

# You Make Your Universe, Your Life, Your Experience

## ***Forward***

This is a transcript from the YouTube video; <https://www.youtube.com/watch?v=sCZ3NYsv3cY> “*Why Your Brain Creates Reality*” — Lisa Randall Truth

Parenthetical and italicized text are mine.

I submit the following for your consideration in your modern understanding of the knowledge that Shakyamuni Buddha was trying to convey some almost 3000 years ago to a largely illiterate people as well as all caste up to the intellectual (*Brahman*) caste of India.

My constant goal is to make the history and scholarship of Buddhism and its founder’s teachings as easy to understand as this modern era of Mappo can transmit. With the access to our great scholars in both Buddhist lineage as well as those academically trained, this wealth of information can be overwhelming. It is my task to reduce the noise or extraneous pursuits of politicized agendas to deliver a paired back but no simplified, straightforward teaching without distraction. The sciences today, from physics and cosmology to psychology and neurology, provide a glut of observable truths that apply directly to our Buddhist practices and rhetoric. I provide here a direct transcription of video talks from the Internet with interruptions of personal insight regarding Buddhist teachings and practice, as a guide to interrelate our practice with the provided text.

*Sifu, Bodhisattva Sylvain Chamberlain*

*Love and respect, NaMuMyohoRenGeKyo*

## ***Transcript Annotated***

Your brain has never once shown you the real world. Not even right now as you watch this. Harvard theoretical physicist Lisa Randall in her peer-reviewed work on extra dimensions and perceptual reality demonstrated that the universe your brain presents to you is not the universe that actually exists. And the gap between those two things is not a rounding error. It is everything. By the end of this video, you are going to understand exactly why the world you see is a construction, not a recording. You are going to understand how quantum physics and neuroscience

converged on the same uncomfortable conclusion from completely opposite directions. And you are going to understand what Lisa Randall found when she pushed her equations past the boundary of what the human senses can detect. A finding so strange that even she called it deeply unsettling. Stay with me because the last part changes everything.

*(We start here with the 3000 Realms, to constant barrage of influence from our mind's potential environmental influences. How wonderful. From this point we can see how and why our thoughts develop as they do, with the realms that influence our perception, or actually, influence our karmic tendencies and conditions.)*

Look at your hand right now. Look at it. You see skin. You see color. You see a solid surface with texture and depth and edges. You see something that is unambiguously, undeniably there. Now, here is what is actually there. Mostly empty space. A loose arrangement of atoms, each one almost entirely vacuum with a tiny dense nucleus sitting at its center like a marble in the middle of a football stadium. The electrons that surround that nucleus are not little balls orbiting it. They are probability clouds, smears of likelihood. They do not have a location until something interacts with them and forces one to appear. The solid hand you're looking at is not solid. The color you are seeing is not in the hand. It is a frequency of light your brain has translated into an experience. The edges are not in the world. Your visual cortex drew them. So, who built the hand you think you see?

You did. Your brain did. And the question is how and why and what does that mean for everything else you think is real. Let's start with the neuroscience because this is where it gets personal. Your eyes are not cameras. This is one of the most important things you will ever learn about yourself and almost nobody knows it. A camera is a passive recording device. Light comes in, image goes out.

What you get is a faithful copy of what is in front of the lens. Your eyes do not work like this. Not even close. Here is what your visual system actually does. At any given moment, the sharpest part of your visual field, the part where you can actually read text, recognize faces, see fine detail, covers an area roughly the size of your thumbnail held at arms length. That area is called the fovea. Everything outside it is processed at dramatically lower resolution. The peripheral vision you think you have, that full, rich, detailed world surrounding your center of focus, is almost entirely a fabrication. Your brain fills it in. It takes a low resolution signal from your peripheral retina and it constructs a hybrid scene from memory, prediction, and statistical inference. You are not seeing the room you are in right now.

You are seeing your brain's best guess about the room you are in, updated in real time by small psychiatric eye movements you are not aware of making, stitched together into a seamless, convincing, completely synthetic experience of presence. But it goes deeper than that. The signals that travel from your eyes to your visual cortex travel along the optic nerve.

That journey takes time. By the time the signal from your retina reaches the part of your brain that processes it into conscious visual experience, approximately 80 milliseconds have passed. At the speed you move through the world and walking,

driving, reaching for objects. 80 milliseconds is enough time for significant things to change.

