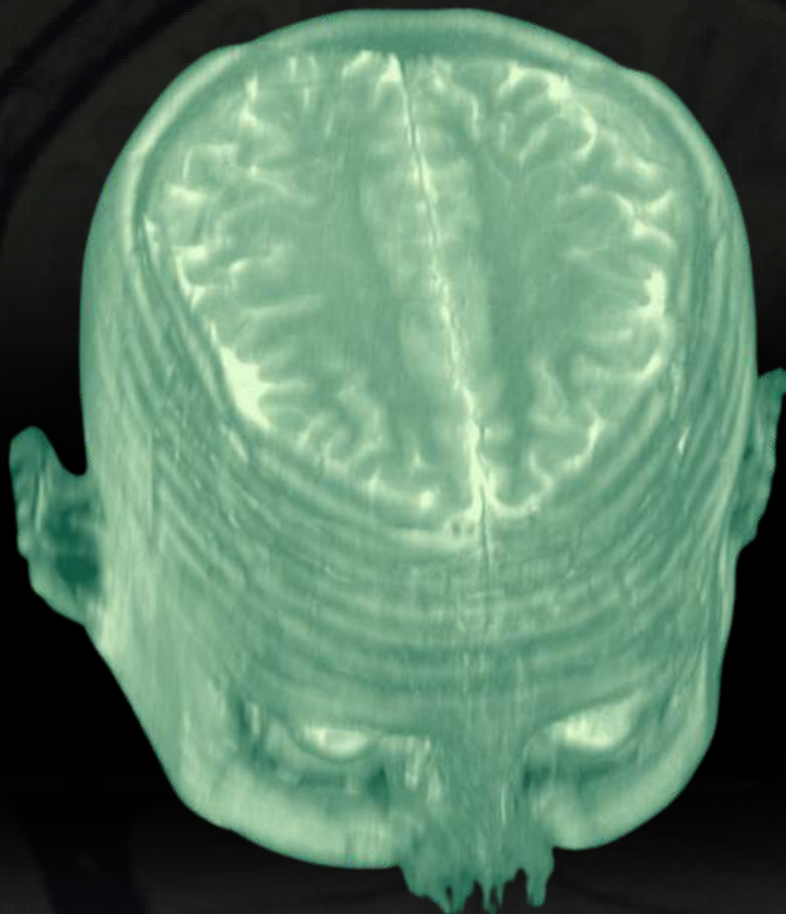


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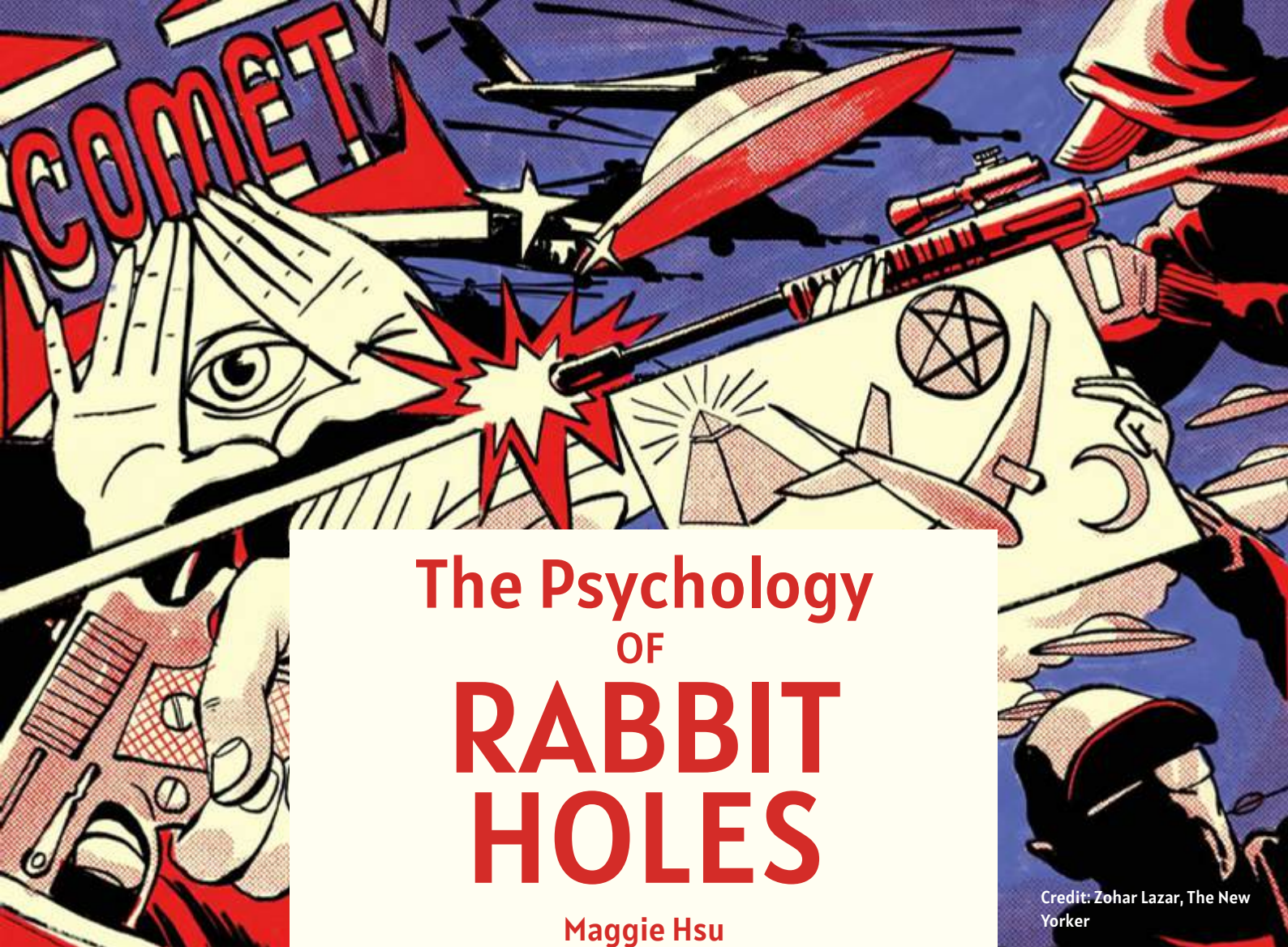
The Nothing Behind All of These Numbers



