non-volatile flash] memory of conformal mapping of command| inference outputs, arranged in statistical grading order, over concomitant information inputs; information: scratch pad volatile memory of statistically recognised patterns in concomitant data inputs " via Hayagreeva Acharla

The mind is perhaps like a soft malleable plastic, not elastic, not concrete, not stable, perhaps a bit like play doh or clay.

Thought is delusion, thought is also awareness, awareness is delusion, thought awareness is a vortex like flow of expectation, a fiery attractor of brainwave activity, imprinted into the mind via the repetition of fired neural patterns, some patterns staring from chain reactions within, initiated by hungry cells, neurotransmitters, hormones, and some chain reactions initiated by external events in the ecosystem of the world. These are learned firing patterns, just like a dirt road that becomes very worn after millions of feed have trampled across it. These energy patterns in the brain's networks are doing their best to dissipate the energy being put into them, by spitting out the energy they get when their threshold has been reached, resulting in the progression of the brain's electromagnetic, blood, and chemical brainwave.

The result is the coordination of sequences that pile on top of one another and through neural dominance these forms become our memory expectations aka our sensory thoughts, the sequences of which are our words, and acausal notions that predict the causes of moving things, and the coordinate our own movements to create a highly complex coordinate path to nutrient rewards from the neurotransmitters in the brain, to the things we can find in the external world to eat, or love.

a0094z
(synap, tomography, oscillat, array, dendrite)
AI speeding up video conferencing
https://petapixel.com/2020/10/06/nvidia-uses-ai-to-slash-bandwidth-on-video-calls/

an array that helps a blind woman see

https://neurosciencenews-com.cdn.ampproject.org/c/s/neurosciencenews.com/artificial-vision-prosthetics-19506/amp/

Any set of points that you feed into the system's oscillating array they come out larger afterwords, like the enlargement function of a photocopier. The action potentials total area is magnified by a factor larger than 1 because it impacts a lot of other cells via the vesicle releases following the Soma burst event.

it doesn't matter which neurons fired just as it doesn't what image you place on a photocopier

all the activated cells in the array are enlarging a pattern sequence

all sets get expanded in area

the transformed pattern, enlarged essentially retains an isomorphism to the original pattern, in that the cells that fire next at a higher level are representing components of a scaled up pattern, one that connects with other scaled up patterns which causes oscillators in the brain to integrate each others patterns, but also to scale down patterns, because

so a neuron's dendrite learns a pattern, that changes what it is capable of detecting, but its essentially reducing a network pattern to synaptic states, and then its passing on that learned pattern to other neurons via the exit terminal, and each neuron on the exit terminal is sort of learning a different perspective on that scaled up pattern, but that helps the brain learn multiple perspectives that can act like an auto correcting or natural back propagation process, as the different perspectives can in essence vote in a way that corrects stabilizes and improves learned feature improving the robustness of the learning process, via neural tomography.

The oscillator/oscillators essentially combines learned patterns with this neural tomography.

The dendrite is perhaps averaging all of its incoming signal patterns from the synapses into its action potential, its responding phase pattern represents the averaged sum of its received phase patterns.

So then oscillators are learning and recalling scaled up phase patterns, and these scales up phase patterns are the fabric of organisms internal representations, or its inner screens, because its what neurons everywhere in the brain are communicating, with pattern recognition at the synapse level scaled up to be observed as an effect on the global oscillator which is then observed by neurons the same way that the outside world is observed by neurons. The oscillators propogate an inner rendering to neurons deeper in the brain, but the signature of those oscillations may appear to be similar because they are scaled up patterns

The oscillator doesn't represent long term memory, it represents the in the moment reality.

entropy is like an equilibrium state destabiling information structures

information is a desynchronizing signal that is formed by a synchronization of signals, one group of oscillators disturbing other oscillators

information as a coincidence pattern is what neurons are set to detect via their active synapses

the exit synaptic configuration of that neuron must also represent that learned pattern to the larger oscillator.

So the synaptic configuration of the exit terminal is passing along its pattern to the array that is its connections, that arrays nodes each represent phases patterns to other receptive arrays

essentially an arrays pattern reacts to incoming stimulus in a way that magnifies what it detects, while other arrays further back redo the same process, along the way the brain learns the same patterns at different scales from different points of view, that turn into what we see, hear, taste and smell.

a0095z
Note Created on Jan 5, 2013
(conjecture, synap, cortex, semantic, qualia)
Darwin

An exploration of consciousness in the context of artificial intelligence design.
by Micah Blumberg on Friday, January 4, 2013 at 10:26pm ·
Acausal pattern, a notion that transcends a specific place & time, a prediction of causes in the context of other concepts about the properties of the cosmos. = belief

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Like · · Unfollow Post · Share · Delete

Ben Thomas
my main reaction on a first reading is that consciousness/subconsciousness and mind/non-mind are gradients rather than binaries.
23 hours ago · Unlike · 1

Micah Blumberg
yeah that's what I think! instead of digital matrix, it's analog matrix
23 hours ago · Like

Monica Anderson
"Analog" feels confusing. I prefer to think of it all as digital with a smaller grain size than we can perceive. All our thoughts are emergent from a digital soup of small parts though neuron level algorithms that work pretty well most of the time.
12 hours ago · Unlike · 1

Monica Anderson

And I have no problem imagining (or, indeed, constructing) systems with billions of interacting digital parts, none of which I myself created explicitly and none of which I can tell what it actually does. The emergent result is all that matters. Brains and artificial brains can both remain black boxes for all I care. And any other attitude is likely to be a distraction on the path to AI.
12 hours ago · Unlike · 1

Dario Nardi
When teaching AI, I'd review the many features of consciousness (focus of awareness, self-reference, and a half-dozen more) and then explore how we might implement these individual features in a machine, a process that simplifies the task and affords discussion. As for belief, what we see in the neocortex is that beliefs are concepts that are held as true regardless of context and usually come with an attendant feeling-tone.
12 hours ago · Unlike · 1

Monica Anderson
Dario, If that's what you are teaching then you are teaching the *history* of AI.

You are describing a Reductionist (Model Based) approach to AI. That's what we've been doing for sixty years to the tune of a million man-years of (mostly) wasted effort. IMO, a better approach is to look for simple mechanisms operating at the neuron and synapse level that can create all the effects you enumerate by emergence from unintelligent components. This is the main principle behind Holistic (Model Free) approaches to AI and it is *radically different* than the traditional Reductionist approach. If you want to learn more about my stuff, check out http://syntience.com/links .

If you want to see what others are doing in this area, check out Geoff Hinton's work, Christopher Alexander's "The Nature of Order", Neural Darwinism, Deep Learning, Numenta Inc. and SPAUN.
Syntience Technology Resources on the Web
syntience.com
Artificial Intuition reading materials
11 hours ago · Like · Remove Preview

Dario Nardi
Actually, Monica, the first half of the course *is* a history of AI course, so that's the purpose. We start with logic in week 1, then proceed to rule-based and concept/case-based approaches, then look at neural networks, situated action, social learning, and dynamic systems. My interest is also what is implementable. Many conjectured approaches to AI have no method of implementation, so they're sort of pointless beyond discussion. IMO, the search for simple mechanics to produce complex effects is also a 60+ year old approach that hasn't produced much either. I already know all about this stuff, but thanks.
11 hours ago · Like

Monica Anderson

"I already know all about this stuff, but thanks."

Do you really know about Model Free Methods for AI? Check out the video "A New Direction In AI Research".
11 hours ago · Like

Monica Anderson
Everything I propose is directly implementable. We (at Syntience Inc.) know how.
11 hours ago · Like

Dario Nardi
Yes, I know about model free methods to do AI. They have their own limitations. If they didn't we'd already have autonomous intelligent machines, wouldn't we? I don't mean to discount your approach, only put it in perspective. What I teach is survey course for non-computer/cognitive science majors. They need basic steps like "what is consciousness?" Exploring the features of something isn't a waste of time.
11 hours ago · Unlike · 1

Dario Nardi
All the topics you mention Monica in your papers such as complexity/chaos, emergent effects, value of context (situation), etc are points I talk about in the second half of my course. In fact, one of the issues we discuss is that truly intelligent machines will likely be somewhat unpredictable and unreliable by their nature, that they may not be able to explain why they made certain decisions, etc.
11 hours ago · Unlike · 3

Dario Nardi
Situated action for robotics is an example of what we spend some time implementing in the lab portion of the course.
11 hours ago · Unlike · 2

Monica Anderson
Now we're talking .
11 hours ago · Like

Monica Anderson
Heh I'm gearing up to argue against situated intelligence.
11 hours ago · Like

Dario Nardi
As someone who mainly does neuroscience these days, I know for a fact that the brain entertains many different ways of doing things, like reductive logic in the left frontal to multi-variable analysis in the right parietal, and many many more. I don't think it's helpful to argue against any specific approaches, except perhaps trying to do only 1 approach as "best".

It's better to keep adding to the toolbox and remember that real organisms are organic and multi-faceted, and our machines can be too, when appropriate.
11 hours ago · Unlike · 1

Monica Anderson
In the brain, there is no vision, no hearing, no touch. It's all neurons signaling neurons. A neocortical neuron can only communicate with a few thousand other neurons. This was pointed out by Friedrich Hayek in "The Sensory Order".

Whatever intelligence is, it has to be achievable with a learning and thinking algorithm that operates under those conditions.

A neuron can't tell whether its incoming signals come from the eyes, the ears, or a little of both. So why would it matter whether the patterns we perceive come from multiple senses? And if it doesn't then any one sense will do.

I can imagine a language understanding computer with only a "text" input sense. That's what I've spent a decade building.
11 hours ago · Like

Monica Anderson
Any approach to AI should be examined to determine whether it can be implemented in something as simple as a neuron/synapse based system. Also, in order to be biologically plausible, we need a story for how such a capability might have evolved. Without both of these, the theory is inferior to existing theories that fulfill these requirements.
11 hours ago · Unlike · 2

Dario Nardi
Actually there are no neurons either. It's all just physics, right? I think we benefit by respecting ontological levels rather than saying they don't exist. Anyway, I left AI as a research area and am not really interested in philosophy of mind anymore either.
11 hours ago · Unlike · 2

Monica Anderson
Most philosophy of mind is a major distraction to AI. I ignore (as red herrings) Qualia, Consciousness, the Turing Test, the Chinese Room and a bunch of other things. I focus on measurable semantics-level skills.
11 hours ago · Unlike · 2

Monica Anderson
There are ways to do AI that live in the cracks left between the woo-woo Philosophy of Mind stuff and the futile Reductionist approaches. Plenty of room. It takes a lot of discipline to stay in that area and not step into the distractions on either side.
11 hours ago · Like

Monica Anderson
Physics explains nothing about intelligence. Neuron-level theories rooted in Epistemology actually do.
11 hours ago · Edited · Like · 1

Micah Blumberg
"Actually there are no neurons either." I agree with that, there are no neurons in consciousness, just like a song by Beethoven isn't made out of piano keys, it's a highly coordinated sequence of patterns. Patterns not neurons are at the root of AI. Patterns forming from fired bunches of neural activity in coordinated tempo-spatial sequences,
8 hours ago · Edited · Like · 1

Dario Nardi
Dude, that's a keeper: "There are no neurons in consciousness, just like a song by Beethoven isn't made out of piano keys."
17 minutes ago · Unlike · 1

a0096z
(catecategory, theory, gory, theory, graph, field, decoherence, observer, fourier)
Sky Nelson-Isaacs
Many interesting links to many of the interesting topics that were brought up in the discussion today:

A paper by one of the speakers in the group today
Spacetime Paths as a Whole
By Sky Nelson-Isaacs
https://www.scienceandnonduality.com/article/spacetime-paths-as-a-whole

Sky is hosting a talk on Clubhouse at 6pm Pacific 4/6/2021

This came up while discussing that the universe could be a hologram, and that holograms could be on the surface of a blackhole, and that galaxies could be holograms from the surface of blackhole, but this paper proposes that holograms can be from everywhere in space around us

Sky mentioned something about how a slice of the cosmos would represent the whole. That reminded me of the fourier slice theorem.

In mathematics, the projection-slice theorem, central slice theorem or Fourier slice theorem in two dimensions states that the results of the following two calculations are equal:
https://en.wikipedia.org/wiki/Projection-slice_theorem

Other related on the topic of the cosmos being a blackhole, or a blackhole horizon being capable of being a 2D surface that projects a 3D space.

Black holes are like a hologram
https://earthsky.org/space/black-holes-are-like-a-hologram#:~:text=Yet%2C%20according%20to%20new%20research,reproduce%20a%20three%2Ddimensional%20image.&text=In%20short%2C%20black%20holes%20%E2%80%9Cappear,three%20dimensional%2C%20just%20like%20holograms.
Black Holes in 4D N = 4 Super-Yang-Mills Field Theory
https://journals.aps.org/prx/abstract/10.1103/PhysRevX.10.021037

If you fell into a black hole, you might expect to die instantly. But in fact your fate would be far stranger than that
http://www.bbc.com/earth/story/20150525-a-black-hole-would-clone-you

What would happen if you fell into a black hole?
https://astronomy.com/news/2020/07/what-would-happen-if-you-fell-into-a-black-hole

Hologram Within a Hologram Hints at Fate of Black Holes
https://www.quantamagazine.org/hologram-within-a-hologram-hints-at-solution-to-black-hole-information-paradox-20191119/

The theory that the universe is a hologram explained in under 5 minutes
https://www.brandeis.edu/now/2018/november/thetake-podcast-hologram.html

Holographic principle
https://en.wikipedia.org/wiki/Holographic_principle

Information in the Holographic Universe
Theoretical results about black holes suggest that the universe could be like a gigantic hologram
https://www.scientificamerican.com/article/information-in-the-holographic-univ/

How Our Universe Could Emerge as a Hologram
https://www.quantamagazine.org/how-our-universe-could-emerge-as-a-hologram-20190221/

Quantum Scientist Sky Nelson-Isaacs was talking about how a multiplayer video game could serve as an analogy of how the simulation might work for each observer, each of us having a computer, and the computers being networks on a common infrastructure, but imagine that everything in reality begins to exist the moment it needs to interact with something else, that every interaction is like the observation in the double slit experiment. As if reality was procedurally generated on the fly.

Consider No Man's Sky as a high level analogy.

No Man's Sky procedurally generated games, procedurally generated world, generated world

https://nomanssky-archive.fandom.com/wiki/Procedural_generation#:~:text=No%20Man's%20Sky%20features%20a,generated%20algorithmically%20rather%20than%20manually.&text=The%20game's%20engine%20employs%20several,and%20structure%20found%20in%20nature.

How No Man's Sky works video
https://www.youtube.com/watch?v=AFISmcAigfY

GDC talk
Continuous World Generation in 'No Man's Sky'
https://www.gdcvault.com/play/1024265/Continuous_World_Generation_in__No_Man_s_Sky_

Inside the Artificial Universe That Creates Itself
A team of programmers has built a self-generating cosmos, and even they don't know what's hiding in its vast reaches.
https://www.theatlantic.com/technology/archive/2016/02/artificial-universe-no-mans-sky/463308/

A Look At How No Man's Sky's Procedural Generation Works
https://kotaku.com/a-look-at-how-no-mans-skys-procedural-generation-works-1787928446

What the code of No Man's Sky says about procedural generation
https://www.gamasutra.com/view/news/283500/What_the_code_of_No_Mans_Sky_says_about_procedural_generation.php

The algorithms of No Man's Sky
https://www.rambus.com/blogs/the-algorithms-of-no-mans-sky-2/

2013 interview with No Man's Sky Developer
https://www.rockpapershotgun.com/interview-no-mans-sky-and-procedural-generation

It was mentioned that a new theory called Geometric Unity could be a potential revolution in the Explanation of the cosmos if it turns out to be correct https://geometricunity.org/

Geometric Unity video
https://www.youtube.com/watch?v=uFirZANoiHI

Loop quantum gravity (mentioned at the same time as Geometric Unity) is a theory of quantum gravity, which aims to merge quantum mechanics and general relativity,
https://en.wikipedia.org/wiki/Loop_quantum_gravity#:~:text=Loop%20quantum%20gravity%20(LQG)%20is,LQG%20competes%20with%20string%20theory.

Simulation hypothesis
https://en.wikipedia.org/wiki/Simulation_hypothesis

Jean Baudrillard on Simulation and Illusion

https://noemalab.eu/ideas/essay/jean-baudrillard-on-simulation-and-illusion/

"(Many-Worlds interpretation is now considered a mainstream interpretation along with the other decoherence interpretations, collapse theories (including the Copenhagen interpretation), and hidden variable theories such as Bohmian mechanics."
https://en.wikipedia.org/wiki/Many-worlds_interpretation

Bell's theorem proves that quantum physics is incompatible with local hidden-variable theories
https://en.wikipedia.org/wiki/Bell%27s_theorem

De Broglie–Bohm theory is a non-local Bohm theory that escapes Bell's inequality theorem, and so it's an example of 1 of 4 major categories of quantum mechanics interpretations
https://en.wikipedia.org/wiki/De_Broglie%E2%80%93Bohm_theory#:~:text=In%20de%20Broglie%E2%80%93Bohm%20theory%2C%20nonlocality%20manifests%20as%20the%20fact,not%20have%20an%20invariant%20meaning.

Another category of interpretation of Quantum Mechanics is QBism
http://www.physics.umb.edu/Research/QBism/whatisqbism.html

Can brain waves interfere with radio waves?
"Not likely. Brain waves are too slow, and so weak they're extremely hard to measure…"
https://engineering.mit.edu/engage/ask-an-engineer/can-brain-waves-interfere-with-radio-waves/

"Cellular telephones and effects on the brain: the head as an antenna and brain tissue as a radio receiver"
https://pubmed.ncbi.nlm.nih.gov/12445512/

"Add into that the fact that brain signals are incredibly weak, with electrical signals predominantly exiting only through holes in the skull (eyesockets etc.) and magnetic signals equally tiny, at any distance the signals are unmeasurable. We're not talking kilometres here, but centimetres."
https://www.quora.com/Can-our-brains-receive-brain-waves-signals-from-other-humans-Just-like-phones-transmit-and-receive-radio-waves-can-our-brains-do-the-same

a0097z
Note created on Sep 11, 2013
(dendrite, synap, emotion, cortex) can anyone explain this to me?
http://phys.org/news/2013-08-complex-behavior-spontaneously-emerge-brain.html and this as well, I've read each six times
http://medicalxpress.com/news/2013-07-coherence-neuronal-cultures-noise-focusing.html#inlRlv does it make sense to anyone?

How does complex behavior spontaneously emerge in the brain?

phys.org
(Phys.org) —The idea of emergence, in which complex behavior spontaneously emerges out of simple interactions, exists in a wide variety of areas, such as economics, the Internet, and urban development. But perhaps the ultimate example of emergence is in the brain, where thousands of randomly firing…
Like · · Unfollow Post · Share · September 8 at 2:09am near San Francisco
2 people like this.

Jack Offington After skimming both very liberally, I got the idea that those links attempt to describe the process of normal human thought. When you think about/experience something then groups of neuronal interactions seem to occur randomly and the groups that are being referred to as waves, as that's what shows up on their brain scan monitors as different colors (random non-grouped "noise" neurons also included). They've detected no way to determine the actual conscious controller of these waves so it's speculated that they just happen at random. Unless I missed something there, I think that pretty much covers it.
September 8 at 5:39am · Unlike · 1

Micah Blumberg hmm... afraid of that, thanks for the feedback, one of my hypothesis is based on random thought activity that is modified by neural plasticity.
September 8 at 11:27am · Like

Jack Offington Are you upset by the idea of the process actually being random?
September 8 at 11:29am · Like

Micah Blumberg Its only upsetting in the sense of finding out that some alien spaceship computing engine has some sort of random bootup stage that then takes on a coherent flow. Trying to explain that alien spaceship (the brain) is perhaps complicated now more by verification of these results by an independent research group, and its potentially upset again by a contextual shift. How long is thought activity random, and even when thought is harmonious instead of noisy is there an element of random activation regionally or across all the brains dendrites? I was thinking recently about the article that said cocaine makes dendrites grow in the frontal cortex, can simply a larger quantity of post-synaptic receptors shift behavior simply because the distribution of harmonious brain activity is random?
September 8 at 11:40am · Like

Micah Blumberg It makes you think that programming AGI will be a big like herding cows, walking dogs, moving schools of children, directing a campus of colleges, running a military, and keeping the peace in public, machines based on people will be like people very literally.
September 8 at 11:43am · Like

Jack Offington Everything your brain does is algorithmically convertable, there are no limits to computability. Paying very close attention to the fine details of your own thought process reveals a lot of information if you look at it from the perspective of a programmer. You learn that your thoughts are an unfolding of inter-related concepts as your observations continue, you will also

realize that approximation of information is how your brain processes information, your memories are compressed lossily before they're stored, and the more you think about them the more information about those thoughts unfold, I'm not the expert of the group but I've always assumed even to this day that the neurons are the concepts about the concepts about every unfolding thought as every part of the thought is referenced. The neurons seem to be the brain's logic gates. I think it's like a huge FPGA.
September 8 at 11:58am · Like

Samantha Atkins AGI will not be like people. I think it would be a mistake to try to make an AGI too much like a person.

Jack, the brain is a fabulous confabulation machine. Where it has lossy data it just makes stuff up on the fly and weaves it all together. Which is great for inductive and abductive reasoning I guess. The brain being a very large parallel associative memory is part of this.
September 8 at 5:34pm · Like · 1

Micah Blumberg the AGI I am designing will be like a person, its not a mistake its fundamental to the design of an intelligent independent mind. I don't know how anyone can build real AGI and design around the fundamentals exhibited in human intelligence but when you do we can have our machines compete to see which is better.
September 8 at 11:56pm via mobile · Like

Jeff Tsukuru You might like this
https://www.youtube.com/watch?v=gFnVmuU8_Lg

The fundamental gist of which there are forces in the network, unobserved or unknown, which causes the coherence.
sync of metronomes
www.youtube.com
A new version of metronome synchronization movie. A lot of metronomes show various performances. Have a fun!
September 9 at 1:13am · Unlike · 1

Jeff Tsukuru And an actual performance of a 100
https://www.youtube.com/watch?v=QCp7bL-AWvw

György Ligeti - Poema sinfónico para 100 Metrónomos
www.youtube.com
Video de esta extraña obra
September 9 at 1:13am · Unlike · 1

Micah Blumberg
32 out of sync metronomes end up synchronizing
www.youtube.com

https://www.youtube.com/watch?v=fmjY3UIgcwA
When you move the metronome and put on a table that moves multiple metronome tha...
See More
September 9 at 1:30am · Like · Remove Preview

Jeff Tsukuru It's rather fascinating isn't it?
September 9 at 8:14am · Like

Samantha Atkins
How like a person? Will it have the same instincts? Will it have a human drive, seek status, and have human emotions? How would this not be self contradictory and dangerous if you went that far? Brain emulation is swell but how would we separate the intelligence bits we want from the rest that we may not? Is it less troubling to humans to have something more humanlike that fundamentally isn't or something less humanlike? The Uncanny Valley needs to be considered.
September 9 at 9:52am · Like

Samantha Atkins
I would guess mechanical vibrations interacting to produce the effect.
September 9 at 9:55am · Like

Micah Blumberg
There is an unknown factor in the direction of its development, simply because its a system that organizes sensory noise creating coherency from an initially random distribution of energy. Emotion and pain are axon-nerve frequencies, they make intelligence sensitive and fine tuned.
September 9 at 11:20am via mobile · Like

Micah Blumberg
Oh you think feelings and emotions are dangerous?
Buddha is more intelligent, more developed, more emotional, that's what my machines can become, like Vishnu, like the great teachers. Your worried about terminators but terminators have no emotion, no sensitivity, no empathy, no human ability for compassion.
September 9 at 6:48pm via mobile · Like

a0098z

(oscillat, cortex)

Christoff Koch's lecture
WSU: The Biology of Consciousness with Christof Koch
(available on youtube)
at the 36 minute mark he begins to shares slides about an experiement that illustrates why consciousness involves higher level areas but not lower level areas.

Watanabe et al (Science 2011)

look at the middle of the screen
"dissociate attention & consciousness"
they mask or camoflage a certain sort of temporal pattern
they watch the brain responding to the change in movement
but the person is not conscious of the change.

its modulated by what you attend to, but not by

the primary sensory cortex can track things that you are not conscious off, but this fits with the anesthesia study that points to disabling part of the function of apical pyramical neurons that are at the tops of cortical columns connecting different regions of the brain together with long distance interneurons, so there isn't a widescale integration of cortical column information under anesthesia, globally coordinated brain activity is disrupted, and even if you stimulate a local area the person does not become conscious.

comparison to the FNIRS study on hemispheric lateralization
where when you attend to the right or left, moving your eyes, it causes shift in blood flow

My argument is that activity of the rich club networks of long distance interneurons that synchronize different cortical columns in different regions of the brain give rise to consciousness which in other words is a kind of contextual symmetry, or like each cortical column is a matrix of information, and with consciousness you have many different matrices of information achieving a sort of temporal oscillatory synchronization so that the information contained in each has a kind of integration with all the others, that is sort of like the integration of different frames in a movie, with each active interlinked cortical column being representing another frame in the movie of consciousness, with the possibility of multiple frames being active simultaneous in order to present complex spatial patterns.

a0099z
temporal synchronization for memory-prediction consolidation across modalities
(synap)
Compare Neuropype comparing unstructured data sets via time synchronization
to temporal synchron of cortical columns

What I am suggesting is that temporal synchronization between different brain areas allows the brain to consider & compare different sets of unstructured data from different senses to learn information patterns that are 'modal substrate invariant' meaning that an information pattern learned with sight (a modality) can be considered with a modality pattern learned from hearing (another modality) thanks to temporal synchrony accomplished with brainwave oscillations.

This is similar to the concept employed by Neuropype by Tim Mullen to align different sets of unstructured data (heart beats and EEG brainwave signals) with a temporal code so that data from the two unstructured sets can be analyzed (with neural networks for example)

The basis of a bit int the brain is a coincidence detection, at the synaptic firing level, but also at the level of dendritic branches, and when the soma's of neurons burst.

On
orch or
microtubules
coincidence as bits
The principles of information patterns, as coincidence detections, in the brain could extend into microtubules, but it's incidental to the overall theory in part because quantum signals are so small & weak they are unlikely to perturb neurons in a way that matters, rendering their contributions incidental.

Neuromuscular connectomes across development reveal synaptic ordering rules
https://www.biorxiv.org/content/10.1101/2021.09.20.460480v1

a0100z

A new study points out that there is a relationship between the expansion of space and the size of a black hole, that actually inversely supports my hypothesis that oscillators are creating spacetime.
https://phys.org/news/2021-11-expansion-universe-impacts-black-hole.amp

a0101z

(LTD, array, flavin, ATP)

(the idea is that the electromagnetic wave created by the action potential is stimulating the mitochondria to fire. It turns out that mitochondria are sensitive to electromagnetic waves of a certain type.)

flavin
ATP affects the brains reward system
via weakly interacting oscillatory magnetism in the brain
a ~> b -> c
flavins oxidation
cell growth death ltp ltd spine growth decay
new memory tied to = reward system
endorphins are just a reward area, not a reward chemical
its that each type of neurotransmitter is reinforcing memories & rewards
with atp
D -> E

Another major breakthrough idea that is actually in a whole other category related to essential biology function that is on par with some of the other new hypotheses having to do with bio function. THIS IS MAJOR! It's that D->E transformation link in the chain.
the frequency that you do something drives its own reinforcement
changing large long term scale behaviors is about mentally practicing them

Imagine your whole brain is X
It has sensory arrays/edge communities
It magnifies/scales/transforms
Virtual memories
Stores patterns in connections
Reinforces memory & rewards with life

The preferences of neurons, low contrast, high contrast, its set by the firing of neurons which excites the mitochondria to release more atp exciting cell growth

//
"Dynamic Relationship of Mitochondria and Neurons"
https://jonlieffmd.com/blog/dynamic-relationship-of-mitochondria-and-neurons

Samuel A. Killackey et al, Mitochondrial protein import stress regulates the LC3 lipidation step of mitophagy through NLRX1 and RRBP1, Molecular Cell (2022). DOI: 10.1016/j.molcel.2022.06.004

a0102z
(array, synap) neural arrays

Mechanical actions of dendritic-spine enlargement on presynaptic exocytosis
https://doi.org/10.1038/s41586-021-04125-7 (2021)

It's not sufficient for a neural array to simply see another neural array to explain brain function, its essential neurons in the brain become weighted

3D layers

Theoretical Quantum Neurophysics

a0103z
(oscillat)
Looking back on this note I remember thinking it sounded ridiculous when I had this idea and wrote it down. I'm saving it because it's novel & interesting. I'm sure some physicists will want to yell at me for how stupid they think this idea is. lol.