If your brain showed you the world as it was 80 milliseconds ago, you would constantly be miscalculating. You would reach for where the cup was, not where it is. You would step where the stair was, not where it is. So your brain cheats. It predicts forward. It uses everything it knows about how objects move, how light behaves, how physics works at human scale, and it generates a prediction of where things will be by the time your motor system can respond.

What you consciously experience as the present moment is not the present moment. It is a predictive model of the immediate future rendered as now. Neuroscientist David Eagleman at Stanford has spent years documenting this. His research on time perception and consciousness demonstrated that the brain actively edits your experience of time, filling gaps, reordering events, smoothing inconsistencies so that your conscious narrative of the present is always already a story your brain told you about something that already happened. You have never experienced the present. You have only ever experienced a model of it.

Now hold that thought because this is where Lisa Randall walks in. Lisa Randall is not a neuroscientist. She is a theoretical physicist at Harvard. one of the most cited physicists alive. And her work is on something that sounds completely unrelated, extra dimensions of space.

*(Now the conversation turns to the aspect of this cosmos and our Buddhist practice from the concepts of Tathagata, Nidana and the expression of energetic potential into sentient beings to “experience” the Engine of Life. “Experience” being our Tathagata potential to “self-perceive” as exemplar of the entire process of the cosmos.)*

Her landmark book, *Warped Passages*, published in 2005 and drawing on peer-reviewed work in physical review letters, introduced the Randall Sundrum model, a framework proposing that our universe exists on a membrane, a brain, floating within a higher dimensional space we cannot perceive. Now, why does a theoretical physicist working on extra dimensions have anything to tell us about how the brain constructs reality?

Because of what she found at the boundary. When Randall and her collaborator Raman Sundrum built their model of a warped extra dimension, they were trying to solve a specific problem in physics called the hierarchy problem.

The question of why gravity is so extraordinarily weak compared to the other fundamental forces. Their solution involved a second brain, a second membrane universe separated from ours by a gap in a fifth dimension. Gravity in their model leaks between brains. It exists in the full higher dimensional space. The other forces, electromagnetism, the strong force, the weak force are confined to our brain. They cannot escape into the extra dimension. They are in a very precise technical sense trapped here. What does that mean for reality as you experience it? It means that every single thing you perceive, every photon that hits your retina, every air pressure wave that moves your eardrum, every chemical that binds to your taste receptors is

confined to this membrane. Your entire sensory experience of the universe is a brain-bound phenomenon. You are not perceiving the universe. You are perceiving the surface of it. The interior, the bulk in Randall's terminology is physically inaccessible to your senses, not difficult to access, not requiring better instruments, physically, fundamentally, categorically inaccessible. You are a two-dimensional drawing on the surface of a soap bubble David Eagleman and the brain's time illusion trying to understand the room the soap bubble is floating in. But here is where it gets stranger. Randall's model does not just say there is more universe you cannot see. It says the geometry of that hidden dimension actively shapes the physics of the universe you can see.

The reason particles have the masses they do, the reason the Higgs boson exists with the mass it has, the reason electrons are as light as they are, is a consequence of the warped geometry of a dimension your brain cannot represent, cannot even form a concept of without mathematical scaffolding. Your brain, the organ that constructs your reality evolved on the surface of a planet at human scale, processing signals that travel along brain bound forces. It has no machinery, none, uh, for perceiving or representing the bulk. It is not that the extra dimension is hidden from you the way a dog whistle is hidden from you just at a frequency your ears cannot reach. It is that your brain has no sensory modality, no perceptual category, no cognitive framework that was ever shaped by selection pressure to engage with it. It is outside the entire space of things your mind can construct.

So your brain's model of reality is not just incomplete in the way that a map is incomplete. It is incomplete in the way that a photograph of a room is incomplete. It captures one flat projection of a three-dimensional space and all the depth, all the geometry, all the relationships between objects that give the room its actual structure are gone, collapsed into the image, unrecoverable by looking at the photograph alone. Now, let's go back to quantum mechanics. Because quantum mechanics had already arrived at the same conclusion from the opposite direction and the convergence between these two fields is what makes this story so difficult to dismiss, the double slit experiment. You may have heard of it. Run in its modern form at institutions including the *Weizmann Institute of Science* in Israel and repeated at dozens of labs across the world. It remains one of the most replicated and most disturbing results in all of physics. Here is what happens.

You fire particles, electrons, photons, even molecules one at a time at a barrier with two narrow slits cut into it. Behind the barrier is a detector screen. If particles are particles, little solid things with definite locations, you expect them to pile up in two bands directly behind the two slits. The same way sand thrown at a fence piles up behind the gaps. That is what common sense, Newtonian physics and every intuition you have built from living in the physical world predicts.