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The Psychology OF RABBIT HOLES

Maggie Hsu

Credit: Zohar Lazar, The New Yorker

Humans love chasing the unknown. From deaths of celebrities to staged moon landings, conspiracy theorists present seemingly impossible yet thought-provoking theories on the world's various issues and events. Millions of enthusiasts around the globe find these theories convincing, but for what reason? What makes an unexplainable theory more believable than scientific evidence? The answer lies in the way our brains process uncertainty, pattern recognition, and our technologies today.

A conspiracy theory rejects the standard explanation of something, and often leans towards a separate plot and covert group. These theories can range from insignificant ideas to serious claims on governments and major world events, often causing confusion and distrust. A famous theory claims the 1969 Moon landing was staged, citing the waving flag, missing stars, and inconsistent footprints. Though widely popular, this conspiracy theory was debunked. The flag was twisted while planted; the cameras were adjusted for the bright lunar surface, thus failing to capture stars; and the footprints were naturally preserved

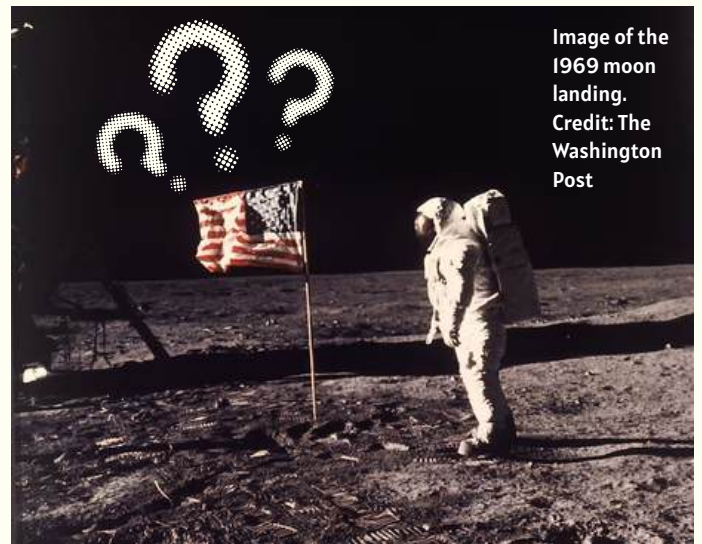


Image of the 1969 moon landing. Credit: The Washington Post

by the Moon's dry soil. Many other conspiracy theories exist, similarly lacking in evidence and scientific reasoning. In this article, you'll learn the psychology and science behind society's belief in conspiracy theories—and why convincing evidence can sometimes be anything but.