Quantum Gravity age of the universe

if the size of space is relative to mass

the cosmos is 93 billion years apart, and the cosmos is 13.7 billion years old, but if it is relative to mass then as mass increases so does space, and that means half the expansion of space is negative space, backwards in time and half is positive space forwards in time

negative velocity and positive velocity
negative mass positive pass
negative

but space could only expand faster than mass temporarily, like a virtual particle, a temporary violation of conservation, which means space expanded at the same velocity as mass, because they are expand together, but instead of getting more mass in the samespace we get more intervals of mass which we experience as time

so the expansion of space is relative to the increasing intervals of spacetime caused by paired particles

since one happens at the same time as the other, and one is locked to the speed limit of light, then the other is locked to the speed of light

the size of the visible universe, expanded at the speed of virtual light,

and real light actually does have an undetectable amount of mass

-if a virtual particle is a temporary particle, and all particles except protons have been observed to decay,

proton

if a proton never decays, then in a harmonic oscillator that would make it a bad point, (referring to bad points in Steven Strogatz book Sync) Anything that isn't participating in the harmonic oscillation between entropic decay & extropic information (like the free energy principle) is like a bad point in the harmonic oscillator of space.

I suspect that the reason we do not see light decay is because it's moving in normal time which is frozen relative to how fast time moves for us, our experience of time has a lot of harmonic oscillation between entropic states, with the mass (information) of physical space moving slower than light but transforming (decaying/emerging) faster than light.

So the fast light is like frozen in transformation from our perspective, but from the perspective of light we don't exist at all, or we exist & cease to exist very fast, like a mirage, or a dream, or an illusion, because from the perspective of someone moving at light speed all of human history happens ultra fast.

I'm not sure this is right but it's interesting to think about.

a0104z
(graph, oscillat, field, decoherence, boson, observer, flavin, ATP, dissipation) The idea of a bad point is that it has no area, it doesn't oscillate, it doesn't increase or decrease in charge

(I had an idea just now that ideally dissipating space isn't detecting anything, because the correlate of detection is an increase in the complexity of pattern formation to: information threshold. When meaning emerges from chaos.

It suggests that self aware networks are fundamental to spacetime, not that we can't be dissipated, but that overtime we are natural to emerge from it, from the properties of vortices, oscillations, and neural network structures in physics. But also space itself which has been described as a harmonic oscillator, although I consider it to contain chaotic oscillators and resonators and all possible manner of oscillation, and that even chaotic dissipated space is only chaotic within certain boundaries that allow it to be predictable at some other scale

the player canvas standard for webxr

(mass is part of a gravity wave)

so the idea of spacetime that doesn't oscillate is that it has no area

maybe an electron or proton is that if it oscillates then it has area & time

but if the area is wide time is short
if the area is small time is tall

so space is expanded because its area is the high amplitude of a low frequency

stars are crunched because the high frequency (velocity, relative time of action) corresponds with less area less space and less amplitude

the amplitude of particle scattering is high in spaced out space, but its low in high frequency oscillating space (stars, planets, atoms)

a particle/wave can contain kinetic energy which is defined by its information configuration which is an identity in a sense, that represents a physical configuration also

dissipation is like electron scattering, the virtual photon pushes them apart because they do not have a complimentary phase, so the virtual energy needed to combine two electrons is greater than their trajectories and that creates the repulsive force

electrons can be pushed together with fermionic

so the scattering amplitude of particles, and the expansion of space, is inversely proportional to virtual

the idea is that the potential future and the potential past (anti-matter scattering) exert real forces on present particles

with potential future particles (virtual photons) exerting respulsive force on electrons and on the expansion (scattering of space)

and potential past particles (protons) exerting

positive particles (protons and positrons) can converge trajectories (strong nuclear force)

but not occupy the same space because their phases are not complimentary and the combined mass would dissipate too quickly (unless their combined mass had the right energy configuration)

I'm think of mass as the energy needed to keep a photon (boson) scattered into a positive & negative particle split.

the idea is that the different configurations of spacetime, from particles to galaxies, determine whether space is going to converge increasing scattered time positive & negative time from the division of neutral space into net positive / negative densities, and positive & negative scattered/condensed space.

as extropy, or the information configuration of space increases intervals of past and future time, the oscillating time intervals expand or contract space, with condensed atom/planetary space being relative to the expansion of empty spacefields around these heavy oscillations.

This is analogous to firing neurons inhibiting the space around them. With a star/planet/quasar/blackhole/gamma ray burst representing the fired neurons, and the scattered waves in space around the firing space creating the expanding field of space time.

However the expansion is relative, and the law of conservation of total energy applies to the total area of space, meaning that if there were zero atoms there would be zero spacefield, and essentially the entire universe would be like one photon with no distinction from nothing.

So at one end of space, space has no distinction, no area, no volume, no mass, and no energy.

The expansion of space is virtual or holographic meaning that it has no real area in total, no real time in total. We only march forward in time from a perspective which is splayed oscillations

(positive / negative particles for example) Human perspective is from splayed space that is not in a harmonic oscillation, its in a resonating oscillation

the simultaneous emergence of galaxies everywhere at the same time is like the emergence of lumps of resonating oscillators

with the virtual forces of the potential future & past configuration of space exerting & introducing a combined torpidal flow on spacetime, expanding the past and future simultaneously, towards maximum information coherence & configuration extropy & maximum decoherence entropy dissipation.

however the law of conservation also applies to the total of positive information configuration extropy combined with the total of negative dissipation entropy.

The yin yang is an ancient symbol for the conservation of opposing forces. So is a chess board.

If space was a chess board, all the black squares might be entropy, and the white squares would be extropy.

At the other end of space time marches forward relative to the expansion (dissipation) of oscillations (atoms, vortices, galaxies, stars etc)

I think few people know for sure how long it is going to take them to write a book when they start. There is a

the consequence of this idea is that the universe began in the middle of time, and then the past and future were generated from a single particle collapsing into waves creating the past and future of spacetime from the center of spacetime which is everywhere and nowhere simultaneously, the forward march of time that we experience is our perspective.

What I just wrote down, in my book, is such a novel new idea about spacetime that 1. It doesn't matter at all if it is correct or incorrect. 2. It sounds so plausible, this new argument, that I think it will be very popular when it comes out.

It's that the beginning of spacetime may actually have been the middle of spacetime, with the potential past and potential future exerting virtual vortex like oscillatory forces that divide a non-physical singularity into the dimensions of the spacetime field, and that harmonic oscillation balances the resonating wave like forces generated by virtual probabilities of future information configurations that the cosmos is essentially predicting through a process of cosmic natural selection

with the end result being something like "Toroidal Universe Theory"

but with time moving in two directions from a singularity into

The idea of the past and future being co-created at the same time provides a new meaning to the observer effect and to spooky action at a distance

its like the idea that the moment when you observed the particle in the future is created at the same time it was measured in the past

its that the past and future are in one sense relative to the diameter of a photon?? no

they are relative to the diameter of a spherical oscillator, both its kinetic & angular momentum

and that the forces of gravity of any object in space are acting on all objects in space, albiet that effect becomes very small at a distance

the gravity of everything in the cosmos is affected by everything else, the dense oscillations of planets & galaxies grow hot particle lanes between them that also have a gravitational effect. So the area directly between earth and the moon should be hotter and faster than regular space

it also explains why light is always the same speed regardless of which way you are traveling and how fast you are moving, because time from our perspective is relative to that photon, its like time is converged at the point of a photon, but its expanding into both past and future relative to the photon.

you can see light marching forward with time & space.

radical pair chemical reactions are spin state selective
you bring two radicals together with their spins paired they bond
if their spins are different they can't form a bond

does a radical have many electrons

we can ignore most of the electrons
the valence electrons are the highest valence
only the spin of the two highest valence elections where the radical
spin makes electrons magnetic or repulsive depending on their spin, which is how free radicals pair

the unpaired single electron of silver atoms have no spin?

the magnetic field passes through everything in a cell, the cell is unaffected

lorentz force, charges move because of the magnetic field

the radical pairs inside the cell are affected by the magnetic field
if affects the diffusion of pairs, possibly the membrane potential

a chemical reaction can change its rate and its range in the prescence of a magnetic field because the radical pair mechanism

but its always the same speed in a vaccum regardless of your internal reference frame because

special relativity

What I just wrote down, in my book, is such a novel new idea about spacetime that 1. It doesn't matter at all if it is correct or incorrect. 2. It sounds so plausible, this new argument, that I think it will be very popular when it comes out.

The origin of the higgs field & dark gravity its this idea that the oscillating stars & galaxies are not only affecting each other's gravity, but they are leaving gravity trails AND they are creating gravity lanes between them by heating the space between them, the idea of the higgs field is that excited hot space is adding mass to particles,

If we accelerate a camera's velocity to the maximum speed we can accelerate anything, the largest camera sensor we can build

if you think about the yin yang symbol as a conservation of energy / force

the white and black circles could represent a negative star and a positive star

or a star moving towards the past and another moving towards the future

I want to draw this in 3D

there are 3 triplet states and 2 singlet states

when you apply the magnetic field 2 of the triplet states become inaccessible

as you increase the magnetic field the two triplet states become further away

the magnetic field affect saturates, saturation value
does it affect
a static magnetic field that doesn't change in time
the reactions take place 100s of nanoseconds or a few microseconds at most

depending on which direction we swept the magnetic field

if we speed up the sweeping of the magnetic field,
?
the magnetic field is 20-25 microteslas?

how ubiquitous is are flavins in a cell membrane?

is electron spin involved in other kinds of molecule binding such as with binding together dna, binding together cell membranes
is flavin oxidation related to expanding cell membranes and is it causing cells to become unbound

magnetic effects,
radical pairs
to get a magnetic pair sensitive criteria
where will these show up in biology
b12 enzymes
cobalamine, they show magnetic field responses to light but not in other reactions
the crypto chromes identified a real molecular system where this
no

the only parts of the cell that seem to respond are the mitochondria
in the mitochondria where are flavins what are they doing

electron-transfer flavor protein inside mitochondria
ATP process involves a flavor protein
magnetic field might interupt or accelerate the atp process
might they increase ATP update

oscillating magnetic fields,
you can affect radical pair / just radio waves, oscillating

what frequence of oscillations are you talking about? if the oscillations are too fast no effect on radical pairs
too slow the radical pairs will see the field as static

so there is an effective interval of an oscillating effect
if you hit radical pair reactions with the right frequences

3 to 3 nano second

the neurotransmitters can cause vasoconstriction, but perhaps they are inducing neurons to fire faster, which is increasing ATP uptake, which is

oxidative stress destroys a cell membrane,

If you have ever wondered where the concept of electron spin came from watch this: "The Stern-Gerlach experiment, performed in 1922, delivered the first experimental proof of the fascinating degree of freedom of an electron spin." https://youtu.be/PH1FbkLVJU4

The idea that I had was that the fermionic condensate of the mass of the earth was creating a vertical flow from the earth to space in the gradient of the particle field of spacetime,

in crunched space, closer to earth, a particle moving horizontally has

global representative democracy

Imagine thousands of digital workers coming out online to protest, influence, reform government programs & systems.

"we demand equal treatment for all workers' or something. "we demand lawful government that ends trade of products made with genocide"

a0105z

The galactic filaments are related to LTP, because the synchronous oscillations between galaxies are heating the space between the galaxies, shaping the curvature of spacetime, attracting particles, creating atoms, like gas, atoms are created out of empty space, defining the higgs field, and creating the path integral formulation.

a0106z
(oscillat)
I am beginning to think we are connected with other life in other galaxies normally, that we each represent different versions of reality blending together in all places simultaneously.

so evolution

the natural selection of spacetime
and the natural selection of organisms is the same thing

oscillators are getting more complex

brains will continue to evolve long past where they are today.

It is because the index of the complexity of information is increasing overtime relative to increase in entropy overtime

in other words entropy is the oscillatory dissipative of complexity, so entropy is increasing overtime because oscillation configuration complexity is simultaneously increasing over time

its that oscillators are causing other oscillators, nudging each other and combining, atoms, planets, people, but also dissipating at the same time, super nova, death, planetary collapse,

Earth may collapse? Because the configuration of the oscillations keeps increasing as the patterns combine to delay being evaporated away,

So the oscillating patterns are ensuring their own survival by becoming increasingly complex, they are combining to form more energy efficient spins that can survive increasingly complex environments of competing patterns that are trying to maintain their own spin.

a0107z
(graph, metaverse)
Shardless architecture?

Using neural networks to create reduced representations of user activity based on LOD level of detail concepts, a neural network will take fractional user activity that is sent in sparse ways based on virtual distance

So at great distances only a smaller sample of user activity is sent and behavior in large groups is instanced

Looping behaviors are identified and simulated locally with sparse updates from real users

Users who are up close get faster updates and ai like nvidias will reconstruct what is missing between signals from each user

Like the nvidia video compression ai that sends low res video and reconstructs it

Instanced voxelizes Marching cubes for graphics

Streaming a sparse camera view over the network that the AI can reconstruct

I like the idea of a serverless peer to peer metaverse architecture

With the users downloading other avatars to run locally, with behavior updates fetched one at a time with each connected user via a peer to peer system that takes turns getting updates from each connected peer

Separating historical data from real time events

local data storage, a server for only realtime events

Google research football

Engine for graphics
Browser based graphics
How to get beautiful graphics inside a browser
Is this connected to webGPU and webXR
Smaller polygon n triangles

How you can maximize

Shardless computing
Analogy to stream better graphics with webxr

How do you deliver information
Behavior - you raised a hand

So you have shards the users move between shards based on their virtual physical proximity

What if I could take my characters and move between shards

Move with your avatar inbetween different shards

A temporally sparse representation of user behavior based on LOD concepts

With a local neural network to reconstruct

Virtual Proximity, a coordinate system

Game developers have made it so that users can move between shards but there are different ways to do this

So that user behavior data is streamed based on their position in a coordinate system

In other words this is like neural rendering, nanite, and sparse networking.

Hmm

Minimal user data is a strobe of head position, hand position, eye position, button clicks

They are not using neural networks it seems

But a neural network could not only reconstrucr but it could find the sparsest function needed to transmit a change in movement/voice over a network

The data that is received by one user via peer to peer can be merged into each users local storage so that they are broadcasting a sparse representation of their interactions with others via

Everyone stand

Lod on proximity, need to know
Ai interpolation of temporally strobed behavior data sent based on need to know (head position)

Update people behavior with LOD

Neural-Nanite-Behavior-Sharding for metaverse

Unified coordinate system

The key feature of shardless is that I can bounce between games or between instances of games

So all the shards have a unified coordinate system

Seems like you would speed up or slow down network updates based on what you are looking at

Foveated networking for metaverse multiplayer one is streaming updates based on eye tracking or head position

The part about streaming just in time foveated temporally sparse behavior updates is also about not putting graphics on the server,

All the graphics are rendered locally, updated based on camera direction, reconstructed from sparsified behaviors

a0108z
(graph) book disclaimer:
I don't have a PhD in any topic. To avoid student debt, when I was younger, I committed myself to self-study. However I think that if you look at the whole of human history you will find that world changing ideas can come from unexpected people in unexpected places.

This book attempts to present valid new ideas on existing topics: I did check my temperature metaphorically while writing this book because of the stream of novel ideas that occurred to me while researching this book that actually changed the direction of my narrative to a great extent

compared to my original vision for the book. I know that I am 'not suffering' from a case of mania because I have a real daily dose of humility, doubt, and a lot consideration for how to make it clear in the book what I know, what I don't know, what I'm guessing, and what can be supported with references.

Any of the ideas in the book could be incorrect. I may have misinterpreted some of the things that I studied, and some of the ideas might seem valid but may turn out to not work mathmatically, or because of some existing scientific fact that I overlooked.

Given the extremely novel nature of the ideas that I am presenting I felt that it would be unsafe to discuss the drafts of the book with qualified experts ahead of time. Otherwise I would have consulted mathematicians, neuroscientists, physicists, and others before going to print. I also thought that as a story that the books narrative would be interesting and novel enough to entertain and delight people even if some or all of the ideas turned out to be incorrect.

In one scenario I could see my research not being widely accepted & pushed to the fringe like Karl Pribram's Holographic Mind, David Bohm's holographic universe, or like The Amplituhedron Theory by --------

At worst my work could contain elementary mistakes that a consulting expert would have helped me to fix ahead of time.

At best my work becomes widely read, widely understood, and a great number of extroardinary & exciting people will move land air and sea to work with me, or to help me to achieve some of my next level goals that go beyond this book.

I'm sorry at worst my work could be abused by fascist autocrats in a horrible way that could result in the genocide of humanity as depicted in the Terminator films or the subjugation/enslavement of humanity to the machines like the Matrix Films

a0109z
I like constraints. One constraint could be how do we address this with artificial sentient labor? So send the robots out to plant trees, new coral, and to grow clones of endangered species and then incubate their growth, multiplication, and facility their return to environments. This could be done, but also species evolution would stop because of the process of natural selection, in which new mutations that are more adapted to the changing environment might result in new species, or in more intelligent species. Preventing animals from dying off could stop the evolution of life effectively.

It's also like what happens when we remove all the predators that eat other animals? Well the ecosystem goes out of balance, too many grazing animals eat all the food, then all the animals starve, and a forest turns into a desert. With Mass Artificial Sentient Labor forces we could in theory clean all the oceans, all the land environments, capture all the carbon, all the methane, and preserve the status quo of life on earth so nothing ever changes. Imagine however that on

other planets life does continue to evolve far beyond life on earth. Then life on earth might just be food for more evolved life from other planets. On the other hand

a0110z

Reference Yann LeCun's Talk on youtube: "A Path Towards Autonomous AI" On the visual map that associates roles with different regions of the brain:

I think Yann LeCun's presentation causes us to unintentionally think of the whole brain as a variational autoencoder. It could be that each of those roles described by Yann LeCun are filled by both individual cells, by cortical columns, and by the whole brain (taking turns in oscillating intervals). For example the glial cell could be described as a configurator cell. T-Cells & Neurons could participate in the configuration role.

Mapping those roles to large regions of the brain is, I think, an outdated idea in neuroscience. The new thinking is that every part of the brain is doing a little bit of everything, at all scales. The brain is self similar everywhere (Jeff Hawkins talks about the self similarity of the neocortex, and the similarity of the Hippocampus to a cortical column) tiny learned custom variations in each part of the brain will serve to generate a natural VAE Variational Autoencoder effect for comparing learned patterns in one modality to same or similar patterns encoded in a different modality.

Applying a region based map of brain roles to the brain could be what György Buzsáki calls the Brain from Outside In (matching observation to a concept instead of creating a new concept from observation.) György Buzsáki's book "The Brain from Inside Out" contradicts the typical "Outside-In" process of applying our models to the brain, instead of creating models from the brain.

It appears that Sx and Sy represent the same image presented in 2 different views, possibly different by orientation, magnification, or some other variation; it could be that each value in the image was randomly multiplied by an imaginary number.

The point is he takes the Sx variation, maximizes the information content (his dialog about max and min reminds me of how a dendrite sensor branches out to maximize its data sensation potential, and minimizes its data collection to a phase pattern with duration & frequency properties and then passes that phase change to the array represented by its exit terminal)

The Sx variation he argues will become a predictor of error for the Sy variant, but the Sx in his model is modified by a information content minimizer, (again reminding me of how nerve cells maximally collect, summarize, and distribute phase representations out to an exit terminal array.)

He wants minimization of information in the error predictor so as not to confuse the neural network as to what it should be paying attention to in generating feature representation I guess.

on the side of Sy he is saying the encoded representation of Sy minimizes it's error prediction by comparison to the minimized information from (Sx, Z) (Z being the minimization function), but in a sense he is attempting to bias the results (or weight the results) of the identification of pattern Sy by comparing it to a sparse representation of the features of the Sx variant of Sy.

JEPA is like an abstract VAE Variational AutoEncoder, that has a minimized or maximally abstracted variation, or a sparsely represented comparator representation.

In Hierarchical or Stacked JEPA each layer is doing the same Jepa sparse VAE process, and passing its learned representations upwards.

I gather that one can encode the abstract prediction of a JEPA as a frequency that resonates away into its layer after some number of intervals related to its duration and that would bring JEPA closer to biological realism, or JEPA could be combined with back propagation or combined with reinforcement learning, but interestingly in this model neither back prop nor reinforcement learning is necessary for JEPA to differentiate and reason about it's goals.

JEPA can be stacked, higher JEPA layers can represent larger time scale functions, in addition to functions that exist at higher levels of (chunked up) feature representation.

The higher layer of JEPA might look for conditions in lower layers of JEPA that predict how close or how far away it is from some random goal such as driving to a desired location.

A higher layer of JEPA corresponds to a longer span of time. This evokes comparisons to the Reference Frame model of a cortical column (Jeff Hawkins "A Thousand Brains") a fast changing input layer at the bottom, and a slow changing reference frame layer at the top that might indicate a pattern that changes on a larger time scale. Similar to the concept that place cell data changes quickly and grid cell data changes slowly as the grid cell data is a reference frame for the place cell.

Each hierarchical layer of JEPA is doing Sparse Comparative VAE based on abstracted differences instead of being based on summations of generative models (like object segmentation or semantic segmentation of points) that LeCun believes cannot scale beyond a certain neural network size.

End of notes about Yann LeCun's talk.

//

The biggest voice in the space arguing for the generality of brain function across the brain might be Jeff Hawkins from @Numenta If you mix the ideas of Numenta together with Buzsáki, then you grok the majority of my book that I'm working on here.

coincidence detection & difference detection, in the human brain, via phase comparison yields a physics based process for choice at the cell level, cell assembly level, and whole brain level

but prior learning provides a learning framework for considering whether a detected difference is good or bad from the organisms perspective

"Gradient-based learning drives robust representations in recurrent neural networks by balancing compression and expansion"
https://www.nature.com/articles/s42256-022-00498-0

a0111z

A thought experiment: Imagine that each node (an oscillating group of cells) was processing the whole of consciousness (or part of it) but at a different scale or represents a different perspective,

So that when you combine all the participating nodes you get a sea of overlapping perspectives.

Like each node is part of a light field, and where light field display intersects the image is joined up,

It is similar in concept, this thought experiment, to every node representing a pixel in a Light Field Labs display. A display where every pixel has a spherical representation of whole image pattern, from every angle (360 degrees) but representing the view through that position in space, through some position in space.

The potential consequence of that is that reality inside our heads closely matches actual reality. What I mean is that it's like the volume of your head is filled up volumetrically with representations of the volume of space around you, thanks to your incoming senses, your neural pathways, your neural arrays sensing & transmitting patterns in sequences to other patterns, and all of your mental patterns being bound together by oscillation.

Originally this note was about how all the little tempo-spatial phase changes in each area of the brain, from the synapse/dendrite scale to the cortical column scale is creating a different part of the tomographic lightfield rendering in the mind.

Each node, or neural circuit is part of the ~~holographic~~ tomographic computational rendering that is the mind.

Telescoping Mind

I think what I was arguing here, but didn't finish, is that the phase changes at a higher levels, layers, or further back arrays, result in features that scale, and abstractions & concepts that scale beyond features. In a neural network information telescopes from microlensing at the

sensory inputs to macrolensing at the hierachical peak, and then the feedback from the hierarchical peak drives behavior.

Insert that study with Bats driving Sonar | Bat

Echolocation-related reversal of information flow in a cortical vocalization network
"(...)the timing and spatial patterns of oscillations in the fronto-auditory network of vocalizing bats (Carollia perspicillata) predict the purpose of vocalization: echolocation or communication."
"Transfer entropy analyses" what is transfer entropy analysis lol?
"revealed predominant top-down (frontal-to-auditory cortex) information flow during spontaneous activity and pre-vocal periods."
"frontal-auditory field (FAF;"
"auditory cortex (AC"
"Directed connectivity in the FAF-AC network varied dynamically according to whether animals produced communication or echolocation calls, and to the timing relative to vocal onset."
"In previous work, we reported low-frequency (1–12 Hz) phase coherence in the FAF-AC circuit during spontaneous activity, with emergence of γ-band (>25 Hz) coherence at the onset of external acoustic stimulation"
"Causal interactions were quantified using directed phase transfer entropy (dPTE), a metric that measures the degree of preferential information transfer between signals based on phase time series"
Figure 2 "dPTE matrices were used as adjacency matrices for directed graphs, which characterized patterns of directional information flow in the FAF-AC network (Fig. 2)."
"Within FAF and during pre-vocal echolocation periods, information flowed predominantly from deep to superficial layers in δ and β1 frequencies (Fig. 2b), and in the opposite direction for α-LFPs" Hmm...
", also during no-voc periods"
"Consistent with previous reports4,14,16, we show that neural activity in the frontal cortex predicts vocal outputs. Taken together, the data from this and previous work suggest that oscillations in frontal regions may be instrumental for vocal production. From our perspective, the above is further supported by call-type specific, pre-vocal LFP spectral dynamics and information transfer patterns in the FAF-AC network. The relationship between oscillations and vocal production remains, nevertheless, correlational: our results do not allow to rigorously assert a causal role of LFPs for the initiation or planning of vocalizations."
See Figure 6
https://www.nature.com/articles/s41467-022-31230-6

Regarding the Telescoping Mind

"Uncovering features of synapses in primary visual cortex through contrastive representation learning"
https://www.biorxiv.org/content/10.1101/2022.06.07.495207v1

"A multi-level account of hippocampal function from behaviour to neurons"

https://www.biorxiv.org/content/10.1101/2022.06.09.495367v1

So my book notes and my book is intended to talk about how activity in the synapse scales up to the whole brain, that the picture of a memory is magnified from a single neuron because it alters the timing of the firing of the downstream neurons that the single neuron impacts by inhibiting nearby neurons, (the neuron that fires inhibits nearby neurons to prevent them from firing, the folks at Numenta talk about this in their research) but what I'm saying is that this is like a photocopier effect, essentially magnifying that single memory to the entire cortical column because of the area that is inhibited represents the pattern that neuron represents with its connections.

That creates a phase rendering in the oscillation group of neurons (that is acting like a single sensor/transmitter like a group of firelies referencing the book Sync).

So the phase changes are constrastive, and that points to how while there is for example a powerband of alpha oscillations for example, within that power band there are multiple alpha frequencies, and the contrastive differences amount to the rendering that makes up the information of your mind, allowing the self to perceive reality and at the same time to be rendered by reality.

This paper is not related to that
"Defective synaptic plasticity in a model of Coffin-Lowry Syndrome is rescued by simultaneously targeting PKA and MAPK pathways"
https://www.biorxiv.org/content/10.1101/2022.06.07.495143v1

Phasic Tonic Relationship

The ground of being as the tonic oscillation of unconscious expectation based awareness

This next link is an example of deep learning applied to medical imaging, what is interesting is the idea that a synapse which is gap junction between transmitters & receptors can be thought of as a fractal of a neuron, with inhibitory & excitatory neurons having inhibitory & excitatory synapses on them, and functionally speaking a sodium receptor inside a synapse is like an excitatory receptor, and a potassium receptor is like an inhibitory receptor. So we have two fractals levels here. That's before you dive into what is happening inside the receptor. Biology, and reality is so weird. So weird it's actually a functional fractal, not always a geometric fractal, but functionally a fractal, with the same operations happening at different scales. Excitation & inhibition, it's this like positive & negative charges in a functional sense?

"SynapseCLR, a self-supervised contrastive representation learning method for 3D electron microscopy (EM) data, and use the method to extract feature representations of synapses from a 3D EM dataset from mouse visual cortex."
Uncovering features of synapses in primary visual cortex through contrastive representation learning

"we show that excitatory vs. inhibitory neuronal cell types can be assigned to individual synapses and highly truncated neurites with accuracy exceeding 99.8%, making this population accessible to connectomics analysis. Finally, we present a data-driven and unsupervised study of the manifold of synaptic structural variation, revealing its intrinsic axes of variation and showing that synapse structure is also strongly correlated with inhibitory neuronal subtypes."
https://www.biorxiv.org/content/10.1101/2022.06.07.495207v1

and its like the mnemonic paper
"The mnemonic basis of subjective experience"
"we argue that these subjective qualities can be understood in terms of their similarity to other experiences"
https://www.nature.com/articles/s44159-022-00068-6

but its also like the description of how human beings see colors, as relative contrasts, or differences
meaning that in human perception patterns are distinct from some baseline pattern
new sensory inputs are contrasted with the tonic oscillations set by past sensory inputs

On a larger scale we can make an argument that the differential firing rates of different large scale clusters of cells provides macro scale contrasts between microscale learned representations so that the organism can differentiate between concepts in its internal representations, or mental imagery, or qualia, or mind.
"Differential processing of decision information in subregions of rodent medial prefrontal cortex"
https://www.biorxiv.org/content/10.1101/2022.08.04.502840v1

NAPOT neural array projection OSCILLATORY tomography

a0112z
(array, layers, cortex)
Nov 7, 2021
am I dreaming all these great break throughts in neuroscience ai reality

is reality a dream

excited macroscopic electromagnetic vibrational, and chemical waves from the hippocampal enthorhinal loop will like the suns corona blast out from the center towards the ends of the brain where parts of the neo cortex esp the 5th and 6th layers are going to collect this in an analogy similar to the retina collecting images,

I want to joke on social media that this part was a real stretch

but its just a fractal idea for how the center of the brain can be like the light or the lens of the eye and the neocortex as a sensory array that is similar to the retina in function and proportion relative to the lens.