Instead, you get an interference pattern. A series of alternating bands of high and low density spread across the detector screen. The pattern that appears when two waves overlap and interact. The particle fired alone with no other particle present to interfere with behaves as though it passed through both slits simultaneously, interfered with itself as a wave and only then resolved into a single point on the detector. The particle existed as a wave of probability, a superposition of all possible

paths until the moment it was detected, until something measured it, until something in the physical world interacted with it and forced it to choose a location.

Here is the part that makes physicists uncomfortable even now, decades after the experiment became textbook material. When researchers at the *Weizmann Institute* placed a detector at the slits, a device that could tell in principle which slit the particle went through, the interference pattern disappeared completely. The particles went back to behaving like particles. Two bands, no wave behavior.

The act of measurement of gaining information about the particle path destroyed the quantum behavior. The particle knew it was being watched. That sentence is not metaphor. It is the most literal description of what the mathematics predicts and the experiments confirm. The presence of an observer, more precisely, the presence of any physical interaction that encodes information about the particle's path collapses the wave function, converts probability into actuality, creates a definite reality where before there was only a smear of potential. This is not a technological limitation. It is not a measurement disturbance problem that better instruments could solve.

Physicist John Wheeler, who worked alongside Niels Bohr and spent decades probing the foundations of quantum theory, proposed what he called the participatory universe. The idea that observers are not passive witnesses to a pre-existing reality, but active participants in its creation. His delayed choice experiment proposed in 1978 and first physically realized in 1984 by Carol Alli and colleagues at the University of Maryland showed that you can choose whether a photon behaved as a wave or a particle after it has already completed its journey retroactively determining its history. The universe at its most fundamental level does not have a definite state until something interacts with it.

Now bring these two threads together. Lisa Randall's physics tells us that the universe is geometrically larger and stranger than anything our senses can access. that our perceptual reality is a brainbound projection of something whose full structure we are constitutionally incapable of perceiving.

Quantum mechanics tells us that the universe does not even have a definite structure until something observes it. That reality is not a fixed thing waiting to be discovered, but a probability field that collapses into specificity through the act of measurement.

*(This is the dissecting of **Tathagata** (the “**imperative to experience**”, from the material or physical side of the Engine of Life. Our physical cosmos and the scientists within it, looking backward at “Formation”, the middle of the equation “**Quiescence through Formation Into Realms of Form**”, perceives formation as **Quantum** and rightly identifies the influence matrix of **Karma**! Brilliant!)*

And neuroscience tells us that the brain receiving those measurements is not a passive recorder, but an active constructor predicting forward, filling gaps, smoothing time, drawing edges, inventing color, and delivering to your conscious experience not the world, but a model of the world tuned by evolution to keep you alive, not to show you what is true. Three fields, three completely independent lines of inquiry. One conclusion, the world you experience is constructed at every level.

From the quantum scale, where particles lack position until observed, through the brain scale, where entire dimensions of geometry are physically sealed from your senses, up to the neural scale, where your brain assembles a synthetic present from prediction and memory and fills your visual field with a fiction detailed enough to convince you completely. You have never seen reality. You have seen what your brain built from the signals that reached it. And those signals were already a tiny filtered brain confined observer dependent sample of something much larger, much stranger, and completely beyond the reach of any sense you have or could ever have. Here's the thing that should keep you up at night.

If your brain constructs reality, if it is not receiving the world, but building it **moment to moment** from incomplete signals and forward predictions and brain confined measurements of a probability field, then the question is not whether your reality is real. The question is real for what? Your brain did not evolve to show you truth. It evolved to keep a fragile biological organism alive on the surface of a planet for long enough to reproduce. It evolved to model threats, resources, social relationships, and physical obstacles at human scale in human time with enough accuracy to be useful. Not perfect accuracy, useful accuracy. The difference between those two things is the entire history of human error, human war, human suffering, and human wonder.

Lisa Randall has said, and this is worth sitting with, that most of the universe is simply not accessible to human perception, and that this is not a temporary problem science will eventually solve. It is a permanent structural feature of what we are. We are brain bound. We are sense limited.