The human brain is biologically wired to recognize patterns and connections. This ability helps us predict dangers, practice error management (false positives are safer than false negatives), conserve brain energy (mental shortcuts reduce caloric burn), and practice social bonding. However, this instinct often leads to attempts at finding meaningful relationships when none exist—a phenomenon known as apophenia. Because of apophenia, it is common for individuals to seek explanations, especially under uncertain and random situations. In a forensic setting, investigators always ask why and how something occurred; similarly, when we are uncertain of something, we instinctively seek for reasoning due to the loss of control, survival instinct, and the need for closure. When the search for meaning is applied to real-world events, ordinary scenarios can seem like evidence of hidden connections, providing fertile ground for conspiracy theories.

In addition to apophenia, confirmation bias—the underlying tendency to provide greater credence to evidence that fit our existing beliefs—plays a crucial role in society's often stubborn belief in conspiracy theories. As people tend to search for information supporting their original beliefs, it is common for individuals to dismiss contradicting facts or reasonings. This creates a cycle in which each new piece of information is filtered through an existing belief, making the belief increasingly difficult to challenge. In the context of conspiracy theories, even a lack of evidence can be interpreted as evidence of a cover-up, further reinforcing the original belief, explaining why conspiracy theories are often firmly believed in.

Social media has become an integral part of everyday life. We access all information online, yet people don't realize the hidden rabbit holes and algorithms hidden within applications and the internet. Rabbit holes are chaotic, unplanned descents into a niche topic online where one link or video leads to another until one loses track of time and reality. Conspiracy beliefs often cluster, meaning that believing one theory can make a person more receptive to others. If one source of information is considered untrustworthy, individuals may question what else is secretly unreliable, reinforcing doubt and insecurity. Since 2013, many now-popular social media platforms have adopted algorithms to optimize the recommendation and customization of short-form content. These algorithms recommend content within similar genres based on a user's data, adding on to the rabbit hole effect, where users unknowingly dive into various topics, including conspiracy theories. Repeated exposure to these ideas, especially within online communities where ideas are shared, can make increasingly extreme claims appear socially acceptable. As beliefs are repeatedly reinforced by peers and algorithms, seemingly irrational theories/ideas can soon become convincing.

What begins as a natural tendency to recognize patterns can become amplified by cognitive biases, reinforced by social groups, and ultimately spread through social media and its algorithms. With the combination of algorithms, the human tendency for pattern recognition, and the apophenia phenomenon, observations of society's withstanding confidence in certain conspiracy theories is can be reasonably interpreted. Ultimately, conspiracy theories are not simply the result of irrational thinking, but can emerge from ordinary psychological processes that are amplified by the environment in which information is shared.

Does Your Personality Test Truly Know You?

Bonnie Wong

You are an INFP. Or an ENTP. Maybe an INFJ.

Whatever those four letters are, you probably already have an opinion about them.

Maybe you've taken a personality test at 1 a.m. because your friend sent you a link. Maybe you've spent 20 minutes answering questions like "Do you prefer spontaneous adventures or carefully planned activities?" only to receive a four-letter code that supposedly explains why you are the way you are.

Then comes the description: You are deeply empathetic, but sometimes need time alone. You have a rich inner world. You care about others, but can be overly critical of yourself. You value meaningful relationships and dislike superficial conversations

You stare at the screen.

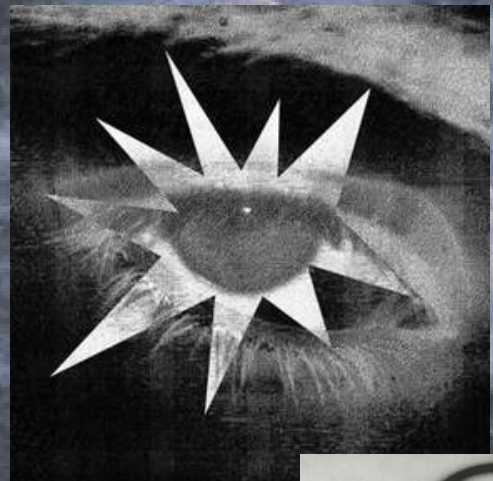
Oh my god. That's so relatable.

Then you send it to the group chat. Your friends get completely different results. Now you're comparing types, deciding which one is more annoying, and somehow using four letters to explain your entire friendship.

It sounds ridiculous. It is also remarkably human. Because personality tests are offering something much more compelling than a result. They're offering the feeling of being understood.

But there is another reason those four letters feel so convincing.

They look scientific.