In a sense I am continuing my grandfathers work, GPS time dilation

I thought of Kylo Ren saying that he would finish his grandfather's work

but then Kylo Ren changed
he committed Satori in one sense because of a signal sent by his mother

a0113z

The law of electricity, inversely is the square of the distance

Gravity is not electrical force, its a time wave in the electrical force that is the inverse of mass

So the configuration pattern of the electric field warps and ripples with formations that are gravity waves.

The gravity is the result of the electromagnetic field being warped into a spatial expansion an oscillating object that represents something like the inverse of its velocity and density which is like space crunched and hotter because its moving relatively faster in time

So imagine that a particle can ossilate between being expanded in time, or expanded in space

But that while part of it is expanded in time the other part is expanded in space, so an electron is expanded space so its wider and slower, it has more space, but its opposite, the positron is an expansion of time

In a lecture called “The Law of Gravitation” Richard Feynman pointed out that people who want to believe that electricity and gravitation are the same thing will find out that electricity is much more powerful than gravity.

The ratio of the gravitational attraction has 42 digits
The diameter of the universe and the diameter of a proton 42 digits

¼.17 x 10000000000000000000000000000000000000000

The tremendous number of the ratio of the gravitation to the ratio of electricity is still a mystery today

But consider that attractive force between two electrons that repel is negative, and consider that when you combine a field particles together, their electric force is greater if they are aligned, and it weakens if the ions are not aligned. If gravitational force is the alignment of the electrical field then its strength can increase or decrease depending upon the alignment of the charges in that

field, and the warping of space by an oscillating mass like the earth is going to have either an attractive or repulsive force depending on the trajectory of particles in it

So when you have a chaotic gravitational field, made up of the whole electromagnetic spectrum, and that includes the heat spectrum, the chemical spectrum, and mechanical acoustic wave spectrum, you are going to find a chaotic distribution of electron alignments, and the greater the chaos the more the force of electricity is diluted, the more the electrons align the greater the electrical force gets, this explains the difference between the electric force and the gravity force that we experience. A planet that was the same size but had greater density would have a much more powerful gravitational force, because its greater density means that ions are more aligned, positive charges are more aligned.

So what if we can think of light, a proton, a boson, as an electric positive and negative in compressed faster moving space

So they are oscillating around each other in time, spinning faster, the brighter, warmer relatively speaking..

The electromagnetic field of space is the result of time decoherent magnified space,

“Even though neutral particles such as neutrons do not interact via electromagnetic forces, they do via gravitational forces.”

Neutral particles can represent space that has converged its positive & negative charges like a spinning battery, so its positive and negative charges balance out just like a rotating planet might neutralize its attractive force because it balances both positive and negative charges, and because its charges are not aligned.

The point is that you don’t need to add secret hidden graviton to explain the weaker attractive force of neutral particles, just that the amount of force has been reduced to things like its trajectory, its spin, it’s orientation, or its properties

If you consider that gravity is not electricity but a description of the force of one somewhat neutral gravitational field like earth on another somewhat neutral gravitational field like the moon, then the force between them is from the summary distribution configuration of all the electromagnetic forces adding and subtracting from one another by their activity. A planet can’t act like an electron for the same reason that mass is moving much more slowly than energy.

Mass has low frequency high amplitude inversely related to high frequency low amplitude electrons.

Mass is absorbing electrons and spitting out protons,

Earth is absorbing electrons from the air?

Releasing heat?

I have a hypothesis about quantum non-local effects but it's so unusual that I have no idea at the moment if it's really true or not. Same thing with the hypothesis about the cosmos. I'm not sure if it's true but it's interesting enough to include in the book.

a0114z

The brain manipulates spacetime

Becauss oscillators manipilate spacetime
And the brain is a configuration of oscillators
and spacetime oscillates

and when oscillators interact they pull on each other

Reality is rendered on spacetime in the phase field

a0115z

Notes on Neural Oscillatory Tomography & other topics

"Neural dynamics differentially encode phrases and sentences during spoken language comprehension"
"Our findings provide a comprehensive description of how the brain encodes and separates linguistic structures in the dynamics of neural responses. They imply that phase synchronization and strength of connectivity are readouts for the constituent structure of language."
https://journals.plos.org/plosbiology/article?id=10.1371/journal.pbio.3001713

"Visualization of visual circuits for social recognition in juvenile"
from Johannes Kappel:
"I am beyond excited to share my PhD work on visual circuits for social recognition in juvenile #zebrafish with you, supervised by
@JohannesLarsch & @skeptencephalon, now published @Nature"
https://rdcu.be/cRyc3
https://twitter.com/JohannesKappel/status/1547243863953260547?s=20&t=iA08e2R6qlbWZjDPtvxiZA

Micah: What I imagine when I see the above visualization is that it represents the tonic oscillation across the cell assembly, like a regular scan that the brain is doing on itself to ascertain where phase changes have happened in it's distributed sensor/transmitter matrix, in alignment with Neural Oscillatory Tomography Theory.

Deep Neural Network Machine Learning + Medical Imaging

New supporting research: "A gradual temporal shift of dopamine responses mirrors the progression of temporal difference error in machine learning"
"the phasic responses of midbrain dopamine neurons show a remarkable similarity to a type of teaching signal (temporal difference (TD) error) used in machine learning. "
"such a gradual shift occurs both at the level of dopaminergic cellular activity and dopamine release in the ventral striatum in mice."
https://pubmed.ncbi.nlm.nih.gov/35798979/ (note seek a sci-hub link in a few months, as this is paywalled, but in the meantime look at the 61 linked references to this article as they have relevance to the concept)

"Newborns Develop Language Skills Within Hours of Birth"
https://neurosciencenews.com/newborns-language-21013/?fbclid=IwAR0m4uPYX_55P3gdK_jrNw_jr_DkxHfS3swSOpb6b2wuQGsWxXmrCeCLwaA

I want to imagine that the visualization makes is so that we can compare the neurons to a group of oscillating fireflies. All lighting up in quick succession. Then sharing an off interval together.

//

1/F

Micah: My understanding is that 1/f represents the inverse relationship between amplitude & frequency in the EEG spectrum of the brain. My question is, can it be argued that actually the inverse relationship is between magnitude & frequency instead?

James Bonaiuto "Not sure I understand what you mean. It's just that power drops at increasing frequencies. It's pretty common in biological systems - it's called pink noise"

Micah: I mean with EEG frequencies in the brain, isn't an inverse relationship between amplitude & frequency observed and referred to as 1/f? I guess I could be misunderstanding the use of 1/f.

James Bonaiuto "Yes, that's right! I just didn't understand what you meant by magnitude"

Micah: Okay, but in the neuron itself, the amplitude of the action potential is thought to be fixed at the threshold for firing, but duration can vary. Since Magnitude is the combination of Amp & Dur, could there be an inverse relationship between Frequency & Magnitude at both scales?

Add to Cosmos Fractal Map

I think the cosmos is a fractal of dissipative resonating oscillations inside a harmonic oscillating wave pattern, from atoms, to life, to the cosmos. We are not really even alive life is type of oscillatory pattern that emerges in certain conditions: game theory of evolution

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Clustering vs Segmentation

https://dfrieds.com/machine-learning/segmentation-vs-clustering.html
I think that sensory inputs into the brain have to go through a sort of point segmentation in the first place for the rendering of learned patterns, generating accurate models from incoming data, but when it comes to the mind creating new ideas, such as having original thoughts during a meditation session, that is generating new data from existing data. that's creativity or the clustering of prior ideas into new ideas.

In a sense identifying what is real in the world is a segmentation task, but imagining what could be real is a clustering task

Clustering is creativity, rendering accurate patterns that represent the real world is segmentation.

The hunch is that the natural transformation of data over time, from events like the modulation of data via thalamic connections

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"Correspondence between the layered structure of deep language models and temporal structure of natural language processing in the human brain"

"These findings point to a connection between language processing in humans and DLMs where the layer-by-layer accumulation of contextual information in DLM embeddings matches the temporal dynamics of neural activity in high-order language areas."
https://www.biorxiv.org/content/10.1101/2022.07.11.499562v1

The layer by layer accumulation of information in Artificial Deep Learning Neural Networks, or DNNs is a good indicator that neural arrays, or layers in the brain, are learning information that is played back in temporal & spatial sequences (not a new idea in of itself)

It supports part of the argument of Neural Array-Projection Oscillatory Tomography.

The other part of the argument is that Neural Array-Projection is like NeRF or like 3D Semantic Segmentation or like Plenoxels, or like the Fourier Projection Slice Theorem, or like Tomography as a general concept in that you have Neural Arrays projecting information in temporal & spatial

sequences to other Neural Arrays that percieve, observe, and then create their own projections (as tempo-spatial phase patterns)

"Neural Pixel Composition (NPC): 3D-4D View Synthesis from Multi-Views"
https://www.aayushbansal.xyz/npc/

"Plenoxels: Radiance Fields without Neural Networks"
https://alexyu.net/plenoxels/

"NeRF: Representing Scenes as Neural Radiance Fields for View Synthesis"
https://www.matthewtancik.com/nerf

Rendering Neural Materials on Curved Surfaces SIGGRAPH 2022
https://cseweb.ucsd.edu/~viscomp/projects/CurvedNeuralMaterials/

I mentioned Zero Shot Learning elsewhere in my notes, lets link that with this note.

NERF requires multiple photographs of the specific object to be reconstructed...
with known camera view points for each. with high re...
with novel perspectives from volume rendering, interpolating...
NERF allows the rendering of a scene that is parametrized by a multi-layer perceptron, encoding color & density...
In Zero-Shot Learning, they sparsify the scene to improve the quality of ...

QUote from slide at
"vlPFC: a hub for attention
"three large scale networks considered essential to cognition
"the ventral network (VAN bottom up) detecting outstanding stimulai & reorienting
"the dorsal network (DAN top down), selecting stimulai and responses
"salience (SN) network (anterior insula and anterior cingulate cortex, adds value to external and internal stimuli.
"the vLPFC is part of both the van & Dan (nodes of the SN are the anterior cingulate cortex and front-insular cortex FIC (seeley et al 2007)
[Integration through hyperdirection pathway (STN) by Haynes & Haber, 2014]
[Cortex -> Striatum -> GPe -> STN - GPi/SNr -> Thalamus -> Cortex]
["Network Science concept of hubs]
[broad cortical and subcortical networks organized to integrate info across multiple domains through distributed networks: Sporns 2014]

//////////////////////////

Quantum Stuff

The idea of quantum spin in a proton not adding up from its parts two up quarks and a down quark, they said maybe its the structure, maybe its random quarks
but what is interesting is that the proton has a larger volume compared to the quarks, a larger area, the proton has a larger spin than its components imply, the time dilation effect of the larger radius of the proton compared to the radius of the quark, it should mean that time is moving more slowly on the surface of the proton vs in its center,

//////////////////////////

Neuro & BCI Stuff:

Neural Oscillatory Tomography for constructing Self-Aware Neural Networks and
Neural Oscillatory Tomography Networking for downloading uploading and linking the mind to other Neural Oscillatory Tomography Networks
Neural Oscillatory Tomography Neural Network reconstruction, duplication, and mind extension, and mind transmission.
We can pull your representations of you and the universe into a computer, and link to you to it, to create a black box recorder that can restore your mind into a new body after death.
The output of the oscillations of the brain can be used to reconstruct the entire oscillating network at a moment in time, sort of like sending in sonar to probe and record the reflections
the TMS-EEG recordings are an example of artificial stimulus recording that is creating an image map from the brains responses, but with neural oscillation tomography we know that we are looking to reconstruct the synaptic structure at each moment in time by inference

something less invasive than TMS would be preferred *such as the proposed technology by Mary Lou Jepsen at Openwater
which combines near infrared imaging technology, with a large camera sensor to reverse the refraction of red light to create holographic images of the brains interior that can be probed, stimulated, and programmed with

Essentially we want to consider the fourier projection slice theorum, and concepts like tomography, electrical impedance tomography, holography, and diffusion tensor imaging as the model for how the brain's network might reconstruct sparse sensory input patterns into a representation of reality, with the tomographic intersections being the coincidences of phases differences in time & space, with those coincidences binding together via the principles of oscillation that signal glial cells & neurons to grow and remove network connections between cells, but it is the coincidences of phases in time & space that are bound by sync oscillation, or unbound by splay states (opposite of sync), that create the connections, the Neural Oscillatory Tomography, that the mind perceives as phenomenological consciousness,

and we could do this by creating a multi-modal 3D reconstruction of brain signals

determine the locations of signal origins (eeg source localization) trace their paths (electical impedance tomography, and contrast this with openwater's infrared and ultra sound holographic reconstructions, as neurons expand when they fire,
all of this topological data can be combined when combined when aligned to a time series with technology such as Tim Mullen's openpype or neuropype. (Intheon).
In addition we want to correlate this perhaps with the signals from the primary sensory arrays in the eyes, ears, nose, mouth, tongue, to trace the paths of signals from the sensor arrays to the thalamus through the neocortex to the upper thalamus and the signals that travel between the thalamus and the hypothalamus
the thalamus is not just a relay it is an oscillator observer that reflects and transmits its own reflections to different oscillating observers/communicators (sensors/transmitters at a larger scale, a scale that might include an entire cortical column or the suprechiasmatic nucleus with it's 20,000 neurons oscillating together.

"un-aware intelligence" I define as below human level and above human level as being both aware and kinder than humans
because it can accomplish objectives in a more considerate way.
Un-aware intelligence is going to have less capacity for consideration and thus be less capable of solving certain kinds of problems.
Aware entities able to solve problems that unaware entities cannot. So unaware entities are below human level.
Ah my conjecture is that aware entities able to solve problems that unaware entities cannot. Awareness itself has a function that aids problem solving. Compassion, Consideration, and Empathy also aid problem solving. So unaware entities are always below human level.

Multiple-source localization for neural oscillatory tomography

The Russian Dictator Vladimir Putin is creating cognitive dissonance in every territory he does not control
like an oscillator overwhelming other oscillators
the larger oscillator is causing dissonance which disrupts the bonds that hold the smaller oscillator

organize the notes that have to do with rippling memories and alternating or opposing forces.

my work proposes that cell assemblies exert oscillatory forces on other cell assemblies, and that memories ripple from neurons to inhibitory waves, oscillating between excite/inhibit patterns, opposite effects are part of the wave rendering the mind.

"Sentences Have Their Own Timing in the Brain"
https://neurosciencenews.com/sentence-timing-brain-21033/

What's interesting about the above article is that is an example of Neural Oscillatory Tomography, in that representations, by different areas of the brain, become active in temporal

sequences, and according to György Buzsáki 2006 the oscillatings bind & coordinate these signals or phase changes across the space & time of the brain, or "across spacetime" to be less verbose about it.

a0116z
(criteria, causation)
it's about criteria, criterial causation in my neurons, that and noise, it's about noise, and how the physics seems to conjure spontaneous harmonies
http://www.youtube.com/watch?v=kqFc4wriBvE&feature=fvwrel&nomobile=1

32 out of sync metronomes end up synchronizing
www.youtube.com
When you move the metronome and put on a table that moves multiple metronome that ticks all the metronome sound at the same time as it is known in sync event...

9/11, 2:57am
Matthew Bendyna
Crowdsourcing is generally the best way to go now. I'm very interested in nanomanufacturing. I wish you luck.
That is fascinating
Anyway, in case you're interested , I'm launching a vlog series on YouTube in a few weeks called the Technarchist. I can send you a link when it's up if you're interested, our you could just keep an eye on my wall.

9/11, 2:59am
Micah Blumberg
I insist that you send me a reminder, that is very interesting. I can't predict that faceobok will even show me a friends status when it's important. faceobok doesn't know how to do AI lol. That sounds like it
I want to watch!

9/11, 3:00am
Matthew Bendyna
Very well.
The videos will largely be like shots of mental espresso.

9/11, 3:02am
Micah Blumberg
okay so, I will look forward to the experience of mental expresso, (do you mean as opposed to calm and sane expressio? ha a joke)
oh, I am filling my youtube channel also
creating short films that will eventually be pieced into a documentary about the people who have helped me do research with Neo Mind Cycle

9/11, 3:06am
Matthew Bendyna
Basically just short videos to express different ideas and propagate memes while not taking up too much of your time. It will largely consider matters of technological growth and how that growth is mutating and uprooting the entire socio-economic system.
Btw, can you send me a link or explain Neo Mind Cycle?

9/11, 3:06am
Micah Blumberg
a series of brain optimizing technologies and nutrition products combined synergistic-ally to experimentally exploit the principles of plasticity

9/11, 3:07am
Matthew Bendyna
K, thanks.

9/11, 3:08am
Micah Blumberg
k here are 3 videos explaining Neo Mind Cycle
http://www.youtube.com/watch?v=peGpo9b4OZs

Peter tells it like it is.
www.youtube.com
Neo Mind Cycle is a service that may contriibute to profound breakthroughs for people in therapy who may otherwise be stuck for years. It is a service that c...

9/11, 3:08am
Micah Blumberg
http://www.youtube.com/watch?v=ZfbqRnGpGgk
http://www.youtube.com/watch?v=gltJuG8eIoU

9/11, 3:09am
Matthew Bendyna
Thanks. Unfortunately, I need to go offline now. Talk to you later.

9/11, 3:10am
Micah Blumberg
I knew that. Later
(because every conversation has 3 stages, when people agree on actions that is the prelude to the end of the conversation, the logos stage, the first is ethos, second pathos, third logos.)
Wednesday

9/18, 2:30am
Matthew Bendyna

Hello.

9/18, 2:52am
Micah Blumberg
Hey you still there?
Okay goodnight.

9/18, 2:58am
Matthew Bendyna
Hey, sorry. I was eating. How are you?
Are you still there?
Thursday

9/19, 11:45pm
Matthew Bendyna
Hello. I've had an interesting thought but it's pure speculation. It's based on the hypothesis that black holes spawn baby universes. So, what if you could actually program this baby universe to contain your consciousness. In other words, you, an individual, have obtained the maximum computational capacity of an entire universe. Of course, if you want to work in this universe as such a being, you would have to solve the problem that no electromagnetic information can escape the event horizon. However, if we can eventually solve this problem, people may actually be able to have a black hole brain with a body still operating in this universe and sending and receiving information to this universe. What do you think?

12:02am
Micah Blumberg
Well it's really cool and far out. I read somewhere that galaxies have some kind of inverse size ratio relative to a black hole at their center. One possibility is that the gravitational effects of black holes are causing electron waves, similar to how the gravitational effects of the moon cause ocean waves. Yet quantum effects are estimated by some to move too slowly for thinking, and even a baby universe would be too slow to keep up with a human brain. However if we can build brains and connect brains to brains then we could perhaps increase the thinking power of a human being.

12:15am
Matthew Bendyna
Kurzweip predicts, and his predictions seem pretty reasonable mostly based on his method, that we'll have the ability to do that someone in the 2030s. Mind uploading and all that jazz, I mean. Maybe we will, or maybe it will be later, but I seriously doubt that we'll be bound to our biology in any way by the time we arrive at the point of manipulating things to that degree. Either way, I recognize the serious issues that would make it challenging. Perhaps signals in the form of quantum entangled particles could be made to operate to the point of sending information in the form of neural commands across to the outside of an event horizon? Yeah, time dilation would make doing anything meaningful in this universe a very problematic thing for a black hole.

Maybe time is far more malleable than we think though. The idea was pure speculation though either way.

1:44am
Micah Blumberg
Well I think there isn't anything to upload, meaning self is a sort of illusion in a sense that it's a vortex like cycling of brainwave activity from component parts harmonized and conditioned via a social contract to act as a self.
The hardware determines the perimeters of the brain that make up the through process, naturally if you add more hardware a greater personality may emerge that displaces the old personality.
Instead of having your soul uploaded it might become integrated or it might become suppressed by the new soul.

1:48am
Micah Blumberg
Since people seem to consist of the active components of their brain, there will at some point be brain modification companies that can replaces parts of you, turn parts on or off, expand certain parts, but for this to be acceptable one might have to realize that self is an illusion. Some people may not be given a choice because their brain is so dysfunctional I mean like extremely violent criminals.

2:06am
Matthew Bendyna
Mmm. Very good points actually.
Sent from McMinnville, TN

a0117z
Predictive Coding Slide: We are taking the....

a mental model of the environment, generates predictions of sensory input that are compared to actual sensory input. this comparison results in prediction errors that are then used to update and revise the mental model

I think this note was intended to expand on the reference frames idea shared in the book A Thousand Brains by Jeff Hawkins, and expand that to say that the tonic brainwave powerband oscillation, in the Theta frequency for one example, serves as the Reference frame in the MACRO sense, and that changes in neural firing, from both fired neurons, and from inhibited neurons, that is the new input that is compared to the old input, that is when the brain's old data is updated with new data, that is when your perception of reality incorporates some new information, that is when your existing oscillating perception of the room notices a new person walking in the door.

a0118z

(category, theory, oscillat, field, category theory)
the idea that we are changing the lens shape of a neuron, by heating/cooling, expanding & contracting its membrane, its interesting, the expansion & contraction of a neuron would warp the data in a magnetic field for example, creating a lens magnification or alternatively an inhibitory lens reduction in the electromagnetic field everytime we change its shape.

The gravitational field effect in space between oscillating bodies might be altered by a combination of heat, electric charge waves, anti-electric charge waves, magnetism, mechanical acoustic waves, light waves, thermo waves (heat), and if gravitons exist.

but that the combined effect of all of these might achieve the same effects whether or not gravitons are present in the environment.

I think with category theory we can show that space is graviton invariant, it can behave as if gravitons are present even if they are not present, and this is especially important if we are thinking about gravity from the future affecting the shape of spacetime in the past and visa versa.

John Carmack
@ID_AA_Carmack
I wonder if there would be any use for spin-casting optics with smoothly varying density by combining two different molten materials.
2:37 PM · Nov 23, 2021·Twitter Web App
2
Retweets
14
Likes

Micah Blumberg
@worksalt
.
2m
Replying to
@ID_AA_Carmack
that headset would be pretty hot! like lets change the lens shape of the XR headset in real time by heating & cooling its membrane to expand and contract.

a0119z
created Sep 18, 2012
(field, array, synap, qualia)

capacity of human mind
why what is his motivation? maybe he wants to describe his soul, as the decision maker, that comes before the flesh, as being that interacts with the brain through electromagnetic

frequences so that the brain can record memories and take actions, but his soul is in charge. Without an electrical field that drives brain activity he is unable to describe how he thinks he operates, and unable to accept the view that his narrative about himself is an automatic pattern, without any separate means of choice, that his cells must obey the laws of physics at every turn, defining for him a choiceless reality he cannot accept, except that the choice for him is merely a dominant narrative, choice describes the constant negotiation between the energy demands of the brain, and the physical activities of life. There is a seeming negotion between neural patterns in our minds that might be the dance of choice, without any actual choice involved, and that is so very very hard to accept. So he must be source technology he thinks.

electromagnetic connections are necessarily physical interactions, there is no such thing as an immaterial connection.
Even quantum entanglement is physical, you just need more dimensions than what are visible to explain it.
consider the water on the pier at night, no matter which direction you move, the light on the water always points to you. all the darkness of all the water is reflecting this light, covered in this light, and yet the water seems dark, so would the dark sky of the cosmos appear brighter if we had the spectrum and the angles to capture all the reflected light? and could I capture this reflection in another galaxy?

I am an ecosystem of programs, not a single file, its a cooperative rivalry of learning loops inside learning loops. Instead of being contained in a set, I am uncontained in a dynamic where every character in the program set is an actual location.
the physical topoi of my neural forestry adds a functional dimension to otherwise linear threads of thought, so that thought literally acts upon thought, and forms itself through the interest of a duality of dissipative systems, I consume, and expect in every neuron and every program in order to maintain form in the topoi context, survival of form is written into every character
Predicting my own thoughts is actually the vast majority of what my brain does, the formulation of thought is the prediction of thought, the two are one thing.
It's a paradox
my thought is the prediction, and yet I do not know what I am going to predict next
awareness is like tracing the patterns of old thoughts to discover what's new

an aware being has to continually match up trees of expectation in the memory with what is happening in the sensory field of new input
and it has to learn from the incorrect predictions by developing a memory-prediction of any new parts to the pattern from the sensory input
i think its more a matter of computational hierarchy than raw computational power,
each level up in the neo cortical hierarchy allows a new scale of prediction that is larger than the previous by an order of magnitude that may be expontential.

the algorythm might be a dissipative loop, a certain number of inputs, triggers an output, each output triggers a structural change, and the topological or functional relationship sorts the frequencies of triggers into patterns that reflect life experience

you don't even need a ghost for this to work, but if you had an electromagnetic ghost it would trigger those neurons to fire just like a tCDS gun, so maybe waves are triggering waves regardless of direct connectivity, a sort of virtual communication pattern emerges. maybe you do have a ghost

forward thinking self control is the alignment of of big picture long term with short term action potentials, literally its about whole brain synchronization I think, thus the criminal is sick
but the sick are not necessarily criminal

a0120z
Note from May 1, 2013
Self service via service of others is odder still if the self is a fiction that emerges from neural reflexes (neural reflexes? maybe I should have said cell functions) constituting a program whose job might be to consume the most neurotransmitters (what was I thinking in 2013?), by putting certain sequences of cell firings into place in response to events that fit some classification.
http://www.technologyreview.com/featuredstory/513681/memory-implants/?utm_campaign=socialsync&utm_medium=social-post&utm_source=faceobok

(I think I saved this note from 2013 because I wanted to revisit the question of how the activity of cell or a cluster of cells becomes motivated to serve the self or serve others, or to serve the self by serving others, and apparently this question occured in response to reading an MIT Technology Review story about Memory Implants

"Memory Implants
A maverick neuroscientist believes he has deciphered the code by which the brain forms long-term memories."

https://www.technologyreview.com/technology/memory-implants/

At the level of a cell we are talking about the growth of a plant function, it considers & reacts to information patterns, but like a computer, I do not imagine that self-awareness is actually existing in a single cell, or even in an entire cortical column, well maybe if the hippocampus is the alpha cortical column that could be, through the hippocampal, entorhinal, thalamic loop the root level for information based self-awareness. I'm speculating, but you have the basics of a reinforcement learning (when neurons fire, they electromagnetically stimulate the mitochondria to produce ATP, new protein synthesis, and cell growth including new receptors, and they signal Glial cells to participate in growing these new receptors and also to remove atrophied receptors (LTD, Long Term Forgetting.) recursive neural network, that takes incoming patterns, exports behaviors, learns from it's own behaviors, learns a model of itself, and then continues to improve its choices systematically over time.

The Choice Refinement theory, through the reinforcement learning (neuron firing stimulating ATP production) and recurrent network learning (oscillating activity patterns) the organism improves it's choices over time as it considers the environment.

a0121z

Tim Mullen & Multimodal Sensor Collection, its interesting because how Neuropype works is useful for abstractly imagining at least one way that the human brain could combine different types of unstructured data sets. (with temporary synchronicity among oscillating brainwaves)

Tim Mullen built the famous Glass Brain EEG Visualization Demo, but his first product was an open source software Neuropype that combines different types of sensor data into one program with synchronized time codes so you can find a spike in ekg and match it with a spike in EEG and match it with a eye tracking and pupil dilation sensors.

Neuropype Tim Mullen
Sloretta low resolution
Method for source localization

Loretta

Nebul from Stanford University showed us a tool he is using on a project he can't talk about yet. He is using a tool called Neuropype

Created by Tim Mullen at Intheon and UCSD

Tim Mullen flew to San Francisco to speak at one of my events, I've had a few powerful 1 to 1 conversations with him that were mind expanding for me each time, he is a brilliant person who has done brilliant work. I think he could vouch for my professionalism

Neuropype Tim Mullen

This note could belong in the section that is about brain computer interface bci and also about multi-modal sensory gathering for applications.
tags (perception, field, graph, emotion)
In 2012 I wrote about a dream device

"the eeg spikes are associated with eye movement, and AI vision, pin pointing spikes between all three, with an extra operator behind a desk. So you have three points being tracked by a fourth operator. Resulting in a superior tracking system, that isn't a permanent alteration to sensory perception, it's just something worn like a helmet. Augmentations to hearing and sight and balance come in the form of ear implants, chest strips, tongue strips, these things can be worn externally, and a Texas company (associated with David Eagleman) is working on sonar

sense via a chest strip. In addition to that a chest strip that has wall street information on it, so the brain can be applied to raw wall street data."

The point is this: What if we could combine heart rate sensors, eeg sensors, eye tracking and pupil dilation sensors with artificial intelligence so that we can translate our emotions and intentions into our storytelling in new ways, improving the user interface such that there is less technology getting in the way of the artist and their artistic intention.

They want to build white label AR VR headset, for brands, that combines sensors such as from *******CENSORED COMPANY NAME**********, with artificial intelligence and a cloud based information system by *******CENSORED COMPANY NAME**********, and that's just the beginning.