*(This is certainly truth in the **Samsaric** sense. However, as Buddhists, we can push the mind into the Tathagata territory of "experience" via our 9<sup>th</sup> or ultimate consciousness, opening our "**Buddha eye**" to perceive clearly what is occurring in these moment-to-moment expressions of Karma, Life, and the cosmos.)*

We are prediction machines running on evolutionary hardware that was never designed to show us the universe. It was designed to show us enough of the universe to survive it. Which means every model of reality humans have ever built, every religion, every philosophy, every scientific theory, every political system, every story is a construction built by brains working with a fraction of the available data, filtered through senses that evolved for survival, not truth, assembled into a narrative that feels complete because incompleteness is invisible from the inside. You cannot see the edge of your own blind spot.

That is what makes it a blind spot. So here's the question I want you to sit with. If everything you know about reality is a model built by a brain designed to survive rather than to see, what would it take to actually know something true? So, let's return to every promise I made at the start. I told you that you would understand why the world you see is a construction, not a recording. And now you do. Your visual cortex is not a camera. It is a prediction engine. It generates a model of the world that is updated by incoming sensory data, but is never identical to it. The color you see is not in the object. It is a neural translation of a wavelength. The solidity you feel is not in the matter. It is an electromagnetic repulsion between electron clouds. The present moment you inhabit is not the present. It is a forward

projection rendered in the past experienced as now. I told you that quantum physics and neuroscience converged on the same conclusion from opposite directions.

They did. **Quantum** mechanics (=formation) from the bottom up. Matter has no definite properties until observed. And the observer is not separate from the system but constitutive of it.

**Neuroscience** (=meditation) from the top down. The conscious mind is not reading reality but writing it continuously from the inside with no way to verify the output against anything external. And I told you what Lisa Randall found at the boundary of the perceivable. Something she herself described as deeply unsettling. And now you understand it. The Randall Sundrum model does not just add hidden dimensions to the universe. It tells us that the geometry of those dimensions shapes the physics of everything we see while remaining permanently physically constitutionally beyond the reach of any sense we have or could evolve. The universe is not hiding from us. We are structurally prevented from seeing it. (*in Samsara.*)

There is a difference, and that difference matters enormously for how science, philosophy, and human meaning-making proceed from here. But here is what I did not promise and what I now need to give you. All three of these fields, neuroscience, quantum mechanics, and Randall's *higher dimensional physics* point toward the same underlying question, and none of them answer it. If reality is observer dependent at the quantum level, if particles have no definite state until measured, and if observers are themselves physical systems made of quantum particles, then what observes the observer? What collapses the wave function of the brain doing the measuring? This is not a rhetorical question. It is the measurement problem, one of the most contested unsolved problems in the foundations of physics. And the answer you give it determines everything else.

*(Hmmm. This would be Tathagata, the initial fluctuation of the quiescent “bulk” of energy. The first glimmer of the Engine of Life. The “starting” point **Awareness** as distinguished from **unAwareness**. The original “identification” from which precipitates all action, amalgam, formation, etc... We need not look any further for our practice. As quoted from the Udana, “There is, Oh disciples, an unborn, not become, not compounded, not constructed. If there were not this unborn, not become, not compounded, not constructed, so an escape is possible from what is born, compounded, constructed.”*

*In other words, our experience is of “being”, a born entity with mind, trapped in Samsara. To escape our experience of stress and discomforts, Dukkha, is our goal in practice. Nirvana and to live this life with joy, compassion, and a true freedom is the object of our efforts. Attempting to understand a cosmos with no life, or a non-cosmos, is an absurdity of no utility.)*

If consciousness collapses wave functions, then mind is not a product of matter, but a precondition of it (*bingo*). If decoherence collapses wave functions, the of interaction of a quantum system with its environment, then consciousness is irrelevant to the structure of reality, and your entire inner life is an epiphenomenon, a shadow cast by physics that doesn't need you. These two answers point to universes so different in their fundamental nature that they might as well

be different religions. And Lisa Randall's work adds another layer. If we are brain bound, if our universe is one membrane in a higher dimensional bulk, then what does it mean to ask whether reality is observer dependent? Which observers on which brain? If there are other brains, other universes floating in the bulk, each generating their own observer dependent collapse of their own local reality, is there any brain independent fact of the matter at all?

Or is reality all the way down relative to the membrane you are standing on? And that leads to something even stranger.

Because if reality is brain relative, if the physics that governs what is real depends on which membrane you exist on, then the next question is whether those brains interact, whether information, not just gravity, can leak between them, whether there is something, some signal, some echo, some interference pattern pressed into the structure of our universe from a neighboring membrane that we have already measured without knowing what we were measuring.