There's a questionnaire. There are standardized questions. There is a scoring system. There are percentages, categories, graphs, and a final result. There are numbers. And numbers have authority. We tend to assume that if something can be measured, it must be objective. If a website can calculate your personality and give you a precise looking result, it is tempting to assume that the calculator must reveal something fundamentally true about you.

But science is not simply the act of assigning numbers to things. The real question is whether those numbers are actually measuring what they claim to measure.

That distinction sits at the heart of the personality-test debate— and, more broadly, at the heart of pseudoscience.

The 16 Types

The Myers-Briggs Type Indicator, or MBTI, is one of the world's most recognizable personality assessments. It categorizes individuals into 16 types using four pairs of preferences: introversion-extraversion, sensing-intuition, thinking-feeling, and judging-perceiving.

Sixteen types. Billions of people.

The simplicity is part of the appeal.

Can sixteen combinations really capture the extraordinary variations within human personality. The attraction is easy to understand. Human beings are complicated. Categories are not.

It is considerably easier to say "I'm an introvert" than to explain that you enjoy spending time with your friends but occasionally require three business days to recover from socializing. It is easier to say "I'm a perfectionist" than to explain why you spent an hour rewriting an assignment that nobody else will read.

A label compresses an intricate collection of behaviours, tendencies, and preferences into something that can be communicated in a single sentence.

But here is where psychology becomes STEM.

If scientists want to measure something as abstract as personality, they cannot simply point to it with a ruler. They have to operationalize it: define what they are measuring and determine how it can be observed or quantified.

That means asking questions such as "What exactly counts as "extraversion"?"

How consistently can it be measured? Would the same person receive a similar result later? Do the results actually predict anything meaningful about their behaviour?

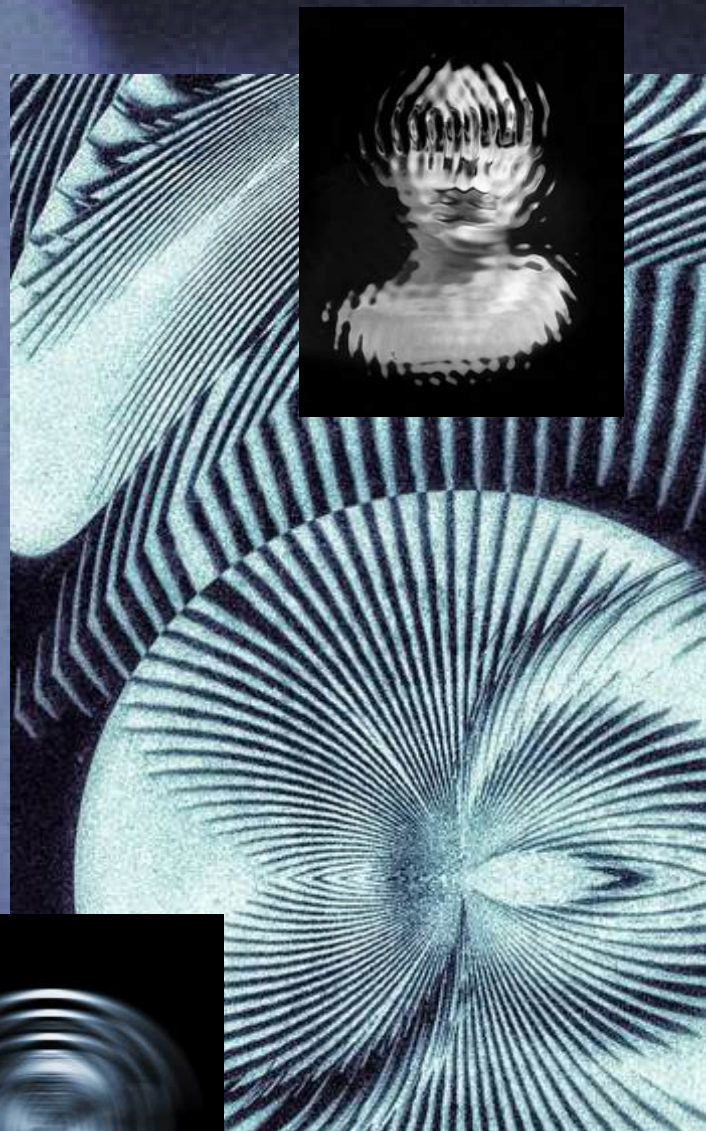
And perhaps most importantly:

Are we measuring a real psychological trait, or are we simply measuring how people answer questions about themselves?