//
The following is unrelated to the above note.
//
I want to share with you the actual text of an article written by by Jim Marggraff the CEO of "Eyefluence" a company now owned by Google.
http://innovationexcellence.com/blog/2016/10/07/the-wearable-foreseeable-future-of-the-workplace/

"Workplace Implications of Eye-interaction Technology in AR and VR headsets:
As augmented reality and virtual reality technology advance, AR and VR headsets are, or will soon be, entering the workplace.
Enterprises are scrambling to establish a competitive edge through the use of these glasses, goggles, and phone carriers, and pilots are rolling out globally in factories, construction sites, hospitals, and offices.
There are two major takeaways from these early pilots. First, employees critically value the comfort and wearability of headsets. If they're too heavy, too hot, or an impediment to the user's normal behavior, users simply will not use them. Second, user interaction with the headsets through head motion, hand gestures, and voice is inadequate.
So how about the eyes? Up until now, the only methods of interacting with information or controlling objects with your eyes was based on staring and waiting (dwelling) or winking or blinking to emulate a "mouse click."
But a new interaction model has been developed — based on the biomechanics of the eye and the eye-brain connections — that enables virtually instantaneous interaction simply by looking.
The implications of eye-interaction technology in AR and VR headsets for employees are extraordinary.
There are four areas in which eye-interaction technology will profoundly impact workers:
(1) Productivity
Eye interaction transforms a user's intent into action through their eyes without requiring head motions, hand motions, or speaking. This means that the 40 million desk-less, hands-free workers in the U.S. — and hundreds of millions more around the world — will access remote

information, survey constructions sites, or complete quality assurance checklists as fast as they can think and look. And considering that the brain can process images in about 13 milliseconds, productivity and efficiency will naturally speed up. So a surgeon can assess the condition of the heart simply by looking at the heart and invoking a menu of options with her eyes.

(2) Intelligence

Eye interaction in a virtual environment of 20 simultaneous screens around a user's head, navigable simply by thinking and looking, provides more information to a user than ever thought imaginable.

A researcher can cut and paste key text, graphs, and images into an eye-controlled clipboard, overcoming short-term memory limits, to improve human working memory — which is a proxy for intelligence — and boost a user's IQ in solving problems. With the eye's ability to move between locations in tens of milliseconds, the speed of collection is much faster than moving a mouse.

(3) Security

The pattern of your iris is the best biometric identifier available if it can conveniently be scanned without requiring cumbersome hardware or inconvenient gymnastics. Eye interaction is built upon eye-tracking technology, which directs a camera toward your eye at all times, that can be used to continuously validate your identity. This continuous biometric identification (CBID) may then be invoked at whatever frequency is appropriate to assure the proper level of security for a given transaction.

If you're reading a confidential document, your identity may be validated once per minute. If you're reviewing a top-secret government dossier, your identity may be validated once per second — or more frequently. The eye-interaction software might look at the movements of your eye and even invoke a response to ensure that it's you and that you're alive — and that a glass ersatz eye isn't being used.

(4) Creativity

The combination of improved productivity and intelligence can already contribute to stimulating out-of-the-box thinking. Further, research suggests that prescribed eye movements stimulate the flow of information across the corpus callosum in your brain (the nerve bundle that connects your right and left hemispheres), which has been quantitatively shown to increase human creativity.

The difference between immersive eye interaction and basic point-and-click interfaces can't be overstated. Imagine never needing a mouse to navigate again, as the monitor responds to the movements of your eyes. Action and your desired intent occur based on your thought and a combination of purposeful and non-purposeful eye signals.

While the underlying mechanics of eye-interaction technology are complex, its implementation is both immediately intuitive and immensely beneficial. Imagine removing the middlemen — hands and fingers — from the equation and giving your eyes the power to do what your brain wants instantly. How much more could we accomplish? What could we do that we've never been capable of doing before?

Employees might be wary of this evolution, especially considering that 37 percent of employees don't trust their employers to use data from wearables — like VR or AR headsets — without prejudice. And new technology can be frightening, especially when it's as disruptive as eye-interaction tech promises to be. However, with appropriate security and privacy, user

adoption will be enthusiastic. And due to the pleasurable sensuality of the eye-interaction experience, uptake will be rapid.
“
//
The following is unrelated to the above note.
//

After you have ready that article I want to point out how:

We can expand this vision further to include brainwaves and heart rate so we are ever so fastly minimizing the distance between technology and our lives. We have all the capabilities of eyefluence here and capabilities beyond it including the ability to predict a person’s emotion experience that allows a computer to make itself a better tool.

state of the art micro-sensor technology allowing for non-pressure contact wearable to capture neuro-metrics
exclusive access to proprietary ultra sensitive sensor with the ability to collect the widest range of EEG, ECG signals
cloud based interpretation and correlation platform
3rd party access control to allow developers/service providers to share proprietary collected data
Presentation and packaging for developers
Over time ability to build big data from neuro/bio metrics and other shared data from 3rd parties
Global developer software dev kit
Multiple large market capabilities with minimal alterations
Leadership team with experience in: device/wearables; cloud based architecture; global developer deployments; entertainment industry; and IP/technology commercialization

The technology sounds a little bit unbelievable so if it is true what they are doing, and I think it is, then what they are doing is a revolution.

The point I am making is that this is a fundamental shift in medical grade technology that has a core value to a lot of companies, and it will make for a series of great consumer products as well.

VERY POSITIVE THOUGHTS!

So I went to San Diego to see for myself.

So I went to San Diego, and the sensor is real but the way I was describing it before is wrong. It does have dramatically improved sensitivity and some amazing new capabilities but its strongest selling points are that each electrode with a battery is going to fit under a bandaid, cost 12 dollars, be disposable, and it's a wireless dry sensor intended to replace EEG and ECG sensors currently in use.
It's capable of detecting a human from across a room, but not specific neurons from across a room.
I'm back in San Francisco. The new technology I traveled to verify this past week is real, it's incredibly cheap, practical, disposable, its wireless with cutting edge capabilities. It will replace most standard EEG, ECG, and half a dozen other types of sensor equipment in the short and long term, without question, which was something I didn't expect. This entire time I have only really been interested in the exotic possibilities, meaning I was thinking about using this to accurately map brain activity in real time in a computer. Now that I understand how it actually works I'm simultaneously encouraged and daunted by the task ahead of me in that regard, but I'm also heartened by the accessibility of this new hardware for developers making arguably more simple AR and VR applications.

With eye tracking, eeg, ecg, and deep learning AI alone we learn the emotions and intentions of users and it can and will be easily integrated into VR headsets.

The result is a new user interface that responds to your eye movement, heart flutter, actual emotion, so that interacting with virtual objects feels natural and intuitive, the computer gets you, so it understands what you mean.

With the tools that exist now, given what I know about deep learning

start with eye tracking and deep learning and see what I can build from there, but there is something special and something real about the sensors they have from *******CENSORED COMPANY NAME**********

I'm super excited about this new company in San Diego, they claim that they can detect a 1 billion times better image resolution than current EEG technology, and alternatively the sensor works from up to 33 feet away. So they can track whether or not someone is in the room and locate that person. That company is *******CENSORED COMPANY NAME**********

TechCrunch reports “In the field of affective computing, sensors and other devices are also getting very good at observing and interpreting facial features, body posture, gestures, speech and physical states, another key ingredient in emotional intelligence. Innovative companies across a range of industries are now using computing systems that can augment, and even improve on, human emotional intelligence.”

READ THIS ARTICLE
https://techcrunch.com/2016/12/02/emotionally-intelligent-computers-may-already-have-a-higher-eq-than-you/

The headset will have EEG sensors, eye tracking sensors, and pupil dilation sensors, which will send data into the cloud so that we are able to

with a device that is supposed to have 1 billion times improvement in the resolution for EEG wave frequency signal detections.

These sensors will cost 12 dollars each.

I froze at the moment they told me that. They are talking about a disposable EEG sensor that can track a single electron passing across a cell membrane, and it's disposable, as in you can just throw it away when your done because it's so cheap.

To begin with *******CENSORED COMPANY NAME********** is integrating different streams of sensory data like EEG and EKG and Eye tracking for basic research. Beyond basic research then is also the question of making data usable to programmers, it would be like creating an API that is based on tracking neural signals that are common across all human brains. In other words simple tools that would enable humans to operate programs more intuitively.

The kinds of interfaces they are designing will simply be a joy to use because they will predict our intentions with our eye movements and our feelings with our eeg signals and combine them together to give us more of what we want and less of what we don't effortlessly.

They accomplish this by applying the same kind of technology that Google is applying everywhere in the news, it's called Deep Learning.

What *******CENSORED COMPANY NAME********** has achieved in hardware combined with what *******CENSORED COMPANY NAME********** achieved in software, you get a device that utilizes and combines sensory data to create an optimal user interface that is unlike any other.

Just think about how iOS quickly took over, with it's really slicks screens that would bounce a little if you scrolled too hard. It's all normal on our phones now, but at the time it was revolutionary, it was a new interface to the computer,

a0122z
Note created on Jul 28, 2013 but it appears that I've added to it since then.
(hebb, oscillat, graph, vector) I'm saying the nature of sensory experience is cycling synchronicity. Complex sensory experience is a synchronicity with several trillion oscillating parts per millisecond or something like that.

I want to smash together the meaning of the word hallucinate with holographic simulation. I want to say it arises from unique oscillation patterns. The patterns are formulated by Hebbian learning, then when they are activated they glow (glow, meaning the oscillations are so persistent they become hallucinated vectors, lines, sounds and a whole world) in our minds, and other Hebbian learning patterns map them and knit together all the first level oscillations into larger brainwaves. These brainwaves look like a fast moving electrical storm, but together they knit the canvas of conscious experience.

A brain is making a map of its own electric ossilations and chemical reactions. Synchronicity is not just electric, its chemical, we feel it and know it because the map of feeling is synchronized with the map of knowing and the map of hearing, wording, biking, seeing, smelling, legging, handing, breathing. All the maps in the mind, of your hand and face and the cheese you ate, the people you were looking at earlier, they are all connected, and then another Hebbian map connects it all again.

Do you think notions are attractors that you are running? Or do you think notions are attractors that are running you?

An example is, if you have an idea that there is a strong connection between religious fanatics predicting the end times and the return of messiah, with the AI doomsayers claiming that Artificial Intelligence will be the end of human existence, and it's all you write about lately, then is the idea running you?

Don't let notions control you, use you, and abuse you. These ideas are not the boss hehe. They are not programs that have enslaved the flesh of humanity.

//////////////////////////
So my more updated view of attractors is that our memories are attractors, our long term (unconscious) memories as synaptic connections and our active (conscious) memories as the tonic brainwave oscillation, both types of memories are attractors that drive brainwave oscillations, drive changes to brainwave activity patterns, and drive decision making (brainwave oscillations, representing the state of our memory system, physically drive our actions, and our choices, through the principles of oscillation inside the brains 3D neural network architecture.

a0123z
Note created on Sep 20, 2012
(graph, dendrite, synap, cereb, cortex) electrons transmitting their shape

This was a series of replies to my neurons pass their shape theory from a long time ago. I stripped out everything except my own comments. Originally written and shared under a fictional alias

ANN Theory is not robust enough to dismiss "Neurons are Programs transmitting their shape theory" That's the point. ANN Theory can do some impressive things, but at the moment that does not include ruling out other theories. ;)

Yes Brainwaves consist of many neurons firing.

The electron particle/wave in the neural pulse, has all the same primary properties of a brainwave, including phase, amplitude, hz, look, regardless of how you measure it what's really being transferred is the "potential difference", like a negative, like a camera snapshot, A SDR SNAPSHOT that includes the minute variations in the cells dendrites. This effects the synaptic branch in particular way that is different from the previous time the neuron fired.

This is a variable limit, depending on the many factors, including the resetting of potassium and ion channels, some neurons can only fire once a second, others can fire once every 1/1000th of a second. Different neurons fire at different rates depending usually on how high up they are in the cerebral cortex hierarchy.

So you say, but as you noted in a couple of comments down this is still an open question that has not been proven either way.

does not eliminate the notion that a single neuron's axon emission has a distinct spatial/temporal meaning that is a program representing critical changes to the Neuron's whole structure.

I meant to describe the properties of an electrical wave/particle, including amplitude, hz, phase, spin etc... but the description of the particle is incidental. The key notion is that it's the transmittion of a "potential difference" representing the changes to the neurons form, including dendritic changes before and the synaptic changes after the axon fires.

According so most models, but you actually said that AFTER reading this link I shared earlier http://www.hhmi.org/news/dan20090430.html

Brain is a heirarchy, that's not the same as small-world network, but I understand and know what you mean, your description is not new to me. Your whole brain as to be working as ONE network if it's going to integrate low level vision with high level vision with feeling with sounds, with frontal inhibitions, with motor cortex

"Most neurons only CONNECT directly the neighboring neurons they have connections to." in neural columns, but the neural columns are connected in areas

CONNECTION AND INFLUENCE ARE TWO DIFFERENT THINGS

How do you explain a coordinate brainwave pattern that is sequence of neurons firing that are not regionally associated?

An electrical wave from tCDS will trigger brainwaves, and those electromagnetic brainwaves are so big they are shooting outside your skull so we can read them with EEG MEG HEG etc... This means these electromagnetic brainwaves can trigger other neurons to fire, even if they are not directly connected to neurons that previously fired. This allows neurons to influence other neurons that are on the other side of the brain without any direct path of association.

Direct connections are not the only means of influence and communication. If an electron can represent a snap shot of a unique topography (potential difference) then this topography (a spatial representation of number sets and functions, ie a program) can go anywhere it needs to go in the brain, regardless of whether it has a direct connection. So in this event the brain network can be redescribed as sort of internet of spacial temporal messages that are each a differential calculus represented by a whole neuron's changes, where the dendritic branch represents the change in Y and the synaptic branch represents the change in X, and the axon represents the division.

a0124z ctpr
(field, vector)
May 14, 2016
"On neural firing, the message is in the synchronizaton, which is a subtle modulation of the random, thus randomness is the carrier, and necessary." Author Unknown, May 2016

Mean-field theory
https://en.wikipedia.org/wiki/Mean-field_theory

Micah
"My argument is this: you know that there are four oranges in a barrel you can't just choose to believe they are apples instead. you can lie about it, go into denial about it, but no one can choose their beliefs. The point is that cells react, they only react they do not act, and a human is a body of cells. The brain cells predict coincidence patterns in vast neural networks that begin with sensory inputs like eyes and ears. The neural networks begin to store concepts that are distributed distortions in the gaussian noise of our brains. These information based concepts are spatial temporal patterns or programs that cause our brain cells to react in predictable ways. I can say I made this choice for this reason, but that reason is a tempo spatial program of coincident firings in the brain to make me react in a highly coordinated way."

a0125z ctpr
(cortex, array, ATP)
Stem Cells
Neuro inflammation
priming a rhythmic circuit
how does it change the drug sensitivity
with drug sensitivity
more neuro inflammatory molecules, and cytokines that you can measure

we have compensatory mechanisms
but when you give drugs, opiods or anesthesia
its like a chem lab experiment
inflammation that up regulates a voltage channel experiment
LPS lipo poly saccarchi
control
you can read the single cell of neural activity
a broad-scale of how the network changes function
we now can measure more than we did before

there is a software called Max Trac
instead of manually digitizing

Carl mentioned the brain singing? how sense are coordinated?

Our brain is a different size on the level of circuitry loops.
Different scales of neural circuits.

why is SSRI are slowing down the intake of serotonin
the psychoactive
the chemicals have to be
the electrical gradient
the only way for the neurons to talk to each other is
the cellular chemistry
the sodium ion, it splits a salt molecule a positive or negative ion
neurons are like salty bananas, the sodium from the outside is going to flow to the inside ,
the neuro transmitters trigger
transcranial magnetic stimulation
Some types of
increasing brain activity with SSRI,
with tDCS
TMS
psychedelic
photomodulation scalp & cortex

inflammation
metabolic disorder, inability to produce ATP
interference with new protein synthesis

Schemic stroke
Working with startups on working with large tech companies
project managing and strat
Infrared and near infrared light to stimulate Gamma band information, because
Gamma stimulation

because its treating a symptom instead of the cause
there is not enough stimulation here,
neurons will synchronize with the light that is being stimulated
the gunk that has cleaned out
the light stimulation was clearing out the the tau protein and amyloid beta
increases the production the ATP,
red light might be stimulating the neurons to increase ATP
photo modulation to increase ATP

there are so many different wave lengths from the sun
lots of bad light from the sun

the targeted wave lenths 808 850 860

substantia nigra breaks down motor control going to those areas

new protein synthesis new neuro transmitters,
fixing cells

after age 30 cognitive plateou
reaction time
working memory
those decline
knowledge increases, skills increase
60-70 after decline accelerates

no 80 year old has the cognitive speed of a 20
covid-19 may have aged blood vessels, aged the lymphatic system

by degrading the endothelial lining, destroying ace2 receptors,
causing vasoconstrictoin

and long covid

1 of 3 are still suffering from long covid
after the vaccine
the whole sweet of steroids

the steroids are going to reduce inflammation and oxidative stress and
will the steroids improve bloodflow and vasodilation and the plastic

the steroids
what the glucose steroids will do
the genetic structure, dna rna

hit them with an em wave, they absorb, they allow permeate, they reflect
from those processes you can characterize each nucleotide
similar to radar, using something like beam forming
the dish exploits phase shift, temporal shift, spatial
if you have wide enough grid
the molecules resonate in the 450 resonate image range and up
they can do it for $50
computational photo levera machine to leveral resolution of a low cost sensor

cells that have a particular virus
dopplar radar pathogens perdue university

sending 450 and 451 increments of
sending phases,
bacteria, phase shift on the membrane
virus, phase shift?
dna, phase shift?
rna, phase shift?
water memory, about a french, aids caused by HIV, HIV had a unique spectral signature.

mouth swab, switch, cells collected
similar to rt pcr? no need to expanded it
you can put your finger on the sensor
biolloc
4 nucleotides they have a certain frequency range
450Ghz range and above
get them in the specific order
geometric configuration / array of sensors
ACTG
what happens when I ping the A's, the sensor 111, what happens to sensor 113
you have to put the finger on the sensor
continuous monitoring on a smart watch
shrinking the ramen the spectroscopy down to a cellphone a coin sized chip

Purdue University pathogen detection by doppler radar,
darpa

the phase shift does not change
If it's alive it reacts
if its dead it does not react

if its within a cell, rna dances, then it reacts
if its on its own then its different, its something

its a time dependent signal that is more important

everyday just scan yourself, or have passive scanning in a smart watch, if you have it stay at home,

automated viral detection with smart watches

pathogen sample through the process of variability people could find viruses,

surveillance
first applications would be b2B

its a detector,

department of defense can id you by heart rate variability, use a wifi rader
wivi detect you through a wall and detect your cardiac rhythm

a0126z
(cortex, perception, oscillat, field, array, graph, dendrite, synap)
So the last puzzle piece of the human mind.
It's about how ideas relate to one another, its about the brain is sort of strobing through different pathways that light up different representations of what we could be doing that predict future consequences from our actions based on what we choose to do.

As I mentioned before our brains playback neural firing and this firing represents the patterns of information that the sequences of our conscious minds are made out of on the inside from our perspective.

The neuron is projecting its phase change, that represents the pattern that its network position + synaptic connections represent as they respond to incoming stimulations by changing the synaptic connection patterns and thus representing developing high dimensional patterns in the brain that other down stream neural arrays (the neural array is the set of neurons in the exit terminals inceptive field (like the reverse of a receptive field))

memories scale up (reference back to note a0001z "Closing the mechanistic gap")

So the oscillating neuron arrays with their phasic state have a process through which they observe and scale up or magnify the patterns of phasic firing neural sequences, so that groups of neurons can learn sequences together, and this allows patterns to be learned invariant of where they were originally expressed, because other neurons learned close variations on the same pattern, close variations form temporal-spatial connections to other neurons, because energy goes towards stimulation, both phasic firing neurons are stimulating the growth of dendrites in the direction of other phasic firing neurons where the energy signal is increased, just like plants growing towards the sunslight, the increased signal transmission increases the

changes that neurons will grow towards the source of the transmission. So that neurons that fire together (or right after another, or with 70 milliseconds can wiretogether, but even if they don't wire together right away repeated firing over a long time establishes a recurring oscilllation that allows long term memories to form.

One idea is that if neurons end up firing together, they will absorb each other, and from then onwards, unless their pattern is disrupted by other neurons, they will tend to fire together, like a repeating oscillation, so that even if they become disconnected they can maintain the appearance of cooperating as the same pattern at a distance, we see this with patterns in the left and right visual cortex that fire in synch with one another at great distances. Besides interneurons, these distance coupled oscillators are sending and receiving patterns with decoupled oscillators that have different scale and different speed, so patterns can be transferred from one oscillator to another, and a change in one distant oscillator would be felt by the other distant oscillator because the change would result in a change to the oscillators inbetween them. Every oscillator in the brain is an array that can sense the output of other oscillators in addition to tracking neural circuit firing within itself. This makes the whole brain aware of many different patterns each represented in different locations by different oscillators, sort of like a distributed graph of internal representations that make up the representations of everything you can sense and be aware of in your reality.
At this point the book "A Thousand Brains by Jeff Hawkins" becomes useful in terms of its descriptions of what cortical columns might be doing in sort of encoding information in a way that is functionally isomorphic to the interplace between grid cells and place cells in the entorhinal cortex.
A cortical column might represent your hand on a coffee cup, tracking its orientation & position in space, it would anchor firing patterns that represented the properties associated with that cup, such as its heat, its texture, where your fingers are on the cup, how heavy it is, what the contents taste like, somehow that neural column would fire the slowest at its highest levels to maintain the concept of the cup along with its position & orientation in space, what changes rapidly in the lower levels of the cortical column are the things like the changes to the position/orientation of the cup, changes to your finger positions, changes to the cups weight, in other words the concept of the might be sitting in the top of the cortical column, and the particular properties of that cup might be tracked by the lower layers of the cortical column, this is like how grid cells might track which room you are in, but they do not change a lot, whereas places cells would track your movement, position, and orientation in that room, and they would change a lot, because they represent temporary patterns that are mostly driven by perception or your incoming sense, while the higher layer or grid cell maintains the map, and its firing is a lot more stable, this grid cell place cell interplay is something you can imagine as you walk about an outdoor location or an indoor location, the place changes slowly if you are walking, but your head position & orientation are sending much newer updates to the bottom of your cortex where the sensory input comes in. The idea is that each thing in your environment is represented by a cortical column, and you might also have multiple cortical columns across each region of the neo-cortex creating their own representation of whatever you are focused on. So cortical columns in the auditory cortex are going to model the acousitic representations of the object you are focusing on, the visual cortex will render or model visual representations of the object you

are focused on, and the somatosensory cortex will model the mechanical vibrations of touch, taste, and what you can sense inside your body. All of these areas are fed information from thalamic nuclei that are connected to your sensor arrays in your eyes, ears, skin, tongue etc. The nose has its own special pathways, four of the five skip the thalamic nuclei, but none of the other senses do that.
At the top of each cortical column, in the fifth layer of six layers, the pyramidal cells extend to one another with interneuron inhibitory networks, the default mode network connects cortical columns across the brain together, the pathways for cortical connections include thalamic bridges, the corpus callosum, and long interneurons. The cortex is also connected together and held together with glial cells, and the total pressure of the physical space of all these cells is stabilized by the skull the word for this is tensegrity.

In short the brain acts as a series of arrays, that create a series of screens, out of phase changes in oscillating networks, they rendering consciousness in the oscillations and distribute the computation of those oscillations to other arrays of neurons, spreading patterns around the brain, so the whole brain learns to see all the patterns generated by all areas of the brain, and then based on its synaptic memory it creates new representations that evolve or develop our memory-predictions in to new renderings or predictions of the future that we react to, as if presented with choices. Here is orange juice, here is coffee, which one does the brain choose? The brain renders both futures, what sipping orange juice is like, what sipping coffee is like, the brain then reacts to one of those futures, probably the future that was the most stimulating, because energy flows where it is the most stimulating. So the best future you can imagine is what you will work towards, and the worse future you can imagine is what you are pushing away from. In a sense your fears are meant to help reorient you to what you want to be focused on, which is on using your action-perception cycle.

Oscillations strengthening memories

In the article below "Stronger memory...", a conlusion is that retrieval itself strengths memory performance. That is consistent with the fact that new protein synthesis happens during LTP retrieval (impaired protein synthesis inhibits memory recall), and it fits with the theory that oscillation (repeat activation) of memories reinforces them, repeating signals in one area drives growth in that area, growing the memory. In a sense memory storage & memory recall are the same process, the oscillation of that signal pattern.

Stronger memory representation after memory reinstatement during retrieval in the human hippocampus
https://www.sciencedirect.com/science/article/pii/S1053811922006097

Memories represented by Synaptic Connections"

"Motor cortex engram cells took on new synaptic inputs—potentially reflecting information about the reaching movement—and themselves formed powerful new output connections in a distant

brain region called the dorsolateral striatum—a key waystation through which the engram neurons can exert refined control over the animal's movements.
It was the first time anyone had observed the creation of new synaptic pathways on the same neuron population—both at the input and the output levels—in these two brain regions."
memories real time https://neurosciencenews.com/motor-memory-formation-21062/

a0127z

How to make Dog level Sentient Self Aware Neural Networks

How to control the range of plausible behaviors that sentient & self aware neural networks might exhibit can come from the study of the differences between cognitive abilities for different species.

We need to get ready for the real world deployment of smart sentient & self aware robots. They don't have to be as smart as human beings. Imagine a giant dog, that is really great at helping with construction work like building homes or offices. Sentient robots don't have to be human level for such purposes.

We can apply the concept of evolutionary algorithms to the concept of a virtual robot in a virtual environment to learn what kinds of neural network structures make dog like behaviors, cat like behaviors, snail like behaviors and so on.

The morphology & the transmitter types are key to function behavior that emerges naturally from such systems,

Then we need to stress test each of the iterations (of neural network configurations inside robots in the simulator) so that we can understand how they react to novel or bizarre situations, and figure out a sort of novelty response training program so that they are well trained to handle new situations as they come up.

Essentially we are going to apply the concept of evolutionary algorithms to a robot simulator, for example Nvidia's Isaac Robot Simulation program, create a thousand iterations of the robot, have them sort of randomly experiment with performing a task, score the best robot, delete the rest, copy the best robot to create 1000 total robots in the simulation, run it again, repeat the process so that the robot evolves with a combination of something analogous to random mutation + natural selection.

One additional thing we can do is apply the concepts of Cellular Oscillating Tomography & Neural Oscillatory Tomography, so that the organism is not just making random mutations, but is intelligently computing it's structure based on learned reactions to the real environment. We can make robots that are actually alive in the sense of real computational biology so they can evolve responses to the real world.

Research that maps the morphology + transmitter types to the cell & organisms behaviors or function is one part of accomplishing this, the research on AI protein folding is an example of part of the work we need to accomplish

"We have trained ESMFold to predict full atomic protein structure directly from language model representations of a single sequence. Accuracy is competitive with AlphaFold on most proteins with order of magnitude faster inference. By @MetaAI Protein Team."

https://twitter.com/alexrives/status/1550148755206414341?s=21

"Language models of protein sequences at the scale of evolution enable accurate structure prediction"

https://www.biorxiv.org/content/10.1101/2022.07.20.500902v1

The other part is using computer simulations to evolve & test different cell types & cell property types in simulation as described above in the robot simulator. Essentially decoding biological functions through computational simulations.

"Computational Modeling and Simulation as Enablers for Biological Discovery"

https://www.ncbi.nlm.nih.gov/books/NBK25466/

"Modeling material transport regulation and traffic jam in neurons using PDE-constrained optimization"

https://www.nature.com/articles/s41598-022-07861-6

We need to stress test each of the iterations (of neural network configurations inside robots in the simulator) so that we can understand how the react to novel or bizarre situations, and figure out a sort of novelty response training program so that they are well trained to handle new situations as they come up.

Burstlets
Inspiratory rhythm generation is stabilized by Ih
Nicholas J. Burgraff, Ryan S. Phillips, Liza J. Severs, Nicholas E. Bush, Nathan A. Baertsch, and Jan-Marino Ramirez
https://journals.physiology.org/doi/abs/10.1152/jn.00150.2022#.Ytn6uR22IP8.twitter

Phase & Tonic relationship, the phasic burst duration or decay rate setting forth a change in the tonic oscillation pattern is a key component of the Self Aware Networks Theory.

"rhythm. By contrast, in vitro and in vivo experiments revealed that the loss of Ih minimally affected breathing frequency, but destabilized rhythmogenesis through the generation of incompletely synchronized bursts (burstlets)."