Personality psychologists often approach these questions through the Big Five model, which conceptualizes personality through five broad dimensions: openness, conscientiousness, extraversion, agreeableness, and neuroticism.

Rather than placing someone into a fixed category, the Big Five measures traits along a continuum.

You do not necessarily have to be an introvert or an extrovert. You can be somewhere between the two— which, inconvenient, is where human beings tend to be.



Here's where things become interesting.

Imagine your personality test tells you, "You enjoy being around people, but sometimes need time alone."
Congratulations. You have just described an enormous number of people.

Or: "You care about what other people think, but you also want to be independent." Again: profoundly human.

Yet these statements can feel uncannily specific—as though someone has somehow managed to gain access to the private architecture of your mind. Psychologists have a name for this phenomenon: the Barnum effect, also known as the Forer effect.

In a famous 1949 experiment, psychologist Bertram Forer gave students what they believed were individualised personality descriptions. In reality, the students received the same collection of generalized statements. Nevertheless, they tended to evaluate the descriptions as highly accurate.

The mechanism is deceptively simple: the description is broad and rough to accommodate almost anyone.

And once we believe a particular statement describes us, we become remarkably efficient at noticing evidence that confirms it. Your tests say you're empathetic? You remember comforting your friend after their breakup. It says you're adventurous? You remember that one spontaneous trip. It says you're a perfectionist? Suddenly, you have seventeen examples.

The moments that contradict the description tend to receive considerably less attention.

The result is a subtle feedback loop. The test provides the description; you search your memories for evidence; the evidence makes the description feel accurate; and that apparent accuracy marks the test feel even more convincing.

Suddenly, the test doesn't simply describe you. You begin participating in the description.

And this is where a seemingly harmless personality quiz connects to a much larger problem in science.

Pseudoscience does not always look absurd. Sometimes, it looks like science. It uses technical vocabulary, produces charts, calculates scores, and gives you a number.

The problem is that scientific appearance is not the same thing as scientific evidence.



But Wait, Is MBTI Fake?

This is where the story becomes less straightforward.

It would be easy to dismiss personality tests as “fake” and move on. But that conclusion would oversimplify a much more complicated scientific debate.

The Myers-Briggs organisation argues that MBTI can provide useful information about personality preferences and maintains that the assessment has a substantial research base. It also emphasizes that MBTI is not designed to determine whether someone is capable of performing a particular job.

Critics, meanwhile, have questioned aspects of the assessment’s reliability and validity, particularly the idea that complex personality characteristics can be divided into discrete categories.

And that distinction matters.

In science, reliability and validity are not interchangeable. Reliability asks, broadly, whether a measurement is consistent. Validity asks whether the measurement is actually measuring what it claims to measure.

A bathroom scale that tells you the same weight every morning may be reliable. If the scale is calibrated incorrectly however, it may not be valid.

The same principle applies to psychological measurements. A test can produce an impressively precise number without that number necessarily telling us what we think it tells us.

That is the uncomfortable power of numbers. They can create an illusion of certainty.

Taking a personality test because it is entertaining is not equivalent to treating the result as a scientific diagnosis.

There is little inherently consequential about discovering that you are an INFP and immediately sending the result to your friends.

The problem emerges when four letters become four walls.

“I’m an introvert, so I’ll be good at public speaking,”
“I’m not a thinking type, so I’m bad at logic”, “People with my type aren’t leaders.”

At that point, the assessment is no longer simply describing behaviour, it’s begging to prescribe it.

“To say that the Myers-Briggs Type Indicator (MBTI) is “totally meaningless” is to exaggerate the shortcomings of the instrument and how it is used.
([John A. Johnson Ph.D.](#))

And even the Myers-Briggs organisation cautions against using MBTI as a hiring tool or selection tool.

Maybe the test isn’t the interesting part

Think about what a personality test is actually asking you to do. Sit alone. Answer questions about yourself. Reflect on your habits. Decide whether each statement seems to describe you.

Then wait for an algorithm, questionnaire, or scoring system to transform those answers into an identity.

Of course we’re fascinated.

We’re fascinated because “Who am I?” is one of the most deceptively difficult questions a person can ask.

Personality tests offer a shortcut.

They give us language for characteristics we might otherwise struggle to articulate. They provide a framework for comparing ourselves with other people. They transform contradictions into categories and ambiguity into something that feels coherent.

And perhaps that is why we are so receptive to them.

Not because we are inherently gullible. Because being understood is psychologically compelling.

There is something reassuring about discovering that the complicated collection of habits, preferences, insecurities, and contradictions inside your head can apparently be summarized by four letters.