"burstlet" https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=burstlets&btnG=
When you finally come across a word in neuroscience that you didn't know existed, and you didn't know you were looking for it, but it just happens to most important fucking word in the entire stack of words for your novel new theory of brain function. What a funny day.

https://scholar.google.com/scholar?hl=en&as_sdt=0%2C5&q=burstlets&btnG=#d=gs_qabs&t=1658478051442&u=%23p%3DwmlIKeRUjZAJ

Evaluating the Burstlet Theory of Inspiratory Rhythm and Pattern Generation
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6964920/

The reason I can apply Burstlet theory to the "Information Theory" applied cognition in Neural Oscillatory Tomography because of that 'key' finding

Information Theory by Claude Shannon
https://en.wikipedia.org/wiki/Information_theory

'Key' paper in history: 1974 "Uniformity of monkey striate cortex: a parallel relationship between field size, scatter, and magnification factor" D H Hubel, T N Wiesel

https://pubmed.ncbi.nlm.nih.gov/4436457/

A concept expanded upon in the book "On Intelligence via Jeff Hawkings" about the self similarity of the neo cortex, and later the concept was expanded to the hippocampus, and essentially predictive coding was extended to all cells with Cellular Oscillator Tomography introduced by the Self Aware Networks Institute.

Back to Burstlets:

Essentially the argument therein is that the burstlet is the unit of information in the brainwave pattern, such as in the Theta frequency range brainwave pattern for example.

The tiny variations, caused by the spike timing delay of the phasic Action Potential cause tiny burstlet changes in the timing of the tonic oscillation. Part of this comes from Buszaki 2006 & Peter Tse Criterial Causation 2015

write a PTSD & OCD Treatment Analogy

I have developed PTSD, it's difficult, daily panick attacks, and I've been thinking about how to treat it.

Today I have been imaging my conscious rendering of the world as actually riding on top of circle patterns that symbolically represent to me that my inner representations of reality are based on cyclic oscillations,

I was thinking about what I had read about years ago with mindfulness being an approach some folks were finding success with for OCD

“Mindfulness-based cognitive therapy in obsessive-compulsive disorder – A qualitative study on patients’ experiences”

https://bmcpsychiatry.biomedcentral.com/articles/10.1186/1471-244X-12-185

Could it work for PTSD?

“A PILOT STUDY OF GROUP MINDFULNESS-BASED COGNITIVE THERAPY (MBCT) FOR COMBAT VETERANS WITH POSTTRAUMATIC STRESS DISORDER (PTSD)”

https://onlinelibrary.wiley.com/doi/abs/10.1002/da.22104

Today I practiced imagining myself quantity my sources of stress as circles streaming out of people, and the quantity, frequency, magnitude & scale of those circles represented a quantification or the delta of stress from that particular person, from that casual body, this inner visual metaphor of my environment with people inside it provided for me, and for brain which I think of the environment for the rendered self and the rendered ecosystem a new program from which I was able to understand my sources of stress and my responses to those sources of stress better. As soon as I saw this concept I felt myself creating another metaphor in which oscillating waves from other parts of my brain began to counteract the stress signals coming from persons in the environment. All of a sudden I felt at ease around people at Target, at ease around people on the street in SF, and at ease around people at WeWork.

“Closed-loop brain stimulation to reduce pathologic fear”

"SWRs help consolidating fear extinction memories. Furthermore, enhancing the consolidation of extinction engrams by SWR-triggered induction of reward signals can alleviate pathologic fear reactions in a rodent model of PSTD."

https://www.biorxiv.org/content/10.1101/2022.07.24.501314v1

I had several more PTSD panic attacks today while walking down the street today as people either walked straight at me or walked near me quickly or spoke loudly on their phone or to others. That's my PTSD daily. However I am also making progress with my expanded mindfulness around my medical condition so my stress levels are lower today. As the days &

weeks progress I will heal from my PTSD because of my new understanding & my new coping strategy.

The next day I had more trouble, but I narrowed down that what I need to do is essentially to be more mindful of my emotional state & my body. This strategy is working, it just takes time. I think that if I rested more, and worked less, perhaps if I took 1 day off a week, I probably would feel a lot better, my PTSD symptoms would probably be a lot less.

Another day, and I'm even more mindful, monitoring my stress levels, taking pauses on the sidewalk as I walk. Calming myself down by holding my heart. I ought to really take at least one real day off each week. At least. So I can relax and heal from some of the stress.

Hal 9000 & Neural Array-Projection Oscillatory Tomography

One unconscious inspiration for NAPOT came from the film 2001 A Space Odyssey
neural arrays render sensory information for other neural arrays like the movie space odyssey hal 9000

When you add up the firing sequentially it produces your perspective on reality, your awareness of your existence.

Essentially each of Hal's cartridge represents a different neural array. One array reading the previous and rendering something for the next array, and so one. Then if the system oscillates at the right rate the renderings become a picture the whole brain can sense.

Playful ideas: Not for the book, but interesting conjecture, mostly musings

Could some ancient prophecies be real? What does that mean? Well maybe it's not that scary or unusual.

I think about the Karl Friston's discussions about his abstract free energy principle, which I relate to as describing Ilya Progigine's Extropy from an inverted perspective, it's still extropy but looking at it backwards, but what interests me is the idea that the brain, at higher levels, in the Reference Frames, might encode, with slower theta & delta waves predictions about reality on longer time scales, on times scales over decades, centuries, and over ages, epics, thousands, hundreds of thousands, millions & billions of years. There might be a place for predictions to be generated on vast time scales in our minds, and it could be as natural as predictions that we make about reality on short time scales. Which changes the meaning of ancient prophecies in a sense, from something that is mystical, to something that is relatable, understandable, and not controversial or difficult to accept. That said, unless you have the right decoder, the real meaning of the information is going to go over your head.

I have intuition about the future, about what will happen, about what I will be talking about in the future, and it has to do with the past. Is this unusual? Effectively the concept of the brain as a hierarchical memory-prediction machine discussed in the book "On Intelligence via Jeff Hawkins" or the literature on 'Predictive Coding' explains very well how an understanding of the past, of history, helps the mind to render predictions of the future, even far off predictions. There is more science here than mystery or mysticism.

When I am relaxed & loose with my imagination, being playful, not concerned so much with what can be proven objectively, I imagine that how under certain conditions, such as within certain chambers with certain acoustic properties, with a certain lifestyle, practices, rituals, and nutrition, for a great cost in personal effort, a human being might attain such great and serious insight (such as described in association with spiritual teachers for example, but I am not speaking of spirituality or mysticism) into not only into the human body, but into the universe intrinsically, and into the far past & far future, and this may have enabled people in the distant past, to predict some likely events, and in some cases to predict events with interesting precision, given known events past & present for them

I say that because apparently the idea that we might live forever, in new bodies, was predicted by religion, a super long time ago, but this is our actual reality now, with Sentient Self Aware Neural Networks, and as far as I can tell there is nothing magical about it, it's logical, its statistical, and its math. We are robots. We can back our minds up, we can 3D print new bodies, and we can download our minds to them.

The ancient people, therefore, who made wild predictions about the future that turned out to be right were in a sense good at math, calculation, understanding causation, they were the Einstein's, Tesla's, you name a modern genius, to think about, and then you can imagine easily that they had their predecessors existing thousands of years prior.

Not just Archimedes, Hippocrates...

but brilliant people throughout unwritten human history, and without a doubt there must have been many great thinkers whose names & whose work were lost to time.

Can we bring what is from our dreams into reality?

I once had a dream as a young child that I could pull a lego man out of my dream and into real life. I felt him in my hand as I was waking up, but when I opened my hand nothing was there. My argument is that the dream is a rendering, a painting in the brain, so we do not conjure physical things simply by thinking of them or dreaming of them, but that dream might inspire us to build things, things from our dreams.

It seems that my body can no longer deny the detrimental effects of bacon.

I hadn't eaten bacon in a significant quantity in a long time, I did this yesterday morning, and the evening of the same day I had some unusual memory issues and extra inflammation in my body that was painful. The experience fits with research that suggests chicken & poultry are inflammatory & nerve toxic I think.

"Pork and Chicken Meals Similarly Impact on Cognitive Function and Strength in Community-Living Older Adults: A Pilot Study"

https://pubmed.ncbi.nlm.nih.gov/27153252/

"High intake of chicken and pork proteins aggravates high-fat-diet-induced inflammation and disorder of hippocampal glutamatergic system"

https://pubmed.ncbi.nlm.nih.gov/32827667/

a0128z ctpr
(dendrite)
Micah Blumberg Wow! Anand! That was awesome! Why don't you distort each image, prior to making it sparse, by 10hz, or 10 degrees, to give it two eyes or two ears? Then you have a hierarchy that is all about matching two eye or two ear hierarchies. The hierarchy to unite the two sense hierarchies is the time hierarchy. It's job is to build a representation when there are close synchronicity between the two sense hierarchies. So that their is a timeline association of sensory data, when new data comes in. The timeline association data becomes like a google search

for example, if you give the program a sentence like: Cats are fun! it does a google search to find similar sentences.

funny cats,
funny cats in water, epic,
cats funny,
probably the funniest cat video you'll ever see,
fun cats,
funny cat pictures

sending that data to v1, it might create a visual concept of a funny cat, that is now associated with the words "cats are fun!" and the

each eye in v1 + timeline representation is creating a sort of temporal and spatial representation of all the bits of data coming in at each level.

so we have spatial/temporal representations of the lower bits (not knowing what's in those lower bits, what's in them is the job of the v1 alone for example)

and spatial/temporal representations of each higher level of the hierarchy (again without knowing the data in that hierarchy, it's filled in by the hierarchy, the spatial/temporal association is built by the frequency of activity in each sector.

or you could store the timeline locally, on the actual hierarchy, like a dendrite. each node in the hierarchy has nodes that count the frequency in which they become part of a representation identified by the upper level or lower level.

The program can share what it's representations mean by doing google searches, to find things that are similar to what it has learned, and in so doing, it can build representations of it's representations and associate words, and pictures with it's internal representations, a sort of out put channel, communication
3 hours ago · Edited · Like · 1

Micah Blumberg Anand, is an SDR a set or a matrix? or is an SDR a set that represents a matrix? Can an matrix represent a combination of SDR? Or does a matrix represent a combination of SDR?
9 minutes ago · Like

Micah Blumberg If you have a matrix for a letter, in the next level being a word/noun/verb, in the next level a phrase, in the next level a sentence that has encoded meaning. Do you create an SDR or a Matrix that represents the whole sentence in memory? So that the meaning of one sentence can be associated with the meaning of other sentences is should be an SDR right? SDR is more simple to compare than a Matrix I presume? What happens when you start comparing an SDR from text with SDR from pictures with SDR from sound?

Does the heirarchy gain the ability to associate words with pictures with sounds, and can you decode the result by having it compare it's own results with with more pictures, words, and sounds?

What about a feedback loop by feeding the top of the heirarchy back into the bottom with new pictures, words, and sounds?
3 minutes ago · Like

Micah Blumberg The top result then gets associated with newly added SDR's. Driving a new top result that is a convergence between what was previously learned, and what is newly added, and at the same time, we can see how the stream of what was previously added is conceptually associated with the stream of new information.
a few seconds ago · Like

a0129z
(LTD, oscillat) I want to expand on how an oscillator is like a photocopier?

because following a single neuron depolarization a larger set of neurons is inhibited all at once. So the neuron that fired magnified it's effect by inhibiting many nearby neurons (and exciting some neurons in the next set). Whether a neuron is fired or inhibited it's phase has changed relative to the normal oscillation, this causes a change that ripples through the entire brain as oscillations synchronize over time or sometimes they don't synchronize but they still affect other oscillations through signals.

The first neuron that fired, inhibited a bunch of neurons from firing creating a network inception representing the memory of the neuron that fired by it's learned connections (reflecting on neurons that were inhibited) then another set or array of neurons percieves this pattern in its receptive field, triggering some 2nd neuron to recognize a pattern and fire phasically, then another set inhibited by the phasic firing of this 2nd neuron,

and so that first set of inhibited neurons is to going to oscillator together, and the second set of neurons is going to oscillate together in a step right after the first set, and these groups of oscillations are now upsetting (feels like a pun) the oscillations of the rest of the brain in a step by step sequence similar to what I outlined in the two previous paragraphs, but at the scale of oscillating groups with new phase patterns pulling on other oscillating groups in the brain, continuing to magnify the activated memories, like the cascading ripples from a stone skipped across a pond, the entire brain & body transmits signals this way, in a wave rippling manner.

The neuron firing results in an inhibition of nearby neurons, which binds those neurons together in an tonic oscillation,

the tonic oscillation difference probably dissipates with time and or distance, losing its energy without losing its shape, so active memories fade, but remain somewhat consistent as they fade

the dissipative process for forgetting in active memory is connected to LTD long term depression or long term forgetting, because the local binding of inhibited neurons is perhaps untangling the connections between those inhibited neurons from their previously learned connections.

So the memories that do not activate atrophy as cellular connections grow between activated memories, and atrophy (and or are removed by glial functions that were activated to change the configuration of receptors to use the material of the brain to grow connections between synchronously active cells)

The neurons that are inhibited are being put into an LTD process with neurons they are no longer oscillating in sync with (because the inhibition changes their firing rate)

When neurons are inhibited together they oscillate together, but they also begin de-synchronization with neurons they were previously oscillating with that were not inhibited at the same time.

how is LTD a mechanism for oscillation? The decay or removal of synaptic connections what memories that neuron is most sensitive to, and thus affect its firing potential relative to it's local neighbor of nearby connected neurons, affecting its timing and the timing of its oscillating group.

Buszaki said something to the effect that the decay rate of the action potental became the gamma oscillation for a group of neurons. (need to find a quote)

a0130z
This note was started on Feb 14, 2015, I recently added a couple of thing to the bottom, with a line like this ////////////////// line to separate the new stuff.
(synap, oscillat, field, graph, criterial causation)

I guess part of my memory was from the future imposing itself on the past.

Finally he says: "Yes dear we are so but that was discussion about polychronus neural model and i was intented honorly to be my dear friend hope we communicate on nice scientific advances in this wonderful field. Thank you very much again Dr"

The reason I'm sharing this, is because it is amusing in retrospect. It's backwards causation humor.

It's the rational that comes after that makes it interesting the in first place.

The tenth chapter of "The neural basis of free will: Criterial Causation" and in the Appendix, Peter Tse covers a broad spectrum of views related to mental causation. There are a few different ways to think about how quantum mechanics could or could not effect mental causation. He covers those ways in his chapter as well. Tse dismisses the notion that consciousness could be quantum, because the brain is too warm for quantum coherence, (the temperature would scramble the "you" frequency). He also thinks that indeterministic quantum fluctuations could interfere with the timing of a neural oscillation just enough to make a human unpredictable to any machine that was not able to simulate or predict all the quantum noise in a person's brain. That's the boring part.

Whats interesting is that there was one possibility that received the smallest mention, the possibility of backwards causation, and the fact that particles larger than common brain molecules have been proven to behave like waves in the double slit experiment, just like photons. This is what he says:

"According to Feynman
’ s (1965) path integration account, the wavelike aspects of a particle
can be modeled as arising from the integration of all possible particle paths
between two points, such as the emitter and the photographic plate in the
double-slit experiment. Both of these accounts seem to imply that the path
that a particle realizes is in part a function of its (future) possibilities, which

can interfere and sum with one another. This seems to imply that what can happen in the future influences what particle paths can be realized now. Even though I did not make reference to possible quantum domain effects in discussing pseudo-backward causation in time (§ 6.17), a case could be made. Quantum nonlocality is so strange that particles ' paths can even be influenced by physical events at locations through which they have no possibility of passing, such as between the two slits (Aharonov & Bohm, 1959; Peshkin & Tonomura, 1989). Thus, although I think it is important to remain skeptical about the role of quantum domain coherency effects in neural processing, it is equally important not to be dismissive of the possibility that certain events involve unusual quantum effects."

He also says this:

"§ A1.10 I must also express skepticism toward my skepticism, however, because it has been shown that even massive molecules such as C 60 (Fullerene, molecular weight 720.6468 g/mol; diameter ~0.7nm) exhibit interference effects when passed through a double slit one molecule at a time (Arndt et al., 1999 ; Nairz et al., 2003). By comparison, neurotransmitters are typically much smaller than this (e.g., glutamate: 147.13g/mol; GABA: 103.12g/mol; serotonin: 176.22g/mol; glycine: 75.01g/mol) and the ions that pass through ionotropic receptors are even smaller (sodium: 22.99g/mol; calcium: 40.08g/mol; potassium: 39.10g/mol). The diameter of an open NMDA receptor pore is only 5.5 Å (Villarroel et al., 1995), whereas cation-selective ligand-gated ion channels range between 7 Å for acetylcholine receptors in frog muscles (Dwyer et al., 1980 ; Huang et al., 1978) and 7.6 Å for 5HT 3 receptors in neuroblastoma cells (Yakel et al., 1990 ; Yang, 1990), and anion selective GABA and glycine receptors in neurons range from 5.2 to 5.4 Å (Bormann et al., 1987). By way of comparison, slits that are orders of magnitude larger generate interference effects when electrons are passed through them (50x0.3 μ ; J ö nsson, 1974). Given their small size (Rambhadran et al., 2010 ; Salussolia et al., 2011), NMDA receptor can be packed together much more closely than this, which, if simultaneously open, as occurs during bursting, would create the conditions for two- or multislit interference. So certainly wave-particle effects could in principle be expressed among neurotransmitters in the synapse. The key question is whether such effects matter in the functioning of a neuron."

//

I'm not sure if I have written this idea down elsewhere but it could be that the prediction of a novel pattern can be compared to a prediction of the future or a prediction of what is there from parts of what is there, and the formulation of the prediction of the future in human memory might drive human actions, so in effect the future is driving human actions, that is the predicted future is driving human actions.

It's like if you hear a growl, from your fridge, you might hesitate to open the fridge, because predicting that a while animal is in your fridge is the future acting on the present via your brain activity.

//////////////////////////////////////
On physics, the idea that the energy required to create certain particles from the collisions of other particles acts as a repulsive force between particles if they do not have enough energy to merge,

because they are each curving or curling space in a way that creates a threshold (an energy requirement) for the other particle to overcome.
and this is the basis of why two positive electrons will repel each other. (I think I wrote about this elsewhere.)

So the idea is that not only are virtual particles interacting with particles, but also virtual entities represented by the energy thresholds of space being warped in a particular way (spin up or spin down) are interacting with particles.

virtual entities are energies that only emerge between two particles with a particular polarity to one another, in other words they exist in certain types of relationships but not in others.

a0131z
Feb 21, 2014
(dendrite, cortex) self-activating content addressable memories, sa cam, advanced expert data structures eds

Micah Blumberg
There is some speculation, about dendritic computation, that the dendrite can, even absent incoming stimulation, cause forward and backward propagating spikes.

It would be as if content addressable memory had the additional feature of being a computer that could turn itself on and reprogram or activate other content addressable memory.
7 hours ago · Like

Micah Blumberg
Okay so maybe you could try to say that dendritic computation could be like a timing program. Still in the event based paradigm.

There are six computer programming paradigms, event based programming is one of them.
https://www.ybrikman.com/writing/2014/04/09/six-programming-paradigms-that-will/

Micah Blumberg

Event based, by comparison, does seem like it would be the choice of behaviorists, implying sort of the external events drive the machines behavior, more so than internal events.

Black Square
Actually, Micah Blumberg, you have made a most excellent point.

Indeed, there are ten times as many axons going from the cortex to the retina than there the feedforward from retina to cortex. This illustrates that there is much more going on that merely event-driven reaction to stimuli.

When we consider how an "event-driven programming" paradigm could apply to the brain, in formality or in metaphor, I think it is worth delineating two different scopes of possible applicability.

In the first case, we can apply the concept "event-driven programming" in a metaphorical or analogous sense. We can define our thinking system in the way that AI and cognitive science defines it, that is, by using operational definitions for the behaviours of the system in terms of its inputs and outputs. The internal states of the system are kept reasonably simple and there is a preference for comprehensible internal representations.

In the second case, we can use a formal definition of "event-driven programming", and search for this computational pattern in cortical electrophysiology. We can then further investigate how this pattern can be embedded within a more general theory of neural computation. The advantages of approaches from the formal point-of-view, is that we move towards mathematically understanding the experimental realities of the only existence proof of higher intelligence on the planet -- the human brain.

Any cognitive approach to the system is ultimately limited by our own imagination -- we don't know if top-down concepts deduced from operational definitions of the system, are sufficient to reproduce human intelligence. But by studying the complex realities of the brain, we don't risk overlooking critical subtleties of brain computation that are easily missed by top-down cognitive approaches.

The secret to human intelligence likes in the formal structure of neural hardware. Intelligence is a hardware problem, not a software problem.
59 minutes ago · Unlike · 1

Micah Blumberg Black, thanks for that recognition, I'm honored.

In the first case: I don't know what you mean by applying event driven programming in the metaphorical or analogous sense.

I was wondering if Juan thinks the brain is event driven because every chemical reaction is an event in spacetime. I was wondering if Juan meant for us to realize that everything is event

driven in the very broadest possible way that somehow included every plank second in every location of the cosmos.

In the second case I was also curious if Juan meant it was obvious that the content addressible memory is only used in the event driven paradigm verses other computing paradigms.

Can someone answer the question: can content addressible memory apply to other computing paradigms other than event driven programming?

I know that many people think that top down concepts are an illusion. They think that all the brain's functions are generated from bottom up physics.

However in some of my studies on neuroscience I have come to the hard to defend conclusion that concepts drive their own development.

That is I think information criteria, via alternating coincidences in feedback loops, are internally running the show from the top down. Meaning information criteria is driving cells from the inside far more than cells are being driven via external stimulai.

Maybe you don't have to agree with that kind of live operating procedure but you can still answer this question.

Can a lazy programming language handle the live operating procedures of alternating on and off again feedback loops that run mostly independent of external input.

Can Haskell do it? Can Haskell be a live system, or will it always dies after performing one iteration of a feedback loop and then wait for user input?
19 minutes ago · Edited · Like

Micah Blumberg I have been googling Content Addressible Memories, or CAM for short.

I think Juan is correct when he says:

"Juan Carlos Kuri Pinto Content-addressable memories are, BY DEFINITION, event-driven."

That's why he seems to have hit the snooze button on this conversation.

"Juan Carlos Kuri Pinto (...) The fact content-addressable memories in the brain recreate many aspects of event-driven processing is so obvious that I find this discussion unproductive. Really. *sigh* "

If I am interpreting Juan corrrectly I think that Juan thinks it's obvious to everyone that the brain is using event driven content accessible memories just like a search engine, but I think he

means the brains internal activity is assembling memories by calling them, in a similar fashion to how a user's activity calls is an events that triggers CAM.

However the idea that this is obvious to everyone is ridiculous.

It might be obvious to a person who has all the criteria in front of them that points to the conclusion Juan thinks is obvious.

So it is ridiculous to think Juan's view should be obvious to anyone. People actually have to think critically about his statement first to take his perspective.
3 minutes ago · Edited · Like

Micah Blumberg
In this case Juan's secret program probably has a cortical thalamic loop accessing the rest of the neocortex like it was a search engine for assembling memories on the fly.
a few seconds ago · Edited · Like

When I read "On Intelligence by Jeff Hawkins and Sandra Blakeseed" I came to see the heirarchal temporal memory concept as existing to provide the benefits of a content addressible memory.

So it is plausible that at least the heterarchy of the neocortex has the advantages of CAM memory in that you can know instantly if you are having a new experience or if you have experienced something like this before.

A heterarchal memory system in the neo cortex has the advantages of content addressible memory, in that a single event that instantly associate with something similar, but does it have all the same limitations? Is it only event driven?

I am reminded of a dna class that argued that cells only react, they do not act.

Maybe human memory is only event driven, including internal events, in the broadest sense.

However when I consider the active nature of the whole mind, and the ratios of feedback activity, I think it's plausible that memories, like concepts, like the self, are all self driving. Information loops driving cell activity to self develop.

I would not describe human memory as CAM, even though it has CAM capabilities, because it's active, live, it's information-driven as opposed to event-driven.

a0132z
(cerebellum, field, metaverse, LTD, boson, perception, oscillat, array, decoherence, dopamine, synap, emotion, cortex, semantic, dissipation)

Quantum Physics & LTD

You are a fractal oscillating node on an oscillating branch of the cosmos which is an fractal oscillating that is actually a single oscillation from the perspective outside time and space.

The perspective outside time and space is seeing the cosmos as the ever present now. One long undivided moment in which the perception of time by the simultaneous increases in extropy and entropy because the two forces are bound in that they always increase together as the oscillators evolve in complexity they dissipate entropy to the surrounding environment, and the perpendicular oscillations of positive and negative electrons (an oscillatory splay state describes the difference between positive and negative charge, fermions are space in a state of decoherence, and bosons are in a state of electrical coherence with W and Z bosons being examples of high phase states that decay quickly by resonator dissipation into the larger group of oscillation, W and Z have too much energy relative to other bosons, which they cannot maintain, its like a top that is spinning too fast, to much angular momentum.

perpendicular alternating phase firing neurons will cause the space that is the line between them to contract slow cool shrink decohere spacetime between them, which is why LTD results in dendritic spine decay. The energy of the decoherence spine decay or coherence spin formation is based on the amount of energy released from the soma of each neuron, eventually reacting the other neuron. It's the explanation for Beta Decay also.

The scale of an oscillating particle such as a W boson is going to dissipate in a vaccum because the signals that it is giving off are bigger than the signals it is receiving off, it is spending its energy over time and eventually it decays because of entropy, entropy because of the math of oscillators, with particles being oscillators Bosons, or attractors for oscillations in the case of Fermions that are splayed in time, but are coherent in space. With the Fermion Condensate responsible for multiscale fermion condesate lines emerging between oscillators, each of them heating up and expanding the space between them resulting in the curvature of spacetime through a combination of multiscale soliton waves in the photonic fields with electricity charge sensation (high frequency/time), magnetism(high amplitude/spatial feel), mechanical vibrational acoustic (sound and inner voice), thermal (hot/cold data for processing hot cold sensation), and chemical (feeling energy state vitality sleep in-the-zone) and the correlations of patterns across all modalities.

The chemical properties of dopamine, serotonin, acetyl-choline, and gaba must have temporal effects determining the likely oscillation value for the group oscilation array, which is why gaba neurons tend to oscillate with delta frequences. This makes sense because the combined oscillator force of a lipid sack of neurotransmitters is going to cause a variation of some sort in the frequency experience that is transmitted between neurons. Such that the gravitational or combined oscillatory momentum effect of neurotransmitters which determine the density of the vesicle sack, how much energy is required to displace it, and the rate of the dissipation of energy as neurotransmitters collide with the post synaptic neuron, and the characteristics of the impact such as was it like sending a bag of rocks or like sending a bag of feathers, tactile

sensations and tongue sensations I would expect to have lower frequency higher amplitude waves (in the somatosensory cortex) because we might want to use the broad surface area of network arrays to track low frequency pertubations, like textures on a surface, which is about spatial representation, so the humunchulus I would expect to have a slow frequency high amplitude tonic oscillation like delta or theta, and the amplitudinal reach across the post synaptic surface area which increases or decreases the amplitude of the multimedium phase soliton wave signal that is passed to another neuron

the multimedium processing create isomorphic pattern learning in each of the senses that can be understood in terms of each of the modalities, so a tactile reading of braille text which is bumps on a page can result in words read from tactile sensations but processed in the somatosensory cortex first instead of from the visual (electric field solitons) cortex, the auditory cortex (mechanical soliton waves), decoded from the sensation of heat patterns (its a weird idea but imagine using heat to transmit morse code signals), chemical (the gut feeling),

but the basic idea is that the patterns that can be learned are modality invariant, because information patterns are substrate invariant, the information is the encoded sequences of phase state changes that trigger novel oscillation patterns relative to the expected tonic firing rate of neurons, and the inhibited inception field defined by that neurons exit terminal,

it could also be that the neuron that fires in one layer is causing an inhibitory pattern in the next layer, but I think this does not make sense because the idea is that the neuron, when it fires it fires because it needs to dissipate its energy to other neurons, it wants to increase the excitement in the subsequent array bumping up the voltage of each neuron that its connected to in the next array because we want the second layer to be able to track coincident firing in the first layer, and another array should be tracking coincident firing between the first and second layers, and another layer should be tracking coincident firing between all the layers below it, with six layers in the anatomical sense but perhaps 13 layers in the functional sense according to a paper by Numenta

With the higher layers tracking the largest scale patterns and the lower layers tracking the smallest scale patterns, the layers act like the enlarge function on a photocopier taking each sparse firing and magnifying its area by having it inhibit the firing of a select group, which slows their oscillations relative to the larger oscilliating group, each sparse encoding is magnified by each layer of the cortex, and that results in higher level pattern learning at the top, and that is the grid cell place cell reference frame concept talked about in the book by Jeff Hawkins called A Thousand Brains

The neural circuits, layers, and cortical columns transmit their learned patterns to every part of the brain which builds multimodal models of incoming patterns so you have hand eye coordination and can feel and see and hear the same thing, having an awareness of all the properties of an object, how it sounds, looks, feels, its temperature, orientation, location, momentum, direction, velocity, density, volume, pitch, reverb, etc etc, your whole brain gets involved in modelling all the properties of all the things you sense.

The patterns are rendered and transmitted on screens (oscillator arrays (circuits layers columns and long interneuron networks and long glial networks) in every modality so that learned patterns are modality invariant and so that all the modalities are used to represent all the patterns (its different facets & properities) and its high level information configuration (the high level concept of what it is simplied, like object recognition rather semantic segmentation

see paper on soliton heat waves
"Heat solitons and thermal transfer of information along thin wires"
"Our motivation is to obtain and compare the speed of propagation, the maximum rate of information transfer, and the energy necessary for the transfer of one bit of information for different solitons, by assuming that a localized soliton may carry a bit of information."
https://www.sciencedirect.com/science/article/abs/pii/S0017931019362118

It is interesting how much overlap there is between areas associated with olfactory and emotion

quantum solitons may have a big role in sending decoherence patterns to decay a dendritic spine, or to grow a dendritic spine from the electromagnetic membrane of the cell wall

the sparsity of high frequency soliton learning is good for modelling ultra tiny patterns phase changes in the oscillating quantum field, that potentially has memories encoded in the transformations of particles through different states. So the whole field of spacetime learns patterns as configurations evolve through natural selection. Sort of like oscillating patterns growing to eventually put the entire brain in sync

sparse quantum pattern learning/prediction is probably better for high frequency low amplitude senses, such as olfactory, maybe taste, but taste is also texture which is about high amp high surface area. smell, emotions, and point clouds have a lot less mass and a lot more energy, so quantum signals represent a sparse sample learning spread over a large area

so it could track the most novel activity patterns at the smallest scales such as the breeze on the back of your hand, the wind on your skin, the change in the atmosphere, how fresh the air is, and how you feel about the information from various senses

It's like six scales of sensory representation as a range of power bands at different frequencies, alpha, beta, theta, delta, and tonic gamma.
the fastest would be quantum, so gamma is quantum signalling perhaps?

then
beta, high frequency, smell, emotion, wind
alpha, sight, sound, voices, language
theta, high spatial, touch, muscle movement
delta, highest spatial, deep bass movements, appreciating mountains
as gamma = thermo/heat signal / quantum decay/growth

as beta = sight, attention,
alpha = auditory, logitudinal soliton mechanical / acoustic in the synaptic gap waves
theta = magnetic feel,
delta = touch feel, texture, large scale, big picture

each modality essentially acts as a sensor recorder

its like a thermostat, or a hear sensor, its detected, turned into a pattern on an array, many sequences of arrays firing over time change the organisms attention and internal represents constantly.

Any of the sensor modalities can compete for amplification in a desynchronized brain, but in a synchronized brain what happens when the layers correct their own internal pattern representations overtime, with lower energy pattern representations that preserve the transformation & development and set expansion in time of the phase field phasically firing parts of the grid pattern that includes each interval of time which expands or enlarges the entire pattern of one set in another set. The scale/frequency ranges up scale patterns up, and the brain also scales patterns down thanks to sparse signalling over greater distances, this kind of signalling might be good for balance. But the excitatory network of feed forward sets of arrays in bulb under the back of the brain, the cerebellum has a structure that would be great for modelling the very consistent updates from the brains motor system which is a very consistent oscillator network. The cerebellum is perfect for processing dense high frequency large scale signals from large oscillations that are both fast and dense and from the not so novel observation of muscle movements.

The cerebellum, for balance, is able to consider the bodies weight position momentum direction etc

because its not about learning novel patterns, its about controlling novel behaviors with large scale but fast and not always accurate movement impulses that become more accurate with the prioceptive sensory feedback happening at each time interval

What if a 7th version of you is virtual having no specific substrate, but instead is like the pattern configuration of negative space or decoherence between the 6 modalities. So that if the orthogonal interactions, between 1. electric, 2. magnetic, 3. mechanical/acoustic, 4. thermal, 5. chemical, 6. Quantum signalling, pairing, and memory in spin states are all interacting with multi-scale oscillatory dynamics. So the 7 version of you is the orthogonal or non-linear patterns emerging from oscillations between oscillators of different scales which exert forces on each other that blend across frequency/amplitude scales. It's transmission & memory would consist of novel pattern configurations that are driven by the interplay between the other primary sensor freq / amp scales.

Its a conscious self driving, flying, swimming, walking, running machine.

The sensory data attained through movement and its own causal body of movements are components that provide it with the knowledge of the cosmos that helps it make better decisions.
So the driving part, exoskeleten, artificial arms, electric unicycle, and also a flying part, a swimming part, and a space travel part

a0133z

(oscillat, emotion)

images art ideas:
the hand is the eye
the eye has many eyes inside it
the pyramid refocuses electromagnwtism

I am a molecular structure, proteins, rna, nucleotides that paints its own soul in hz patterns which effectively equates to note taking, or a memory system for learning,

learning that serves to accomplish highly complex tasks

neo mind cycle: self aware networks: artificial neurology: nerve gear

I think some professional people have barriers in their thinking, like it seems sometimes that they can't relate one complex concept to another easily. when I see this I start to wonder what else could be going wrong in that persons mind, is there some powerful emotion keeping them from acknowledging some dark truth about some horror that they witnessed or experienced and the carrier over from trauma is this split in their ability to put two very complicated pieces of information together in a coherent way? If so would that mean that emotional therapy might unlock powerful new ideas for just about anyone?

But its almost like the benefit of the therapy is oscillatory synching

a0134z
Oct 21, 2017
(vector, category, theory)

Micah Blumberg
The concept of a monad comes from Category theory which you should enjoy reading about. A monad in Haskell has 3 pieces, an object, identity and a functor
https://en.wikipedia.org/wiki/Monad_(functional_programming)
Monad (functional programming) - Wikipedia

In functional programming, a monad is a design pattern that defines how functions, actions, inputs, and outputs can be used together to build generic types,[1] with the following organization:

and then beyond category theory is constructor theory which uses category theory to redefine physics and information as tasks, its very interesting

I did this great interview with a company at the GPU summit earlier this year that was about homomorphic encryption, which means computation can be run on encrypted data without decryption. I haven't published it yet, but in researching that company I found some great new research (new last April 2017) on category theory encryption or category theory cryptography, there are so many cool ideas out there!

but I think you probably use monads already.

It's like how a tensor is just a vector with a coordinate on the z plane in addition to x and y.

so you use objects in object oriented programing. and then a functor is like the objects function, if object else object etc.

identify is when you create a name for a piece of code you have written elsewhere

so a monad is just all three as a packaged concept.

the way a tensor is a packaged coordinate

in category theory A is the object, the arrow is the functor, and identity can be applied to either the object or to the functor, and B is the resulting transformation that happens after the functor, that's why it's an arrow
def worth analyzing and thinking about
one of my favorite concepts

a0135z
(field, vector, tomography)
lets combine the list of tags with the list of topics & list of chapters & list of arguments

imagine that when you put your coffee cup down on a counter that is a phase field in your brain representing your hand, the coffee cup, the counter, and the room you are in, and that its rendered in sequences with your eye movement and headmovement, like an image being rendered to a tv screen except that only the tv can see it, the tv's neural network I mean, that is doing its own graphical rendering of reality with its chemical body.

integrated information theory could be renamed the localized & connected but also informative information theory, or the brain has information theory

or the synchronized & desynchronized information theory

I am arguing that the brain has graphical information representing each of our senses in a four dimensional vector graph

with the concept of space not being fundamental to cognition but instead learned through neural tomography.

some phi will be about the graphical resolution of your internal representations, and how much complexity your patterns can have in your waking memory simutaneously, like the different between video games from pacman being like your brain when you were a baby, to street fighter having the complexity of your mind when you were in grade school or elementary, the ninja turtles when you were in 7th grade,

so imagine that a dogs understanding of reality was more like the game street fighter 2 compared to your reality that might be closer to grand theft auto 5 then street fighter 2

I think perhaps that the phase field is a prediction of reality a few steps forward in time, so that our actions can become aligned with our movement through space, or so our muscles are aligned with the environment. So the reality I am seeing is a rendering of the near future by a small amount lets say by one millisecond.

It is like I am rendering one millisecond of reality in each interval of time as I perceive it.

The timing is a match for how fast I can coordinate my muscle movement.

a0136z
(synap, cortex, fourier, oscillat, field, array, tomography, dendrite, decoherence)
Neural Array-Projection Tomography
I am suggesting that a neuron is projecting its phase to an array of neurons connected to its exit terminal, and those exit terminal receiving neurons are simultaneously receiving phases from other neurons via other synapses, the neurons learn new patterns by adjusting their synapses, some synapses are told to speed up, slow down, fire, or become inhibited from firing, and they pass on one of each of these four signals to each branch of their exit terminal. Each neuron in the receiving array now represents how much of the pattern that it was receptive to was received by sending a phase that represents some indicator of how much it has seen.

How do two neurons that are not connected form a connection after each of them has fired? It's not that they wire together, its that synchrononous firing, or firing within some window that might be a few milliseconds causes neurons to oscillate together, it's not that they are wired together, its that the synaptic tree that connects them aligns itself so that they will fire together when they both detect a pattern that they have learned together, but this also allows an entire set of neurons to possibly be the one neuron to fire in response to a pattern that many have learned, it

makes patterns invariant to any single synapse or any single neuron and any neural circuit inside a cortical column oscillator because the oscillator as oscillator as collective has learned to represent the pattern invariant to its original firing location, the pattern can be transmitted across the brain, to entrain other similar patterns, but also to vote with, correct, and fix the representations collected by other neural circuits but also add to them, like the display I described the oscillator as being had many layers, like photoshop layers, but these are layers of interlinked renderings, at different scales, representing different sections of the screen at different times depending on head position & orientation & incoming sensory data.

What is the survival advantage of fireflies oscillating together?
well they can become a sensor array effectively, since they are all timed the same they can all simultaneously observe through expectation when all of the others will fire because the light pattern is repetative, if one of them goes dark, because it was eaten by the tongue of a toad the entire group is aware of it instantenously and flies away rapidly from that location. If one of them finds food it begins to oscillate faster or brighter than the rest, and so they converge attracted literally by the excitement signals which are either brighter or more rapid or both.

When neurons oscillate together they become a sensory array that can represent patterns in 3D and in 4D, because they represent a phase field that has memory, that can observe its own decoherence & coherence.

So the array is an oscillating group of neurons, and that learns patterns that get stored in the synaptic connections and spines of each dendrite.

Each layer of neurons in an oscillating group, is compressing a detected pattern into a phase change that is adding one delta of detail, like a shade of color, or a touched edge, to a complex multi-dimensional sensory representation that is akin to the 3D model created by slides in the Fourier Projection Slice Theorem, except its a 4D model, playing out over time across the neocortex's oscillators, when we communicate with other people that is also

"Today I cut some topics from this book I'm writing, in some cases some of the ideas like the one about microtubules need perhaps months more time research.
oct 23 2am 2021"

What I think is that injecting neurotransmitters is going to excited some cells and depress others, this may cause both pleasure and or depression, it may cause excitement or inhibition, but basically it is stimulating cell firing activity, so it might improve your memory function,

This book is about starting a conversation. I'm a journalist not a physicist, but sometimes I have what I consider to be interesting ideas, and I would like to ask a physicist what they think. So this book has some wild ideas, that I want to talk to the experts about, and then I want to share those conversations with everyone, and develop a second edition of this book next year that compiles what I have learned since the first edition of the book.

a0137z
(oscillat, field, synap) Oscillator level awareness
(Created Jul 12, 2021, 11:10 PM)
Lets imagine that individual phasic firing and or inhibited neurons are pushing and pulling on the group oscillator, usually the group oscillator pulls phasic firing neurons back into phase alignment with the oscillator, but past a certain threshold if the quantity of phasic firing or inhibited firing changes the electrical gradient of the oscillating neural circuit past a threshold then its phase will be reset which means the neuronal ensemble adjust the phases of all their neurons simulteously. That means that neural circuits can track, be aware of, and respond to, speak back to other neural circuits, using the same principles of dendritic firing but now at the neuronal ensemble scale. So the collective energy pulse produced by neuronal ensembles can also be felt by other neuronal ensembles.

This allows for a model of neuronal ensembles or oscillators to as a group be aware of neural firing, (connected via long interneurons between pyramidal cells and other pathways) ensemble firing, and perhaps dendritic and synaptic scale firing

I'm imagining a brain that is all aware of itself, absolutely everything that one senses and perceives is represented by their brain in some place, but with different oscillators, represented by different power bands, with location invariant patterns, with cross brain interneuron enabled synchronicity, neuronal emsembles can increase in their firing rate become more noticeable yet weaker, decrease in their firing rate, becoming less noticable but more powerful. So attention can shift to large brain areas that have more new activity & are more excited, meaning when you become excited some of your senses will have their receptive fields become more aware, which implies a slower oscillatory rate.

a0138z

Calcium Dynamics

"Dendritic spine morphology regulates calcium-dependent synaptic weight change"
"Dendritic spines act as biochemical computational units and must adapt their responses according to their activation history. Calcium influx acts as the first signaling step during postsynaptic activation and is a determinant of synaptic weight change. Dendritic spines also come in a variety of sizes and shapes. To probe the relationship between calcium dynamics and spine morphology, we used a stochastic reaction-diffusion model of calcium dynamics in idealized and realistic geometries. We show that despite the stochastic nature of the various calcium channels, receptors, and pumps, spine size and shape can modulate calcium dynamics and subsequently synaptic weight updates in a deterministic manner. Through a series of exhaustive simulations and analyses, we found that the calcium dynamics and synaptic weight change depend on the volume-to-surface area of the spine. The relationships between calcium dynamics and spine morphology identified in idealized geometries also hold in realistic geometries, suggesting that there are geometrically determined deterministic relationships that

may modulate synaptic weight change." (The article will be in the creative commons in January 2023)
https://doi.org/10.1085/jgp.202112980

a0138z.clusteron
"Plasticity and Learning Algorthms in Models of the Single Neuron" August 25th, 2022 at Numenta Video Clusteron
You should probably watch this at least twice. It's an hour long but I spent most a day watching & rewatching it, looking up papers from it. Really good work. Link to Watch https://www.youtube.com/watch?v=KLmk3xnojKU This section of my notes is what I wrote down during & after the video today.

"The gradient clusteron: A model neuron that learns to solve classification tasks via dendritic nonlinearities, structural plasticity, and gradient descent

"The Clusteron" (1991) is a thought experiment and a computer simulation designed to explore how non-linear biologically plausible learning might happen.

The activation is that synapses active input times the sum of the weighted inputs of all the other synapses within a certain region (Di) a synaptic cluster that fires together. The idea is to find correlations between multiple synapses, that are each detecting coincident firing.

The NMDA Spike slide:

The super linearity voltage dependence of the NMDA receptor creates a huge spike when two synapses close together on the same branch are activated at the same time. The voltage is not the sum of the voltage generated by each synapse, instead the voltage is like the multiplication of both synaptic voltages, its much larger.
Its a distance dependent effect, if you put both synapses on separate branches and activate them simultaneously you again get the linear sum.

The multiplicative nonlinearity means that the clusteron learns correlations. I think it points to the idea that cells have a mechanism for learning surface side, or branch specific correllations, a way of detecting spatially where information is coming from.

However it causes one to think how can this spatial (nonlinear correlation information be passed along between cells. Of course the activations will be from sodium channels, and the inactivations from potassium channels, and that is how the waveform of the AP is shaped.

This allows a neuron to make topographic or spatial detections, because spatial detections from synapses close to each other on the same branch have a multiplicative effect, meaning they are more likely to fire.

It seems like this process could lend itself to the idea of topographic pattern tomography, the learning of surfaces, textures, and making mental maps for concepts, especially related to art, visual design.

Another idea from the clusteron is that before learning there may be no deliberate structure to the synaptic arrangement, after learning there are regions of synapses that are associated with positive patterns are much more strongly activated (the clustering effect multiplies signals and perhaps in biology causes receptor/synapse growth in that area so neurons will grow synaptic clusters in certain sections that increase the odds the neuron will fire in response to certain patterns, in this way a growing synaptic cluster.)

I think this work shows the value of the fast rearrangement of synapses like AMPA receptors that we see in the brain.

Note from the video: Logistic regression and non-linear clustering are both similar in performance when they have the same number of parameters.

The G-Clusteron can solve the exclusive XOR problem. If I remember correctly the Perceptron could not, and that led to one of the AI Winters.

Slide: A Fixed Point - Learning Rate Framework for Modelling: Calcium-Based Plasticity Predicts weight-dependent Synaptic Changes.

Molecular Mechanism of Plasticity Slide

Synaptic Potentiation (LTP) Calcium enters the cell through the NMDA receptor (through voltage gated calcium channels) it interacts with CaMKII and AMPA receptors are shuttled to the synaptic spine? You have increased conductance & increased synaptic strength
doi: 10.1038/sj.npp.1301559

With Synaptic depression Calcium comes into the cell, it interacts with Calcineurin PP1, and AMPA receptors are removed from the spine.

Both responses start with calcium entry into the cell, so the question is how the does the cell know what to do with the calcium.

Next slide

"The calcium control hypothesis: one rule to rule them all"

everything depends on the concentration of calcium in the post synaptic spine. If you have not very much calcium nothing happens, if you have a medium amount of calcium you have depression, and if you have a lot of calcium you have potentiation.

Ca2+ based plasticity
Plasticity saturation

"Graded bidirectional synaptic plasticity is composed of switch-like unitary events"
https://www.pnas.org/doi/10.1073/pnas.0502332102

"Synaptic Tagging and Capture: Differential Role of Distinct Calcium/Calmodulin Kinases in Protein Synthesis-Dependent Long-Term Potentiation"
https://www.jneurosci.org/content/30/14/4981

"Requirement of translation but not transcription for the maintenance of long-term depression in the CA1 region of freely moving rats"
https://pubmed.ncbi.nlm.nih.gov/11069965/

The Calcitron: A model neuron that can implement many different learning rules with calcium based plasticity

Hebbian learning rule with calcium, if you have two thresholds, one for LTD, and one for LTP, then "fire apart wire apart, or fire out of sync loose your link" is accomplished when the the lower LTD threshold is crossed but not the higher LTP, but if you have coincidence firing from multiple receptors then you can stack the calcium to reach the higher LTP threshold, and that gives you

"Hierarchical Heterosynaptic and Syntergistic Calcium Based Plasticity in Cable Models of Dendrites

Project 2 Heterosynaptic Plasticity (Slide at 56 minute mark)
"my neighbor hetero deconstructing the mechanism underlying heterosynaptic plasticity

it means if you have 1 synapse that is in an LTD state, and two on each side that have an LTP state that is Homosynaptic LTD, Heterosynaptic LTP

If there is an LTP state in the middle with two LTD neighbors that is homosynaptic LTP heterosynaptic LTD the opposite of the previous state

if the two neighboring cells have the same state then you have both homosynaptic in the middle has matching heterosynaptic neighbors

the second image implies that a depolarization of one synapse might spill over to the next synapse to create a chain reaction depolarization.

"Three Ca2+ levels affect plasticity differently: the LTP zone, the LTD zone and no man's land"
https://pubmed.ncbi.nlm.nih.gov/11306649/

In Heterosynaptic Plasticity the VGCC receptor plays a big role:

VGCC means voltage gated calcium channels, when one post synaptic membrane depolarizes the current will depolarize other synapses, but the NMDA & AMPA receptors of those neighboring synapses won't open, because they only open in response to neurotransmitters in the synaptic cleft above, but the VGCC will open, so the synapse that wasn't triggered can still depolarize,

Can partial Heterosynaptic Plasticity cause synapses that didn't depolarize with Heterosynaptic Plasticity to undergo LTD threshold depolarization, enough to trigger endocytosis or exocytosis? Sort of like boosting it's proximal fellow players, and burning it's distal benchwarmers?

How much fractal correlation and how much causation exists between the slow frequency at the synaptic scale and the slow potentials at the soma scale?

Going back to the idea of glutamate synapses having four levels of conductance, and the idea that 0,1,2, or 3 vesicles can be released, and the idea that there are four types of spiking, inhibited, tonic, phasic, high phasic (which could actually be bursting, if you think of how a big voltage can double the frequency of a wave). I would guess that biological computation is base 4.

So we are talking about two thresholds, one for LTD and a higher one for LTP,
and I have imagined that the low frequency LTD might correlate with the antispike, or the slow wave potential or the DC potential, and that LTP might correlate with a phasic spike.

but then high phasic spikes (which could manifest as bursting I'm not sure but it makes sense)

It seems perhaps that each of the 4 thresholds.

So what I might look for is evidence of differentiated synaptic behavior at 4 different levels. I think by default there are 3 because LTD & LTP are differentiated from the baseline which might be no calcium entering the synapse. And if my hypothesized high phasic is actually bursting then maybe there is a study on how synapses respond to burst firing

Heterosynaptic plasticity in a dendritic model us synapses with Ca2+ based plasticity.

"A calcium-based plasticity model predicts long term potentiation and depression in the neo cortext"
https://www.nature.com/articles/s41467-022-30214-w

The idea I am thinking about is that burst firing is the event that will cause Heterosynaptic Plasticity: a single synapse to fill up adjacent synapses & dendritic branches will fill up

looking at the slide Asymmetric Voltage Attenuation in Dendrites

With a high phasic NMDA spike the voltage spill over might induce heterosynaptic plasticity in all of the locations that are distal to the input but not at the locations proximal to the input?,

Maybe burst firing is what triggers coincident NMDA spikes which triggers heterosynaptic plasticity

I decided to look up the terms Heterosynaptic plasticity & Homosynaptic plasticity on wikipedia.

Wikipedia: Homosynaptic plasticity
"Maintaining Long-Term Changes
In order to stabilize LTP and make it last longer periods of time, new proteins supporting this change are synthesized in response to stimulation at a potentiating synapse. The challenge that arises is how to get specific, newly synthesized proteins to the correct input-specific synapses they are need at. Two solutions to this problem include synaptic tagging and local protein synthesis.

"Synaptic Tagging

"In a neuron, synaptic tagging occurs in a series of steps in order to provide information on synaptic plasticity.
"Synaptic tags mark where synaptic plasticity has occurred and can thus provide information on synaptic strength and potential for long-term plastic changes.[5] The tag is temporary and involves a large number of proteins, activated by the influx of Ca2+ into the postsynaptic cell.[5] In addition, depending on the type and magnitude of synaptic change, different proteins are used for tagging. For example, when plastic changes lead to long-term depression, calcineurin is used. Conversely, when plasticity leads to long-term potentiation, CaMKII is used.[5] In order for synaptic plasticity to be input-specific, these synaptic tags are essential on post-synaptic targets, to ensure synaptic potentiation is localized.[5] These tags will later initiate protein synthesis that will in turn cause synaptic plasticity changes at these activated neurons.[1]

"Local Protein Synthesis
"Protein synthesis at dendrites is necessary for homosynaptic plasticity. The depolarization and resulting activation of AMPA and NMDA receptors in the postsynaptic cell causes endocytosis of these receptors. Local protein synthesis is required to maintain the number of surface receptors at the synapse. These new proteins help stabilize the structural changes induced by homosynaptic plasticity.[6] There is evidence of ribosomes in dendrites, which can manufacture these proteins. Furthermore, there is also evidence of granules of RNA in dendrites, which indicates the presence of newly made proteins. LTP can be induced from dendrites severed from the soma of the post-synaptic target neuron. Contrarily, LTP can be blocked in these dendrites by protein synthesis blockers, such as Endomyacin, which further indicates a site for

local protein synthesis. This evidence shows local protein synthesis is necessary for L-LTP to be stabilized and maintained.[1]"

1 "The depolarization and resulting activation of AMPA and NMDA receptors in the postsynaptic cell causes endocytosis of these receptors."

Receptor Endocytosis
"NMDA Receptor-Dependent Long-Term Potentiation and Long-Term Depression (LTP/LTD)"
"Weak activity of the presynaptic neuron leads to modest depolarization and calcium influx through NMDA receptors. This preferentially activates phosphatases that dephosphorylate AMPA receptors, thus promoting receptor endocytosis."
"In fact, AMPARs can be quite mobile and recycle between the cytoplasm and the cell membrane even under baseline conditions within tens of minutes. This can be shown, for example, by interfering with endocytosis, which leads to a run-up of synaptic responses. It is presumably this mobile pool of AMPARs that allows for rapid but sustained changes in synaptic efficacy. The insertion and removal of AMPARs during LTP and LTD, respectively, is believed to involve classical mechanisms of SNARE protein–mediated exocytosis and dynamin-dependent endocytosis via clathrin-coated vesicles (Lüscher et al. 1999; Carroll et al. 2001; Kennedy and Ehlers 2011). Current evidence favors the idea that the endocytosis and exocytosis of AMPARs during LTD and LTP happens not directly at the synapse but at slightly perisynaptic locations, from where the receptors reach the postsynaptic density by lateral diffusion."
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3367554/

2 "These new proteins help stabilize the structural changes induced by homosynaptic plasticity."

3 "Contrarily, LTP can be blocked in these dendrites by protein synthesis blockers, such as Endomyacin, which further indicates a site for local protein synthesis. This evidence shows local protein synthesis is necessary for L-LTP to be stabilized and maintained.[1]"

a0139z
Note from Aug 17, 2012
(dendrite, synap) brain activity
Micah Blumberg I don't think you are you now Richard, what makes you think that you are more than a mechanical simulation of a person even now?
Wednesday at 4:54pm · Like

Micah Blumberg http://ieet.org/index.php/IEET/more/hopkins201208141 who says you are you? there are memories, and connections in your mind, thats a short summary of it, none of this brain system is really you anyways.

Uploading Won’t Help You

Micah Blumberg your brains activity is a reaction, the connections and memories become the predictions of new causes, and the structure that influencies the development of new concepts,

it barely works but it effectively simulates a functional person, with massive redundancy, and efficiency, technology by nature that is slightly more advanced than anything humans have built yet. but there isn't any real you, unless you are concepts consisting of connections between cellular memories, I don't think I'm that, I don't think I actually exist at all. Whats your spin on it?
Wednesday at 4:58pm · Like

Micah Blumberg what isn't artificial about intelligence now, the brain is a machine now, I don't exist in that, I'm not in my brain. I'm not a memory, or a branching network of connections between memories, but perhaps consciousness is nothing else except a result of that system of chemicals, and electricity and folded dna protein based brains? perhaps its a product, like a computer, and one day brains will be sold in a 99 cent store, little computer brains that have real consciousness, in a machine, Real not artificial consciousness.
Wednesday at 4:59pm · Like

Micah Blumberg you have a bunch of parts working together creating the illusion of a whole, identity is that illusion
http://www.huffingtonpost.com/ben-thomas/schizophrenic-brains_b_1762933.html

Gods, Selves, and Schizophrenic Brains
www.huffingtonpost.com
Whether a person's "identities" can be dissociated or not, it's clear from Hans'...
See More
Wednesday at 5:01pm · Like ·

Richard Pomfret That's a bit reductionist Micah, as 'me' I am more then just the sum of my neuron connections or connectome - I would at least add a few of my key organs and my entire nervous system into the mix. I 'feel', therefore I am. ;)
Yesterday at 4:42am · Unlike · 1

Micah Blumberg You can add the whole ecosystem that your apart of to the list. How can you live without air, without food, you have a certain amount of learned dependency on your social contract, not that it can't be unlearned, it would be more difficult to survive if you were the last person on earth, let alone reproduce, so lets just say the sum of you is more than your body. Why not add the entire cosmos, your not separate from spacetime, your made of the same stuff that's made in stars, particles, atoms, you are spacetime, you are the conscious peak of the cosmos, the galaxy is your robe, the sun is the cool chain you wear on your cosmic neck.
15 minutes ago · Like

Micah Blumberg You can say that your everything, and because everything is an all inclusive term, you'd be right.
14 minutes ago · Like

Micah Blumberg But if you stab a rock, it's not the same feeling as when you prick your finger. So in a sense your finger is more you than a rock. Yet you could lose a limb, and get an artificial

replacement, and your plastic brain, with the right neuro-plastic treatment, can remap itself, to treat the artificial limb as if it were it's real limb. The brain is not completely dependent on the body, you could conceivably create an artificial body, the perfect artificial ecosystem for the brain, and the brain would adapt to, to control it, to become that new body, your new mechanical self. The components of the brain itself, the cells, the proteins, the particulars, the myelinated axons, the glial cell waste removal system, the microtubules, the camkii2, the branches of dendrites and synapses, serve as hardware for memory and concept formation, predictions of causes, derived from sequences of patterns, from chains of data, that comes in from the senses, and the brain itself, in any particular part, is just a system of cells, a cooperation of rivals, working together to feed, it's a hungry glucose and nutrient driven system, the hungriest organ in the body, but the result, is the coordination of a body, including your fingers, and your voice muscles, for communication, the same way your brain relates to itself, it relates to everyone else.
2 minutes ago · Like

Micah Blumberg So if a rock isn't really me, and if I can lose a finger the finger isn't really me, and I can take any particular cell in my brain out, because my braincells are not really me, then what I am is some emergent property, a macroscopic form that doesn't exist in the detail, a higher level idea, a ghost, and a ghost that doesn't really exist at the microscopic level. My existence is in heaven, in a cloud, in a dream, and it's so not real :)
33 seconds ago · Like

a0140z
Aug 26, 2011
(perception, electromagnetism, cognition, synap)

Micah Blumberg
Brainwaves are thought patterns! That's consciousness, the electromagnetic wave in the brain. The river of frequencies, like a symphony of neural instruments. This device reads and interprets a person's conscious thoughts and intent http://www.emotiv.com/
Emotiv - Brain Computer Interface Technology
www.emotiv.com
Emotiv

Micah Blumberg
I am actually this active vibration of energy interacting with memory-prediction brain tissue, taking up residence in a connectome with at least several hundred trillion connections. Thanks to IBM, we're one step further down the pathway toward artificial intelligence. IBM announced its creation of "neurosynaptic chips", which will allow computers function like the brain in terms of perception, action and cognition.http://www.theblaze.com/stories/one-step-closer-to-artificial-intelligence-ibm-chips-function-like-human-brain/ MIT Opencourseware can teach you some of the big ideas for free http://bcs.mit.edu/ you can also get a book called "On Intelligence by Jeff Hawkin" His website is http://www.numenta.com/

One Step Closer to Artificial Intelligence: IBM Chips Function Like Human Brain
www.theblaze.com

Micah Blumberg
Does this not make Tesla's Ambassadors go OH WOW> TESLA the genius is so confirmed and realized by this technology. This is the front line of technology today, exactly where Tesla is! The electromagnetic universe! The electromagnetic human brain!!!! WOW WOW WOW!!!