Your tendency to overthink every text message has an explanation.

Your need to disappear from social events has a category.





Your inability to make a decision without considering twelve possible outcomes has, apparently, a personality type.

It is comforting. It is convenient.

And, in some contexts, it can even be useful. A personality assessment can provide people with vocabulary for behavioural patterns they have noticed but never quite known how to describe. It can prompt self-reflection and encourage people to think more deliberately about how they interact with others.

But there is a crucial distinction between using a label as a lens and using it as a limit.

A lens can help you examine yourself. A limit tells you where you supposedly stop.

And human personality is far too dynamic for that boundary to remain permanent.

You might dislike public speaking until you join a debate club. You might consider yourself incapable of meeting new people until you move somewhere unfamiliar. You might be meticulously organised at school and completely chaotic in your bedroom. You might be reserved around strangers and the loudest person in the room with your closest friends,

Which version is the "real" you?

Perhaps the better question is: why must there be only one?

This is one of the fundamental limitations of reducing personality to neat categories: human behaviour is profoundly contextual.

Our behaviour changes according to our environment, relationships, experiences, expectations, and circumstances.

The person who answers a personality questionnaire at 15 may not respond to the same questions in the same way years later.

That does not necessarily mean one version was "fake."

We accumulate experiences. We adapt to new environments. We form relationships. We acquire new fears and new confidence. We discover interests we never expected to have.

Sometimes, we even surprise ourselves.

And perhaps that is the larger lesson behind the numbers.

Science is not impressive because it produces numbers.

Science is impressive because it asks what those numbers mean.

A percentage is not automatically evidence. A graph is not automatically proof. A scientific-sounding label is not automatically scientific.

What matters is the methodology behind the measurement: how the data were collected, how the variables were defined, whether the results can be replicated, and whether the conclusions actually follow from the evidence.

That is what separates scientific measurement from something that merely looks scientific.

So maybe personality tests aren't completely useless.

Maybe they're simply not what we sometimes want them to be.

They aren't crystal balls. They aren't instruction manuals. And they certainly aren't a scientific shortcut to understanding an entire human being.

They are assessments.

And, like any psychological assessment, they have limitations. That doesn't mean you have to delete your personality-test results.

Keep the screenshot. Send it to the group chat.

Put the four letters in your instagram bio if you really want to.

Just leave some intellectual distance between "this sounds like me" and "this is who I am."

Because those statements are not synonymous. And perhaps that is the one thing a personality cannot measure:

the possibility that you are still becoming yourself.

So the next time a quiz tells you exactly who you are, go ahead.

Take the test. Send the results. Argue over whether your type is accurate. Just remember that four letters are still four letters.

They aren't your childhood. They aren't your memories.

They are not the people you've met, the mistakes you've made, or the person you may eventually become.

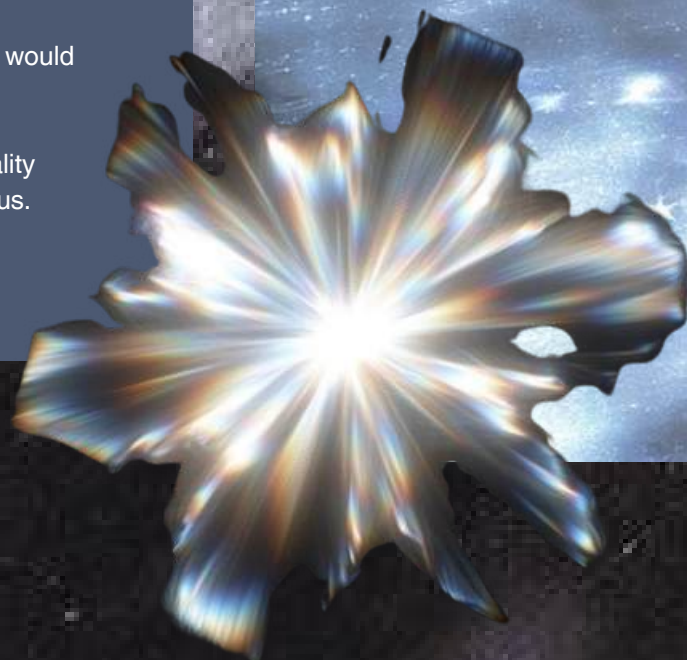
A personality test might offer a description of yourself.

But it does not get the final word.

After all, if a 20 minute questionnaire could completely explain a human being, psychology would have considerably less work to do.

And perhaps the strangest thing about personality tests is not that they sometimes seem to know us.