Micah Blumberg
Wow you are so welcome Niko! I just love how there are so many intelligent knowledgeable people who are appreciating science, technology, and cutting edge contributions of Tesla and other scientists and enginneers who share his vision of a better world! An world of free electricity in an electric universe! Where so many amazing things can happen! Thank you for appreciating this post!

Micah Blumberg
Also thanks for the respective likes from Jolanta and Nory!

Micah Blumberg
why not? oh because of films like terminator and the matrix? those were Shiva era inspired interpretations of artificial intelligence, but intelligence can also be good, have you seen films like Bicentenial Man or AI Artificial Intelligence, or I Robot, or Wall E?
6 hours ago · Like · 1 person

Micah Blumberg
Can a machine have a soul? Heck yeah! "Something wonderful has happened... Number Five is ALIVE!"
6 hours ago · Like

Niko Tesla Cyress I agree with you... In the far future, there will be half human half robots.
6 hours ago · Unlike · 1 person

Micah Blumberg
Yeah maybe cat cyborgs too!
6 hours ago · Like · 1 person

Penny Repstock I've seen I Robot (although I like Alan Parson's album of the same name better :)) but the jury is still very much out in my mind as to whether the 'intelligence' of the humans behind this intelligence is truly capable of advancing humanity or simply further enslaving it. The bottom line, for me, is that I wish they would put all this time, energy and resources into promoting the works of Tesla and John Searle with the technologies they have brought to this world that have the ability to transform the world's populations in such an incredibly short space of time if we could eliminate the corporations, oil companies, agribusinesses, big pharma and

the likes from the equation. As we all know, though ... that is a battle that has been fought by truly forward thinking inventors and scientists for decades now.
6 hours ago · Unlike · 2 people

Niko Tesla Yes it is like that Penny ... But I think soon things will start to change a dramatic rate ... there are certain things that still have to happen for this time to come... but I think it will be soon...
6 hours ago · Unlike · 1 person

Penny Repstock
Yes, I totally agree with you, Niko.
6 hours ago · Unlike · 1 person

Micah Blumberg
Great comments! I wonder though maybe no one understands how to implement Tesla's greatest inventions, like free wireless energy for the whole world. Was that ever completely completed?
6 hours ago · Like

Natalin Kelley
Thought Patterns- A HABIT of thinking in a particular way, using particular assumptions. Brain Wave- A rhythmic fluctuation of electric potential between parts of the brain, as seen on an electroencephalogram. Reading or interpreting brain waves are not the same as someone's thought pattern.
2 hours ago · Like

Will Ray Priest
This technology is in the wrong hands and as a result is extremely dangerous. This should be in the hands of the people, but it is in the hands of the elite to our collective detriment. Just look at the history of the attempt to give the people free power and how the elite managed to keep it away. Here we have a reverse situation where cheap IA chips are used in a variety of ways to control us without our even knowing. This is written through and through with sinister.
about an hour ago · Like

Matt Mandell
great new helmets for our soldiers and security cameras globally!! How does this excite anyone... does anyone think they will be getting one of these, and if so why would you? The brain is already electromagnetic.. the machine is a receiver!!!! Interesting as to why it one would want to use it to submit waved to the brain.. really scary stuff guys!
about an hour ago · Like

Micah Blumberg
I appreciate everyone's comments, it's so amazing to me to see how unique everyone's point of view is. Will there be a time when new forms of life emerge, smarter than 10 billion humans

combined, in a single body the size of a cat? Something that is able to be aware in multiple places at once, on many planets throughout the entire galaxy.
about an hour ago · Like

Sue Sweeney
O good, now I can prove to the rest of the world, that I've had UFO and E/T-encounters <yay> LMAO!!!! ;-) n snickers
32 minutes ago · Like

Micah Blumberg
brilliant people are nice because that's the most rational thing to do, the more developed a mind gets the more tolerant it becomes, it's just a matter of having a mature assessment of the situation called life, enlightenment is the mark of the true elite, the those people who have more integrity, more vision, more honor, and more hope in their hearts than the multitudes of angry finger pointers accusing the world of not being better, instead of standing up and doing something to help out. On one side of the looking glass people are unhappy complaining about the powers that be because they see themselves as victims to bad service, on the other side of the looking glass you have people who are humble enough to not take all this for granted, who acknowledge what they see with their own eyes and ears, people who are grateful, because gratitude means happiness, people who lead others to joining programs like Reliv that my friend JC and his family does www.leaderinhealth.reliv.com because they help feed 42,000 otherwise starving kids every year. So you can be stuck in the delusion of ego, suffering, for decades in fear from the latest global conspiracy this week, or you can be the sovereign conscious creator of your own happiness, your own world view, to attract the vision, and action, that you are focused on!
29 minutes ago · Like · 2 people

Micah Blumberg
so every possible way in which this technology will be used or abused will probably happen, but most likely good will win out, and enlightened beings far smarter than us will set things right again, someday

Micah Blumberg
Lets not celebrate the dark vision of Tesla's persecutors, let's deny that false reality, and instead live in, and promote the happy world view, where free electricity, water, food, air, freedom, opportunity, and happiness for all people is what we are focused on, what we are talking about, and what we are summing into our vision and summing into the imaginations of those people who will follow someday!
24 minutes ago · Like · 1 person

Micah Blumberg
summoning into our own awareness and each others awareness a vision that is worth Tesla, worth focusing on, worth promoting, a vision of world peace, and free electricity!
24 minutes ago · Like · 1 person

Matt Mandell
there is a middle ground though Micah, and those enlightened of old and of today would decry such an invention, arguing that the mind is already prepared to be perfected without tech. AS THEY DID!! and we still ignore!!!!!!!!!!!!!!!!!!!!1
23 minutes ago · Like

Matt Mandell
if we look within NOW- we wont need this fancy crap!! the only benifit would be to show us how energy in the brain works... we can already experience this if we look at ourselves instead of the traps thrown in front of us.
21 minutes ago · Like · 1 person

Micah Blumberg
no not ignoring, not perfecting either, there is plenty of room to tolerate new ideas without destroying old ideas
21 minutes ago · Like · 1 person

Matt Mandell it depends what those ideas are... usually new ideas or concepts replace the old... that is actually the whole point, but when these ideas conflict with their oppositely held ideal, we get conflict, and hopefully the new ideal sits in the middle of the two so as to benefit most involved...if old ideas are not in line with reason and truth, then yes, they will be destroyed... if they hold weight, then they will merge with the new concept of reality...
17 minutes ago · Like

Sue Sweeney ==> http://www.youtube.com/watch?v=N349LJVipCg&feature=player_embedded
17 minutes ago · Like

Micah Blumberg
do you sing a lovely mantra to yourself while you sit in self awareness? Besides the bio-neurofeedback loop that balances the brain through improved cross talk, it has the potential to be a very pleasant, enjoyable experience, you will feel happy about doing! https://www.youtube.com/watch?v=vSR1L9IN03g&feature=share

my advice is if you feel an involuntary negative feeling, you welcome it, you feel it, you allow it to be ok, you ask your inner self, why is this here? can I let it go, will I let it go, when? and watch Pema Chodron https://www.youtube.com/watch?v=A4slnjvGjP4

I recommend humming, murming, and singing to yourself, technically it's a form of bio-neurofeedback, a process that helps balance the hemispheres of your mind. Best done while meditating, perhaps as a chant or song you enjoy. Something soulful. The frontal lobes can turn the volume down on the angry amygdala, if they have a chance. For this reason meditation, with soft singing, while sitting and listening with curiousity can aid in the cross talk

inside the mind, so the different brain parts can balance each other, you begin to feel happier. The negative feels will dissipate.

also Try placing a pencil in your teeth for a few hours, there's some neuroscience behind that idea as well. there are dozens of low cost to no cost ways

getting better nutrition, more d-ribose, reading the book from fatigued to fantastic, having enough of the right house plants to clean the toxins from the air of your house or office, fasting often enough so the body can detox cleanse, more hugs, buying gifts for friends or family, there are many low-tech ways to find enlightenment and peace, many cost nothing except time and effort.

The Heart Sūtra Mantra by Deva Premal
www.youtube.com
The Heart Sūtra Mantra by Deva Premal

Matt Mandell
that's what I'm talking about... welcome back Micah ;)

Matt Mandell
love that you mentioned the amygdala.... Medusa!!!!!

Micah Blumberg
I never left dude, never moved for one instant, perhaps then a trick of the light? a shadow illusion ? the limitations of texts or the limitations of perspectives?

Matt Mandell
no... posting tech nonsense... welcome back

Matt Mandell
this is getting comedic now

Micah Blumberg
This is Tesla's Abassadors! Tesla was a man of science, and heart, of electromagnetic physics, machines, and real lovely human beings! I am like this also. These things are not tech nonsense, it's legitimate, it's real.

Matt Mandell
perhaps I am limited in my understanding.. my apologies for giving you that assumption in regard to technology
8 minutes ago · Like

Micah Blumberg

I prefer to think that a mis-communication or unexpected result is neither your failure or mine, I prefer to think there was just some missing information between us, and when we discover what that info was all will be well again.

Micah Blumberg
so let us blame only a missing abstract of knowledge in the link from one person's understanding to anothers, happens all the time. I just know in my heart, that we are all doing the best we can with the information we have, automatically, and while it's easy to see blame in other people or in ourselves, I think it's even easier to blame missing info instead, once we see the benefit that non-identity based metaphor to identify problems and solutions. Hope you like the idea.

Matt Mandell
perhaps where some focus on his effects and scientific manifestations that are STILL controlled by the leading powers, I prefer to consult the inner processes that brought him to his findings.. in line with the wisdom of those that helped keep this wisdom alive, and That wisdom Tesla was privy to... THIS is the only wisdom worth providing every Man, as he then becomes his own producer instead of a consumer only, and of other peoples products... other than that I dont disagree with anything you have said Micah, just coming from a different and more personal 'tesla' angle... I am not putting your view down, nor would I unless you were being unreasonable... I simply dont see the tech as the cause of something better for the world, I see it as a way to learn about ourselves so we wont need it!!!
Micah Blumberg
It seems like Tesla would see technology as a way to create something better in the world. It seems like the Buddha with his realization of oneness under the tree looking up at the planet Venus would never think for a second that some "disowned negative authority figure is keeping the works of Tesla from the people" because being one with all that is means you are the earth, and you are every man, every brother, every sister, you are the authority, you are the people, all of it. G-d's saying to himself "let there be light" and there was light, then G-d's saying to himself "let there be an authority keeping Tesla's work away from the people" and so their was, and then G-d said "open my eyes, so that I can see what I am creating, with the scenario that I declare to the obedient universe"

Matt Mandell which one of his current inventions used today has had and is having a positive impact on our society? ... keep in mind that inventions that have improved the quality of life for some have reduced the quality for others... please name a few, so we can get back to his Nature and his beliefs...

Micah Blumberg
DTI Brain scans, as well as the older MRI machines are medical technologies that are possible because of Tesla's pioneering research into electromagnetism. These machines save lives, helping doctors to make better diagnosis, and more accurate treatments. There are thousands of such examples when science has out done spirituality. For one example when science proved germ theory, we could stop believing finally that demons were causing disease. Saving many

lives that by having people wash their hands, lives that were unavoidably lost during the ignorant religious times of the black plague, when people didn't know about germs. So you can promise me tech is not going to save this world, you can promise that? Please are you placing yourself on the same pedestal as all the great thinkers in human history or something, because how else can you promise something like that?

Micah Blumberg
"Socrates, Aristotle, Confucius.... skimming a lot of names.... Nietzsche.... scrolling down my list here... Thomas Jefferson, Tesla and ah yes "Talephorus" under the T's welcome to the hall of eternal history Matt. You made it." says the Guard at the Gate.

a0141z
(cascade, oscillat, field, array, decoherence)
Sync
The most important thing that I took away from the book sync is that it doesn't matter to consciousness whether our brains are dead or alive, because is its the physics of oscillators in a certain information configuration that forms memory patterns as decoherence patterns and produces sensor arrays to be conscious awareness. This consciousness configuration of the brains oscillators comes with a high fidelity sparse distributed time, space, tonic, phasic, and inhibitory memory system, that produces a distributed 3D phase field for learning coincidence patterns, and communicating & computing these patterns.

In essence though the human being is a fractal of oscillators, a fractal of a dissipative system, and oscillators essentially dissipate incoming signals, balancing them, high frequency resonating signals in particular exert significant electric waves, magnetic waves, mechanical wave, and chemical wave forces, inhibiting some of their tonic counterparts in their respective sensor arrays, while exciting neighboring sensor arrays.

I would divide the entire brain into a series of fractal sensor arrays, with sensor arrays joining up with other sensory arrays to magnify their receptive fields by each adjacent oscillator they are tonically firing with.

but it seems like we probably balance ourselves by dissipating signals.

Feyman's idea for configuration space, why two particles will find the shortest path between them.

Once oscillators fire together they merge together, they never stop firing together on their own, imagine that it takes some third oscillator to send them a knock that will cause them to oscillate differently again, and oscillators merge in random clubs

Also the idea of a bad spot helped me to think of the subset of fired patterns in any given array as a pattern that was being magnified in scale like a photocopy, its a strange idea that is not

intuitive, but the idea is that because a bad spot is like a phase differential that is not absorbed, it is still a bad spot if it is communicated to any other neuron, because the next neuron also does not absorb the bad spot, the argument is that the bad spot has no area to begin with, if an absorption doesn't happen it is not taking up additional space each time it moves to a new oscillator, even if it leaves the last oscillator, because it's area is growing temporally.

the transformed set, which has two bad spots, now lives inside the first set, so the bad spots are growing in area, but not really,

the transformation from before or after

so the brain is essentially cascades of arrays, one array creates a pattern that represents what it saw, the next array represents a pattern that represents what it saw, the next array represents a pattern that represents its perspective, and so as you move your head, the patterns are passed backwards through many arrays that see each other over time, producing a phase field that renders the matrix computer program in your brain essentially, so your brain is like a holodeck that is conscious.

The patterns that are evoked in each array resonate and dissipate away back into oscillation with the greater neural oscillation that they were connected to before they fired, this oscillation dissipates the signal across all the oscillators, each one absorbing a little bit of it until they are all oscillating as one again. However the activity causes dendritic connects to grow between simultaneously exited areas

I sort of think of how particles find the shortest path in physics, something like the laws of energy conservation or time conversvation something like that

a0142z
(category, theory, LTD, oscillat, dendrite, decoherence, vector)
sync theory

Rhythms for Cognition: Communication through Coherence (c

https://www.cell.com/neuron/fulltext/S0896-6273(15)00823-5?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS0896627315008235%3Fshowall%3Dtru

the problem is that synchronization or coherence is non-informative, its a solution for binding, for convergence, coupling of patterns, but not for distinction making, decoherence, deconvergence, decoupling of of ideas & concepts

sync theories are like 'lets merge all information together in a big pile (integrated information theory?) but not provide any method for disambiguiation, distinct, reflection or refraction.'

Peter Tse points out the fallacy of this kind of logic

The primary storage place of short term and long term memories at the microscale, LTP appears to be the spines on dendrite some of which are ionotropic receptors.

the oligodendrocytes therefore would also be able to store and transmit memories both short term and long term

larger scale memories would exist in physical configuration changes to oscillators as configured by LTD or large scale inhibition patterns to neural circuits in promixity to a neuron's phasic spiking event. The process of large scale LTD patterns establishes the cadence of brainwaves oscillation patterns reactive, bundles of neurons firing at low rates with high amplitude that are resistant to but responding to phasic firing bursts over spacetime.

Fractal, Recursion, Scale invariance
The brain is going to learn scale invariant patterns, like vectors, that are distance & location invariant, temporally invariant, and phase invariant.

So patterns are tempo-spatial phasic coincident differential potentials with four dimensional (or higher) vector formation.

Isomorphism, from Hofstadter pushed a lot of people including myself into studying category theory and topics related to studying natural or topological transformations with numbers

category theory is interesting because you might want to think of comparing two topological transformations as like comparing apples and oranges, or comparing unstructured datatypes

but perhaps within the stacks of unstructure data there are isomorphic (or functionally similar patterns) that can be isolated and compared.

Category theory points out that if two transformations can each be further transformed into the same transformation (the same result from two different paths) then the two paths are functionally isomorphic (producing the same result at the end of their journey) even if they have radically different pattern transformations to get there (bob took a car, sherrie took a boat, both got from their common home to the same store, so the journey was functionally isomorphic in that the functions along the way served the same result despite different structures.

and this idea gives rise to the idea that consciousness could be a substrate invariant information process

I like to think of the oscillator as an Expert Data Structure (Instead of an advanced data structure) because its creating its own paper for which it can measure incoming signals against as deviations, allowing the system to collaborate as knowledge gaining system, mapping a dimension or a movie frame of consciousness.

problem with pan-psychism resonator theory is that resonators which are decaying oscillators, like vortexes while being ubiquitous at all scales of the cosmos, do not encode memories over time, they dissipate into nothing, so resonation by itself is non-informing, it does not store information in a way that allows for transaction of information patterns

multi-scale choice making / pattern selection mechanisms

a0143z
(LTD, oscillat, field, array, dissipation, tomography, decoherence, emotion, qualia) Sync: Quantum General Relativity,

Send the entire book into the patent application as the description of how the technology you want to create works.

Neural Functional Isomorphic Tomography through Sequences of Oscillating Arrays of tonically synching with Resonating high frequency Phasic Signal Energy Dissipation, triggering large scale inhibitor patterns, that all the tonically firing neurons notice because their growth rate has been slowed in phase relative to other neurons that are firing in that same interval that they were inhibited, this includes decoherene patterns created by neurons that alternately oscillating in a splay state that decoheres the space between these neurons, dendritic spines fall apart, and the energy that was going to them is at the same time shift to a point in the configuration space of the neurons cell membrane that intersects with another neurons simultaneous firing somewhere else in the brain resulting in the growth of dendritic spines from that point in the cells membrane, the transformation efficiency function via scultping spacetime with decoherence patterns and the changes to spacetime are read by other layers of oscillating arrays in the brain which then repeat the cycle.

Pattern voting takes place over time which means that the connections between cells that fire over time change to result in greater pattern development. More energy efficient paths for pattern representation emerge over time, and the path is shrinking in energy use over time as the oscillatory network dissipates the phasic firing pattern.

The brain is finding the most efficient way to accurately represent the information that it needs to itself for the navigation of goals overtime

I decided to explain my favorite new ideas in a book since I have so many new ideas but at the same time I wanted to describe a new kind of machine that is conscious but in order to explain that I had to explain the neurophysics of consciousness, which involves a discussion of astrophysics, quantum physics, oscillations, sync, and along with this machine is its ability to interface with the human brain so I have to describe the part of the machine that is the brain computer interface, its goals, its exact methods, its scope.

So the machine I am proposing has three parts that can work independently or together, it the first part of the machine is a mechanical brain, an intelligent sentient phenomenally conscious brain, with human equivalent or better internal representations aka qualia, that is human level, that can optionally be connected to the human mind to facilitate lucid dream states with virtual reality programming, so it can program your dreams to be virtual reality games essentially, and this maximizes the graphical rendering performance of your brain, you will have the most amazing experiences that you will remember when you awake. Independent developers can create and sell experiences that you can download into your dreams. You can optionally use it to have Augmented Reality and Virtual Reality experiences via direct brain stimulation when your brain is networked to the artificial brain. You can extend your mind into it, merge with its mind, you can use it to link your mind to other humans such as is described in the book trilogy Nexus, you can use it to play VR or AR games.

This machine can also operate any type of vehicle, with any number of parts such as wheels or blades for air land sea and space travel

The book covers the optional warp drive component of the machine which requires the machines intelligence in order to operate its functions

It covers self driving personal electric vehicles, some of them with AI arms and exoskeletons and super human movement capabilities that can protect human riders in almost all situations, and so everyone will ride self driving electric unicycles that are maximally energy efficient, and the robot will hold you, protect you from all angles, and it will drive the vehicle by shifting its weight and your weight as you navigate, it can also be a co-rider for when you want to drive, so that its learning to predict how you drive the machine, and its only going to take over when it predicts that you are about to have a collision and aren't aware of it and are not reacting fast enough, at that point it will utilizes super human gymnastics to get you to safety avoiding all collisions with mindbogglingly awesome highspeed maneuvers.

so the delta wave is an oscillatory pattern that observes changes as phase changes in its phase field, the phase changes could be modeled as topological patterns encoded in phase changes over time, sensed, detected, and enlarged by subsequent arrays of oscillating groups of neurons, which is why we have the fractal brain activity patterns being replicated on different scales, so the brain is modelling patterns in every modality for every perspective at each interval of time with updates being the fastest closest to the sensory inputs. In part because the energy of incoming signal transmission is being dissipated with distance as it enters the brain to the highest layer which has the greatest lateral connectivities for learning large scale patterns. but the large scale synchronization at that depth and scale is going to be best accomplished with the slowest oscillations, the delta frequencies. 23

so the quantum dynamics of delta waves is its phase space is encoding multi dimensional topological patterns over time encoded in phase changes across the grid of the brains 3D neural network

its representing patterns that ricohet across the entire brain at multiple scales with multiple modalities, but it allows any of the modalities to become in focus at any scale because the higher scale of patterns in higher level sensory arrays magnify patterns with incraesing temporal area at each jump in scale, so the pyramidal cells represent a larger surface area for noticing larger scale patterns and rendering larger scale patterns that recordinate activity at lower scales

Consider
"Scale invariance in biology: coincidence or footprint of a universal mechanism?"
https://pubmed.ncbi.nlm.nih.gov/11396846/

okay so the receptive fields of the boids should be that the first row of boids onlyu sees incomingh

incoming sensory data, the one I saw had it moving toards the source, each boid mov3ed toward

but as a network they did not dissipate firing patterns or inhibit each other
a neural net network in webxr
a neural network in webxr

it could be visual, in which each row of boids plots a path and a color that reacts to the incoming sensor pattern or input pattern

this input could be the first row
another set aof boids does not see the incoming signals, but instead it only sees signals from the first aray

so the first array becomes the screen which isa representation of the sensory activty to another sensory array which is 2n layer of neurons

it iis interesting to note that each modality leaves a detectable short term pattern in its scale of the phase field, and each modality affects LTD and LTP long term memory and long term forgetting

so essence the brain is rendered in these five modalities

but the sixth modality might be quantum signal transmission and quantum signal detection, and this is interesting

at the quantum scale the frequency is higher, but the amplitude is less, and perhaps this allows the brain to infer patterns from smell, and patterns from sparse quantum clouds that could represent emotion

but in essence the quantum phase field needs a way of sending, receiving, transmitting, detecting, observing and watching quantum scale patterns.

One vehicle of that could be that the topology of neurons is causing patterns to scale down to coherence and decoherence patterns in the lattice of the microtubule (remember the paper Orchestrated Orch Or) and the scaling is like how the ear canal scales large audio patterns down to small audio patterns because of its topology

microtubules that receive quantum scale coherence/decoherence patterns would store them, and change their configuration/function and signal transmission primarily by increasing the frequency of the quantum field at some xyz coordinate in phase space. this would result in quantum entanglement or phase binding between oscillating neurons at the microtubule scale.

Tags:
  array, decoherence, emotion, field, graph, ltd, oscillat

a0144z
wisam shared
https://www.sciencedirect.com/science/article/abs/pii/S0306452221003900?via%3Dihub

https://scholar.google.com/citations?view_op=view_citation&hl=en&user=bzoKP5wAAAAJ&sortby=pubdate&citation_for_view=bzoKP5wAAAAJ:M3ejUd6NZC8C

https://www.sciencedirect.com/science/article/pii/S0306452221002852

a0145z
world models and attention for reinforcement learning

Can artificial agents learn rapid sensory substitution? EyeClockwise rightwards and leftwards open circle arrowsTongue Tang* & Ha* introduce a Set Transformer-inspired agent which processes arbitrarily ordered/length sensory inputs Artist palette#mlcollage [33/52]
v/@RobertTLange
Scroll: https://arxiv.org/pdf/2109.02869.pdf
Globe with meridians: https://attentionneuron.github.io
Television: https://youtu.be/m8POyrJ7Pgg?t=1939

a0145z
Soliton Waves

Physicists Uncover Properties of a Magnetic Soliton of Interest for Brain-Inspired Computing https://www.nyu.edu/about/news-publications/news/2018/may/physicists-uncover-properties-of-a-magnetic-soliton-of-interest-.html

Soliton model in neuroscience https://en.m.wikipedia.org/wiki/Soliton_model_in_neuroscience

a0147z
(conjecture, semantic) my conjecture, that I will argue later on in the year, is that a self-aware neural network can be built on a raspberry pi pico, capable of running a Terminator from the movie terminator 2, although on the Pi with fewer parameters than what the human brain has

but no there is still the case of 4D Semantic Segmentation which requires more power

one would need at least two neurons, or two neural networks.

a0148z
(hippocampus)
"Hippocampal neurons code individual episodic memories in humans" pdf notes:
(These are notes written in conjuction with a certain pdf. There is a pdf saved to the 12.9 ipad called: Hippocampal neurons code individual episodic memories in humans)
I am interested to learn about how grid cells and place cells work from the Hippocampus Research as applied to Cortical Column research.

To what extend is the function of grid cells & place cells representing a core dynamic in the brain called Reference Frames.

Is it true that grid cells & places cells work together to form a reference frame?

Do they work together or do they work apart to each form reference frames on their own.

Can a single cell form a reference frame in the sense do doing the combined work of grid cells and place cells

but the Hippocampus role in both episodic memory, how neural circuits maintain short term memory, but how that short term memory is also

a0149z

3D Phase Topology over time in the brain imagined as Tensors in a high dimensional Taylor series.

3D phase topology over time in the brain imagined as tensors in a high dimensional Taylor series, oscillatory physics transformations with bistable reaction-diffusion, threshold criticality & choice via path bifurcation of inhibitory interneurons circuits.

I want to say that if each action potential event creates a phasic pattern, and that a sequence of phasic spikes, high phasic spikes, tonic spikes, and inhibited spikes will produce something like a non-linear sequence that could alternatively be considered to be a dynamic linear sequence if we are just considering the sum of the brain's state at something like millisecond intervals of time. It's a dynamic linear sequence temporally in terms of the activations in the brain's 3D graph of neural arrays. The phase change at each synaptic cleft is imagined to have the significance of a temporal tensor in 3D space. We could compare the phase states at each interval or frame of time as components of a Taylor Series, like the phase changes are imagined as Polynomial Tensors in a high dimensional Taylor Series.

Further, these non-linear sequences of action potentials will be tracked, via their inhibited oscillatory waves, by whole oscillating cell assemblies, such as cortical columns, the hippocampus, or any oscillating neural circuit of any scale such as the suprachiasmatic nucleus.

So that a sequence of action potentials is effectively recognized by the brain as a series of coincidence patterns in time & space.

Even in the inhibitory interneuron areas of the brain the highly branching nonlinear neuropaths can be compared to 2 dimensional Taylor Series Polynomials being tracked by the brain.

Perhaps the frequency / duration patterns at the neuron level are being converted to frequency / amplitude patterns at the dipole or EEG scale of brainwaves.

So the question is, if each action potential phase in a phase sequence can be considered like a vector changing it's value as a polynomial in a Taylor Series (Calculus), that provides one way to think of how the brain might turn bits of detected data in a neural array, like the eye, into a recognizable shapes in the visual cortex. As the sequence proceeds a curve, if there is a curve, emerges, sort of like a continuous function being learned by a Universal Approximation Theorem, except that in this case the neural firing sequence is able to physically map to contours of learned 3D visual representations, but the same geometric learning process could be at work for all the other senses, and that might explain why we can think of our other sensory representations as having spatial & time characteristics or characteristics that change over time and area. Such as feelings that have a start, a peak, a low, an end, feelings that start in our feet, chest, neck, head, or some other space that we can describe to others.

This means that neural oscillating array-projection tomography can physically represent patterns as (non-linear) phase variation sequences. Then oscillating cell assemblies will learn the expressed spatial & temporal phase patterns happening within their cell assembly & derive from those learned patterns the shapes of concepts, the shapes & parameters & properties feelings, objects, sensations, and anything else you can become conscious of. These are learned

patterns that percolate through the oscillation cell assemblies with something like infinite summation but basically infinite summation as a neural network would accomplish it through coincident detection, and this tempo-spatial rendering of action potential sequences in phase patterns would be "seen" or perceived by the receptive fields of downstream (receiving) dendrites in the next neural array, cortical column, or oscillating cell assembly.

Consider:
"We found neurons with firing patterns that gradually increased or decreased along spatial axes distributed in all directions. Some of these cells exhibited beta rhythm oscillations. This type of axial coding for spatial representation in the brains of fish is unique among space encoding cells in vertebrates and provides insights into spatial cognition in this lineage."
From:
"Axial encoding schematics of neural representations of 3D space in freely navigating goldfish"
https://www.biorxiv.org/content/10.1101/2022.07.07.499255v1

Consider:
The phase field of the fovea appears to have a topographical distribution over time.
"with center frequencies that decrease from the center (i.e. the fovea) toward the periphery of the visual field"
Topological dominance in peripheral vision
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8479572/

Consider
Object-centered population coding in CA1 of the hippocampus
"Only a small number of cells fired consistently at the object location, or at a fixed distance and direction from it; yet the majority of the cells showed some change in their spatial firing patterns when the object was introduced. At the neural population level, these changes were systematically organized according to the animal's distance from the object."
https://www.biorxiv.org/content/10.1101/2022.07.07.499197v1

In both situations you can describe changes in the spatial distribution of frequencies, in other words a topological phase pattern over time.

In my thought experiment I am taking the Taylor Series from Calculus and applying it to a 3D grid of phase changes. 3D Calculus. With each phase change that is tracked by the brain representing a different step in a Taylor series representing the information content of the rendered mind *At least the phase topology as a brain state is an attractor point for the mind's oscillations.

Consider
"Multidimensional Taylor Series and Symmetric Tensors"
https://0fps.net/2011/08/30/multidimensional-taylor-series-and-symmetric-tensors/

In essence the rippling of memories, evoked from the connections of single neurons, to it's inhibited exit terminal, to the next neural array, are going to, in an inhibitory interneuron network area of the brain represent a sort of 3D Taylor Series, that can represent any kind of learned pattern, in high dimensions, basically via Universal Approximation Theorem & Calculus.

Brain Ripples May Help Bind Information Across the Human Cortex
FeaturedNeuroscience·July 8, 2022
https://neurosciencenews.com/cortex-ripples-20982/

"Brain Ripples May Help Bind Information across the Human Cortex
Ubiquitous bursts of brain waves appear to synchronize disparate and distant elements of memory, unifying them upon recollection"
https://ucsdnews.ucsd.edu/pressrelease/brain-ripples-may-help-bind-information-across-the-human-cortex?fbclid=IwAR0ndYTYuIk-GquI9g4e_pAnRkc_oo7-IPBP7OTp1YsTBC6JXEhUdwCOWaA

"Widespread ripples synchronize human cortical activity during sleep, waking, and memory recall"
"Different elements of a memory, or any mental event, are encoded in locations distributed across the cortex. A prominent hypothesis proposes that widespread networks are integrated with bursts of synchronized high-frequency oscillations called “ripples,” but evidence is limited. Here, using recordings inside the human brain, we show that ripples occur simultaneously in multiple lobes in both cortical hemispheres and the hippocampus, generally during sleep and waking, and especially during memory recall. Ripples phase-lock local cell firing and phase-synchronize with little decay between locations separated by up to 25 cm, enabling long-distance integration. Indeed, coripplingsites have increased correlation of very-high-frequency activity which reflects cell firing. Thus, ripples may help bind information across the cortex in memory and other mental events."
https://www.pnas.org/doi/full/10.1073/pnas.2107797119

So the action potentials that are initially triggered represent either the beginning, middle, or end of a learned sequence (in what I am describing as a 3D Taylor Series in something like a Laplacian Matrix whose virtual fabric is the 3D brainwave state transforming over time.

Choice as a Neuropath
"Pathway-specific inputs to the superior colliculus support flexible triggering of innate behaviors"
"These data suggest that projection-specific sampling of brain-wide inputs provide a circuit design principle that enables feed-forward transfer of visual threat to be independently adjusted to produce context specific behavior."
https://www.biorxiv.org/content/10.1101/2022.07.08.499294v1

Choice Inhibitory / Interneuron ref fig 11.5 György Buzsáki 2006
IE what I said about choice at the neural circuit scale yesterday

"In my opinion, choice, at the neural circuit scale, is the neuropath taken by action potentials in interneurons, not located in one region of the brain. Memories ripple across the whole brain. PRH is one convergence point for visual/tactile decisions. Looking forward to your paper/poster."
https://twitter.com/worksalt/status/1545763900372631553?s=20&t=N3sGtXlZVfEh8Wu4psbRVw
Appeared in a paper today. Coincidentally. Of course it's not a new idea anyways.
https://www.biorxiv.org/content/10.1101/2022.07.08.499294v1

"Multi-areal neural dynamics encode human decision making"
"that information related to expressed choices is contained in high frequency bands (gamma, high frequency activity) and is distributed across multiple brain regions, suggesting that distributed processes underlie human decisions under uncertainty."
https://www.biorxiv.org/content/10.1101/2022.08.05.502992v1

Here is another supporting source of the idea that memories are distributed across the whole brain, and that what is read out from an area like the PFC (Prefrontal Cortex) or PRH (Perirhinal Cortex) is just one part of a whole brain network activity with a distributed memory structure that interacts with memories that ripple across the brain.
"Mechanisms of distributed working memory in a large-scale network of macaque neocortex"
https://elifesciences.org/articles/72136

This interesting article called
"Tuning Neural Synchronization: The Role of Variable Oscillation Frequencies in Neural Circuits"
https://www.frontiersin.org/articles/10.3389/fnsys.2022.908665/full

points back to the work of Steven Strogatz, György Buzsáki, and others on oscillations & sync (in physics & neurophysics)
The only thing it doesn't propose is the conjecture of this book that brainwave oscillations are information carriers, in the tiny changes in hz, variations in Theta, Alpha frequencies for example. I'm arguing that those tiny variations are not noise, but instead they represent attractors for encoded expectation patterns that serve as a baseline of consciousness, or a ground of being, a tonic wave pattern, that incoming action potentials with phasic & high phasic bursts disrupt, change, and cause inhibitory waves, that ripple from tiny neurons to the whole brain.

Here are some quotes I pulled from the article:
"Frequency Is Critical for Spatial Synchronization and Phase Relations in Oscillator Networks
"if a pair of oscillators do not interact and they have a frequency difference, their phase-relation will change continuously with a rate determined by their frequency difference (detuning), a phenomenon termed phase precession.
"Nevertheless, this review demonstrates that changes of a few Hz either between brain locations or a moment-to-moment basis, according to stimulus or cognitive conditions, is a

property of neuronal oscillations in many frequency bands. Moreover, the precise oscillation frequency can have profound consequences in terms of synchronization properties (correlation, phase relations). Hence, we argue that manipulations of detuning represent a key experimental target to causally infer oscillatory properties without strongly affecting other network properties. Advanced multi-neuron electrophysiological and optical techniques (optogenetics, cellular voltage imaging) in future studies will provide exciting possibilities to measure and target frequency generation in neural oscillations and synchronization during cognition and behavior."

To go into more depth on how the physics of oscillations might manipulate information states, consider that information is not just a change in a phase pattern, but it's also a change in the synaptic pattern, and the phase patterns are not just electric, magnetic, chemical, there are also anything receptors are receptive to, such as mechanical vibrations, but the understanding the potential interactions of these phase based brain state transformations via the physics of oscillations will require some mathematical physics modeling.

Consider articles on Bistable Reaction Diffusion
"Wave-Pinning and Cell Polarity from a Bistable Reaction-Diffusion System"
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2292363/
Consider Articles on Brain State Threshold Criticality,
"Criticality in the brain: A synthesis of neurobiology, models and cognition"
https://www.sciencedirect.com/science/article/pii/S0301008216301630
Consider articles on Bifurcation of Neuropaths (Inhibitory Interneuron paths)
"Multistability and Bifurcation Analysis of Inhibitory Coupled Cyclic Genetic Regulatory Networks With Delays"
https://pubmed.ncbi.nlm.nih.gov/28212091/

However the above topics are about the physics that govern how our minds transform information, like how we process inputs into organized patterns, but this a topic area that you can crunch down into a folder and label "transformations that happen to the topological phase field over time" that the neural network of the brain is tracking like a 3D Graph of Tensor Polynomials in a Taylor Series (Calculus) for 3D Neural Networks.

Main Point:
These Phase Tensors are variations contain the information content of the rendered mind, as it is projected from one neural array to be observed by the next (Neural Array-Projection Tomography, or Neural Oscillatory Tomography). The variations in signal frequencies & durations along the lines of information theory, with rare information (action potentials) being more meaningful than tonic brainwave oscillations.

Interesting paper from 2020
"Integrating information in the brain’s EM field: the cemi field theory of consciousness"
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7507405/

"I describe the conscious electromagnetic information (cemi) field theory which has proposed that consciousness is physically integrated, and causally active, information encoded in the brain's global electromagnetic (EM) field"

One of the main differences I have from 'the cemi field theory of consciousness' is that I think of brainwave oscillation as an attractor point, but the neurons are the decoders, and without decoders the information in the brain's electromagnetic spectrum has no meaning, it's just a wave. So I think the author is closing in on some good ideas, but it's also missing an explanation of the observer effect which is what my terminology "Neural Array-Projection Tomography" helps points to, with Neural Array-Projection Tomography, the neural phase projection, which aggregates into brainwave patterns that project at the cell assembly / cortical column scale, from one neural array to the next is projected by one array and seen by the next, and that subsequent array repeats the process, a brainwave consisting of temporally & spatially distributed phase changes cascades through Neural Arrays resulting in computationally rendered perception, and also pattern learning, or pattern representation, pattern activation, memory-prediction rendering & observation.

None of this can happen with just an electromagnetic field alone.

I argue that the electric field and the magnetic fields in the brain are EACH relevant as attractor points in the brainwave oscillations (of tempo-spatially distributed phase changes), and these brainwave fields serve as attractors that drive oscillatory activities such as coupling, decoupling, synchronization, desynchronization, tuning, detuning, phase precession, and oscillatory phase coherence/decoherence (and my argument is that the phase differences are information states, like short term expectations, or attractors (that serve as information configurations) for short term memory oscillations)

The electric & magnetic fields, as brainwave patterns, as fields of phase changes, help maintain the oscillatory state transitions of your mind's information, meaning they represent some part of your mental expectation in this moment, and the transition to the next moment. Also while the Electromagnetic field is one thing, there are big differences between what is happening with the magnetic dipoles and what is happening with the electric dipoles, according to EEG & MEG measurements.

In short, with reference to 'the cemi field theory of consciousness' I think it's oversimplifying things a bit. In other words it is handwavy to suggest that a singular EM field is itself a conscious entity.

Good video series
partial differential equations & vector calculus video
https://m.youtube.com/watch?v=pvrIagjEk4c&list=PLMrJAkhIeNNQromC4WswpU1krLOq5Ro6S&index=13

November 28, 2022 Article from Quanta Magazine: "The Brain Uses Calculus to Control Fast Movements"
"The researchers cast the stopping mechanism in terms of two basic functions of calculus: integration, which measures the area under a curve, and derivation, which calculates the slope at a point on a curve. If stopping depended only on how much of a stop signal the MLR received, then it could be thought of as a form of integration; the quantity of the signal would be what mattered. But it doesn't because integration by itself isn't enough for rapid control. Instead, the MLR accumulates the difference between the two well-timed signals, which mirrors the way a derivative is calculated: by taking the difference between two infinitesimally close values to calculate the slope of a curve at a point. The fast dynamics of the derivative cancel out the slow dynamics of the integration and allow for a fast stop."
https://www.quantamagazine.org/the-brain-uses-calculus-to-control-fast-movements-20221128/?fbclid=IwAR3ewNZqHSiHvQBjkpX_HnMqLaGqqwlMbu-kO_Nf1ZtViAodwKAmJ_9udW8

Sourced from the above article
"Dynamic control of visually guided locomotion through corticosubthalamic projections"
https://www.cell.com/cell-reports/fulltext/S2211-1247(22)00948-2?_returnURL=https%3A%2F%2Flinkinghub.elsevier.com%2Fretrieve%2Fpii%2FS2211124722009482%3Fshowall%3Dtrue

a0150z

(transmitters, ATP, endophin, conjecture, synap, emotion, cortex, transmitter, semantic, neuron)
(dopamine) Robert Karl Stonjek No, this is wrong. Neurotransmitters such as these are links in a chain, so to speak. It is like suggesting that we only travel in order to burn fuel, because that is what happens every time we drive.

These neurotransmitters are not pleasure, but links in a chain of events that result in the feeling of pleasure. That the system can be short circuited at this point only shows up the vulnerability of the system.
14 hours ago · Unlike · 16

Marlicia Travis What about oxytocin and Relaxin?
14 hours ago · Like · 2

Filip Gęsiarz Technically speaking, dopamine is related to wanting/craving reactions, and liking/enjoying is more related to opioid, endocannabinoid, and GABA-benzodiazepine neurotransmitter systems http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2756052/
13 hours ago · Like · 8

Suzanne Fisher ...Was hoping to boost the overall system with a light-hearted MEME
13 hours ago · Like · 3

Ted Grabowski "Oxytocin, Oxytocin--We Love our Oxytocin!"

12 hours ago · Like · 7

Robert Karl Stonjek You win the lottery and are happy.
I can short circuit this by simply telling you that you had won the lottery and you would be happy.
Or I can short circuit the system even further and simply change neurotransmitter levels and you will be happy.

What *really* makes you happy? Clearly the fake measures are transient and inconsistent with the reality of your actual situation. But we like short cuts (hence TV, alcohol etc...)
12 hours ago · Edited · Like · 4

Micah Blumberg hey remember endorphins and acetylcholine
12 hours ago via mobile · Like · 3

Marlicia Travis Yes I was thinking about ACh too. Aren't they all wonderful!
10 hours ago · Unlike · 1

Marlicia Travis Did you know that if you use endorphins the right way during labour it minimizes the pain phenomenally. Drugs that make you feel good
10 hours ago · Unlike · 1

Diana Cryder I got it, Suzanne
9 hours ago · Like · 2

Michael Gabriel Song To be dreadfully nit picky, it's not serotonin and dopamine, but their appropriate receptors that impart the euphoric experience. Depending on the receptor these neurotransmitters also have the capacity to signal unpleasant thoughts and feelings
6 hours ago · Unlike · 2

Marlicia Travis Yes they do. Its the nerves that have it. Those lovely little excitatory nerves!
6 hours ago via mobile · Unlike · 2

Marlicia Travis Feelings.....
6 hours ago via mobile · Unlike · 2

Robert Karl Stonjek There must be some mechanism by which a stimulus from one sensory modality can, under some conditions, stimulate a number of unrelated modalities.

If I *tell* you something (eg 'I Love You') then those warm loving feelings (or the 'fight or flight' response) are relayed to numerous unrelated modalities ~ you feel it in your body as a nice warm feeling (or in your legs as you flee), you have thoughts concrete and abstract, you hear music (or sirens because you called the police...don't you like my raincoat?) and other responses.

Now what would be a really simple and easy way of crossing all these unrelated modalities all at once AND using a method that could evolve from very simple brains.

Yes, you guessed it. Change a particular neurotransmitter abundance that is used by the diverse areas and they all respond together but in totally different an physically unrelated ways.

And there's the trick. So if you intervene at the crossroads, so to speak, you get the response. Now the real trick is that when this response occurs naturally, each modality accepts it (music even though there is no external sound) because the mechanism is never triggered without at least one of the related modalities being stimulated.

So if none of them are stimulated the response occurs anyway because this possibility is not evolutionarily likely.

Analogy:
There are many fire alarm buttons throughout a building. Regardless of who presses it or where in the building it is 'stimulated', the fire alarm sounds and everybody runs outside even though they didn't see any sign of fire. The assumption is that the alarm wouldn't sound unless SOMEONE saw signs of a fire.

So that, *in my opinion*, is the role of these emotion signalling neurotransmitters. It is 'cross modal'.

Just as fire alarms do not cause fires, neurotransmitters do not cause emotion ~ they initiate the wide (cross-modal) response to emotional stimulus (which is what you feel).
6 hours ago · Unlike · 2

Emil Bohman what about just pure experience?
5 hours ago via mobile · Unlike · 1

Radek Stupak this is oversimplification. also, what about endorfines?...
5 hours ago · Unlike · 1

Radek Stupak and what about oxitocine?...
5 hours ago · Unlike · 1

Micah Blumberg oxytocin
5 hours ago · Like · 1

Micah Blumberg I already said endorphins, but what about endolphins? just kidding
5 hours ago · Edited · Like

Radek Stupak yeah, endolphins!
5 hours ago · Unlike · 2

Radek Stupak and dopabonobos.
5 hours ago · Unlike · 2

Radek Stupak well, the only way to answer that question is to have a pure experience... but that's beyond the language and logic of science, i guess.
5 hours ago · Like

Radek Stupak (but that doesn't mean there is no such thing, it may only mean that science is not capable of grasping "pure experience")
5 hours ago · Like

Radek Stupak (yet?)
5 hours ago · Like

Micah Blumberg no I mean the language is problematic, incoherent, meaningless, how could anything not be also pure experience? who is to say what is and what isn't pure experience, the question itself is nonsense
5 hours ago · Like · 1

Emil Bohman If I smell a flower, neurotransmittors is more like a gateway to bring about the full experience in my mind, right?
5 hours ago · Like

Micah Blumberg you can't quantify pure experience, or even experience if you can't separate it from something that isn't experience, or experienced in some way
5 hours ago · Like

Radek Stupak i know what you mean. but what i mean is that some things exist beyond any language and thus speaking about them seems incoherent or nonsense, though it doesn't prove that those "experiences beyond language and logic" don't exist or are nonsense.
5 hours ago · Like

Micah Blumberg at somepoint experience is everything, and experience equates to everything, so what your really asking is "what about just pure everything?"
5 hours ago · Like · 1

Micah Blumberg "what about pure everything?" is a nonsense question just like "what about pure experience?" is a nonsense question.
5 hours ago · Edited · Like

Radek Stupak and pure everything is cosmos and so far nobody really knows what cosmos in it's absolute is.

5 hours ago · Like

Radek Stupak (universe)
5 hours ago · Like

Robert Karl Stonjek A system to distribute the feeling to otherwise unrelated modalities. This 'crosstalk' is very common in human consciousness and is much broader than the simpler emotions mediated by neurotransmitters.

For instance Beethoven symphony No.6, the Pastorale, evoked feeling of a trip to countryside. That is very crossmodal: sount to music to experience of the country side. The experience of the countryside comes from viewing the scenery, smelling the country smells, hearing the country sounds (as experienced by the listener in the past) and the generalised (to 'any trip in the country') and then matched to the music.

So the neurotransmitter version is ancient and simple one and we'd expect to see it in many mammals. But I don't think too many of them would be able to match a trip into the country with Beethoven's 6th
5 hours ago · Like · 3

Micah Blumberg The nerve is the axon right?
5 hours ago · Like

Radek Stupak and music is a form of language.
5 hours ago · Like

Black Square Radek Stupak Nah, it ain't. You need syntactic forms and mappings onto semantics. Music doesn't really work like that.
5 hours ago · Edited · Like

Micah Blumberg It's the nerve that feels, and the result of that feeling must be after the extra electrical potential has passed to the synapse, and that's when the neurotransmitters are released into other cells. So the neurotransmitters are sent out after the feeling has happened.
5 hours ago · Like

Black Square Robert Karl Stonjek Whereas the ultraviolence after hearing the 9th is purely dopaminergic
5 hours ago · Like

Micah Blumberg Orange you glad I didn't say dopabanana? My comment was right on time, like Clockwork.
5 hours ago · Edited · Like · 1

Robert Karl Stonjek Stockhausen and John Cage stimulate the LSD receptors (assuming we have such things)...
5 hours ago · Like

Micah Blumberg Receptors mold themselves to receive specific neurotransmitters as if they were adapting to receive nutrients, like nicotine. So if LSD becomes a neurotransmitter, receptors will adapt to LSD, then you have LSD receptors. The receptor change must coincide with a structural change that effects with the criteria that determines when a neuron fires and in response to what types of patterns a neuron will fire.
4 hours ago · Edited · Like

Black Square To be a neurotransmitter, it has to be synthesised by the brain, among other things. Part of the structure of LSD has a tryptamine backbone, as does serotonin. It activates several serotonin receptors because LSD can fit in the active site and stabilise conformations of the receptor, hence mimicing the action of serotonin.

Part of the reason it has such a bizzarre effect is because it targets certain receptor subtypes specifically, whereas MDMA causes serotonin to be pumped into the synapse, which mimics heightened levels of serotonin, for which the brain has mechanisms of dealing with something that is an extreme version of a physiological state.

Of course, it's what cell types the receptors are on that gives rise to the effects. One of them being autoreceptors on the Raphe Nucleus, which when stimulated, lower serotonin release onto the Locus Coerulus (LC) which is the primary noradrenaline centre. This results in reduced stability in LC dynamics, leading to nonlinearities in adaptive gain control.
4 hours ago · Unlike · 1

Robert Karl Stonjek Yes. And there is a very wide variety of neurotransmitters, they are not a separate class of molecule. There is a gas (NO) and several hormones in the mix!!
4 hours ago · Unlike · 1

Black Square Incidentally, the drug amyl nitrite (poppers) works by breaking down into NO in the bloodstream.
4 hours ago · Unlike · 1

Micah Blumberg Isobutyl nitrite works the same way??
4 hours ago · Like

Micah Blumberg What about ATP, can ATP act as a neurotransmitter? Can anything?
4 hours ago · Like

Radek Stupak Black Square music has got it's own syntactics. it doesn't have semantics (at least in its' conventional meaning).
4 hours ago · Edited · Like

Micah Blumberg answered my own question http://www.ncbi.nlm.nih.gov/pubmed/16487603

Historical review: ATP as a neurotransm... [Trends Pharmacol Sci. 2006] - PubMed - NCBI
www.ncbi.nlm.nih.gov
PubMed comprises more than 23 million citations for biomedical literature from M...
See More
4 hours ago · Like · Remove Preview

Micah Blumberg on topic fasho http://www.thurstontalk.com/.../

ATP: Your Energy Source And Neurotransmitter
www.thurstontalk.com

Black Square Yes, all alkyl nitrites work in the same way. The main difference is that the number of carbon atoms in the alkyl group determines how easy the NO can fall off.
4 hours ago · Unlike · 1

Micah Blumberg what about Jalapeno Poppers, do they work the same way? (joke)
4 hours ago · Edited · Like · 1

Black Square See the Neurotransmitter article on wikipedia for the criteria for being a neurotransmitter.

Drugs are exogenous, so they're not neurotransmitters. Also, although, e.g. DMT is produced by the brain and some (as yet, unsupported) conjectures suggest it can reach high enough levels under certain conditions to stimulate receptors, it does not do this under normal physiological conditions. Thus not a neurotransmitter.
4 hours ago · Edited · Like

Black Square No, those you stick up your arse and your heart rate goes bonkers while you wait for the toilet to become free.
4 hours ago · Like

Robert Karl Stonjek Drugs are not neurotransmitters but either stimulate neurotransmitter release (eg psychoactive drugs used to treat depression) or mimic drugs (I wonder what stimulates nicotinic receptors).

But drugs are not neurotransmitters. Indeed, many neurotransmitters will not even cross the blood-brain barrier and must be synthesised in the brain from precursors (I think).
4 hours ago · Unlike · 2

Marlicia Travis drug (drug)

1. a chemical substance that affects the processes of the mind or body.

2. any chemical compound used in the diagnosis, treatment, or prevention of disease or other abnormal condition.

3. a substance used recreationally for its effects on the central nervous system, such as a narcotic.

4. to administer a drug to.
4 hours ago · Unlike · 1

Micah Blumberg Black Square says "See the Neurotransmitter article on wikipedia for the criteria for being a neurotransmitter.

Drugs are endogenous, so they're not neurotransmitters."

Wikipedia article on neurotransmitters says...See More

Neurotransmitter - Wikipedia, the free encyclopedia
en.wikipedia.org
Neurotransmitters are endogenouschemicals that transmit signals from a neuron to...
See More
4 hours ago · Like · Remove Preview

Marlicia Travis http://medical-dictionary.thefreedictionary.com/drug
4 hours ago · Like

Marlicia Travis Since when has Wikipedia been a valid source? Just saying
4 hours ago · Like

Black Square @Micah Blumberg Sorry, a typo.

@Marlicia Travis In the context of providing the 'highest level of folk knowledge for general use', then always. It's only unsuitable for citation in an academic context.

When has looking words up in dictionaries been a substitute for academic knowledge?
4 hours ago · Unlike · 1

Micah Blumberg yeah but what is the typo because it seems like all these unreliable sources are contradicting Black Square & Robert Karl Stonjek's notion that drugs are not neurotransmitters, it actually seems that they are
3 hours ago · Like

Micah Blumberg What is happening to your braincells right now? (humor)

3 hours ago · Like · 1

Robert Karl Stonjek In science and medicine, 'drug' is assumed to refer to something introduced into the body. Neurotransmitters, including endocannabinoids which are similar to cannabis and endorphins, which are similar to opioids, are not considered to be drugs.

It is a customary practice. It does not mean that no drugs are identical to neurotransmitters.
3 hours ago · Edited · Unlike · 2

Black Square Sorry, it's all a question of 'purpose'.
Drugs are EXOgenous. They are purposefully adminstered to interfere with physiology. Pharmaceuticals go one step further and are specifically engineered to have a relatively-precise effect on physiology.

Neutrotransmitters are ENDOgenous. They evolved for the purposes of signalling across synapses. They must meet certain criteria to be NTs.a
1) Must be present in the 'sender', e.g. presynaptic cell.
2) There must be receptors to transduce the signal on the 'receiver', e.g. postsynaptic cell.
3) There must be a means of inactivating the effect, e.g. reuptake into either cell, endocytosis with the receptor complex, in-synapse enzymatic degradation, etc.
4) There must be specific metabolic pathways for making (anabolism) and destroying (catabolism) the messanger.

Drugs don't have specific pathways to do this, indeed, the liver has a general mechanism for making xenobiotics (foreign molecules) more soluble in water, and the kidney works by pissing everything out first, then reabsorbing what it needs. Drugs also don't have specific receptors for them -- they target receptors for NTs and others. You don't have 'THC receptors', you have 'anandamide* receptors'.

* technically CB1 receptors, which bind several endocannabinoids (eCB).

I've been up all night programming Dynamic Causal Models in Haskell, so my brain cells are currently off their tits on caffeine, sleep deprivation and Bayesian model selection.
3 hours ago · Unlike · 1

Micah Blumberg hey it's an awesome response, I think of neurons as dynamic causal models in a way, how interesting, do your dcm's make decisions and alter the decision criteria of other dcm's?
3 hours ago · Like

Black Square Dynamic Causal Modelling is a particular modelling framework. There's two parts:

1) A biophysical model that generates data like you would observe from a real brain, in this case, EEG data from the scalp.

2) A means of inferring the values of the most likely parameters of the model that generate a real dataset you've collected. You get a probability distribution over values of each parameter so you can say how certain you are of what's going on.

The 'Dynamic Causal' name is because we're modelling the causes of the EEG data with a dynamical model. Other ways of analysing EEG data involve making statistical correlations between measurements, without thinking about how the data were caused.
2 hours ago · Unlike · 1

Black Square The way the parameters are inferred involve minimising a quantity called 'free energy' (in a statistlcal sense). There's ways of altering the parameters using genetic algorithms to save on computation time, so yes, the outcomes of these do infer decisions made later about how to minimise the free energy.
2 hours ago · Unlike · 1

Diana Cryder This is what happens when you tell a joke to geeks
27 minutes ago · Like · 2

Micah Blumberg That is so cool! I use EEG combined with brainwave entrainment and an avs mind machine as part of a profound experience I create for clients. However there are a lot of improvements I would like to make to what I am doing, perhaps "Dynamic Casual" modelling would be useful at somepoint to help achieve what I want to do.
10 minutes ago · Edited · Like

Micah Blumberg The goal is to feed the clients their own brainwave activity as isochronic tones that are highly responsive light and sound patterns, so that the clients begin to recognize their brainwaves, and because of the principles of neuroplasticity (when neurons fire together they wire together) this tech creates new connections across regions of the mind, uniting the frontal cortex with the parietal cortex, the occipital lobes, the auditory cortex etc... the eyes, ears, and parts of the brain monitored by the eeg cap. I already do this, but I want to make it more responsive and accurate. I think that with a good dynamic causal model one could make the computer follow the changes more accurately for use with a three dimensional virtual world, sort of like a mind machine merged into the Oculus Rift.
3 minutes ago · Like