It is how badly we want them to.



FAITH IS NOT FACT:

The Science Behind Abortion

Krystal Sun



Abortion bans and gestational limits continue to spread over states in the U.S. Fueled by religion and politics, this growing conflict leaves doctors and patients between religious arguments and medical evidence. As of today, abortion is banned in 13 states while seven others enforce limits of six to 12 weeks of pregnancy on the penalty of a criminal felony, fines, or medical license revocation. However, these deadlines can pass before many people know they're pregnant—leaving activists protesting a push back against these strict limits. Many have spoken out about how abortion should be treated in the law as a biological topic before warranting legal protection as a theological debate.

Supporters of these bans frequently describe it as “protecting life”, often citing the Bible. As Governor Greg Abbott phrased it when he signed the Texas act banning abortion: “Our creator endowed us with the right of life”. Yet, many politicians today seem to forget the 340 million people in America, many with different religions. The U.S. constitution, by the first amendment, protects the right to one’s own religion all while governors must remain neutral when it comes to faith. This being said, Christianity is only one perspective on abortion and fetus life—causing people of other faiths, atheists and agnostics to argue these bans violate their religious freedom.

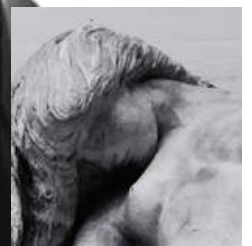


Protesters with opposite messages stand side-by-side at the March for Life rally in 2017. Creative Commons photo.

In spite of commentary made during abortion bans heavily influenced by religious belief, courts have consistently ruled that these restrictions do not violate the first amendment as long as the legislation serves a secular interest. This includes the protection of what is termed “potential life”, serving as a common reason for a six week ban. States with this law argue six weeks is when a fetus develops a heartbeat. However, medical studies have time and time again proven this wrong. One example, including the American College of Obstetricians and Gynecologists (ACOG), has pointed out that at six weeks, the embryo does not have a fully developed heart. Instead, detected "heartbeats" from ultrasounds are actually embryonic cardiac activity, an electrical pulsing from a primitive group of cells.

Fetal pain has been addressed several times during debates. A case includes Arizona's ban in 2012. The state declared that unborn children feel pain during an abortion at 20 weeks. However, medical studies conclude that a human fetus cannot experience pain until after at least 24-25 weeks. Research says the brain is not well developed enough to process nerve signals, leading to the Arizona ban being repealed.

For nearly five decades, the Hyde amendment protected taxpayers from paying for abortion. Then, in 2022, Biden signed an executive order that funded abortion using taxpayer money, stating abortion is healthcare. However, in 2025, Trump officially rescinded the order. The topic of “is abortion healthcare?” has been a long debated subject. According to the World Health organization (WHO), “Inaccessibility of quality abortion care risks violating a range of human rights of women and girls, including the right to life.” In spite of this, many have argued about the dangers of abortion—which is proven by studies to be a misconception. WHO’s studies found a review from 2009-20 showing only 8% maternal deaths were linked to abortion, meaning less than 1% each year. On the contrary, unsafe abortions have over 200 deaths per 100,000 procedures– a result of inadequate healthcare and abortion support.





While five states allow abortion if the pregnancy is due to rape or incest—many still with strict time restrictions—the other eight states do not provide those exceptions. Pregnancy and childbirth are not risk free, especially when it comes to minors. Tragic cases include a 14 year old rape victim who died because of childbirth in 2018. Even with an attempted emergency caesarean section, the girl suffered three cardiac arrests before passing away. A recent example from July this year includes an 11 year old girl forced to give birth by her mother after being raped by the mother's husband. The girl gave birth at home without receiving any medical assistance, ultimately leading to her death. Additionally, abortion laws have also caused newborns to die. According to CNN, in 2024 a woman carrying a daughter with known anencephaly, a fatal condition, was forced to give birth due to abortion laws. The newborn died just four hours after being born, leaving the family distraught. The woman stated, "I am her life support. I should be able to release my daughter. I am her mother. That is my right."

Ultimately, abortion is not just a political or religious issue—it is a health-care issue with consequences for patients, families, and doctors. Scientific evidence should guide laws that determine whether someone can receive timely medical care, especially during a dangerous pregnancy, after sexual violence, or when a fetus has a fatal condition. Religious beliefs should be protected, but they should not replace medical evidence or take away another person's ability to make decisions about their own health.

Beyond Rumors:

How Vaccine Theories Affect Public Health Globally

Sophia Zhang

The Long History of Doubt

People have pushed back against immunization for as long as vaccines have existed. In the late 1700s, when Edward Jenner created the first smallpox vaccine out of cowpox (which, to this day, remains one of the only diseases that humanity has successfully eradicated), critics were already panicking. Some claimed it was “unchristian”, while others were genuinely worried that putting animal material into human bodies would have people sprouting horns or growing cow fur ([BBC Future](#), [Domaradzki et al., 2024](#)).

When we think about vaccine hesitancy—listed by the [World Health Organization](#) as one of the biggest threats to global public health—it’s easy to blame it on social media algorithm or modern Internet culture. But upon a deeper glance into history, people doubting vaccines isn’t new at all. In the United States and across the globe, anti-vaccine conspiracy theories and pushback have been around for centuries; it has evolved from simple religious objections to it into deeply ingrained anti-establishment worldviews that threaten the entirety of public health.

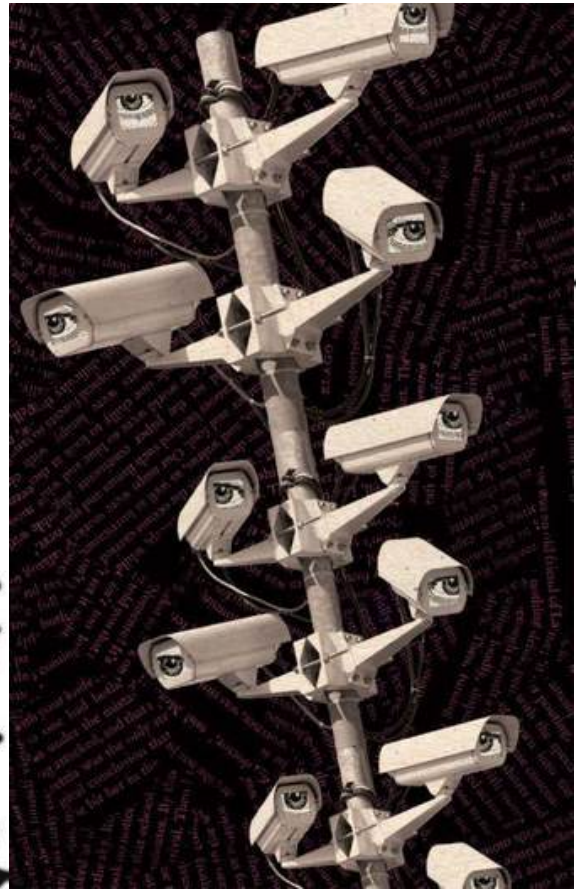
By the late 19th and early 20th centuries, as governments began mandating smallpox shots, anti-vaccination leagues popped up across Europe and the US. Their main argument is very similar to what is seen today: they believed government mandates violated personal freedom and bodily autonomy ([BBC Future](#)). While at the time, they did not have the brainwashing technology that many today believe vaccines are capable of, being forced to inject an unknown substance into one’s body certainly sounded like the horrors of Orwell’s *1984* come alive.

The biggest turning point for modern anti-vax ideas happened in 1998, when Andrew Wakefield published his now-retracted paper claiming a link between the MMR vaccine (measles, mumps, and rubella) and autism rates ([Domaradzki et al., 2024](#)). Even though his claims were completely disproved and later pulled from the journal, the damage had been done. Suddenly, the conversation shifted from basic safety doubts to broader theories about government cover-ups and the freedom of one's health.

Modern “Infodemics”

When COVID-19 hit, it brought a wave of what experts call an “infodemic” — a massive wave of over-information, misinformation, and online rumors ([Ullah et al., 2021](#)). Researchers generally split modern vaccine conspiracy theories into two main buckets, the first being the extreme baseline claims. These include the wilder theories that appear on online forums—like claims that vaccines contain microchips pushed by Bill Gates, rewrite human DNA itself, or are secretly bioweapons built to control populations ([Ullah et al., 2021](#); [Holohan, 2026](#); [Domaradzki et al., 2024](#)). A more common form are institutional conspiracy beliefs, which involve the idea that governments, health agencies, and drug companies alike are hiding real safety data by inflating disease stats for profit, or taking advantage of health crises to deplete civil rights ([Holohan, 2026](#)).

It turns out that everyday distrust is much more widespread than belief in extreme theories like microchips ([Holohan, 2026](#)). Contrary to being random rumors, these beliefs stem from a deep and long-term distrust of public institutions, mainstream news, and certain authority figures ([Holohan, 2026](#)). When these ideas spread on social media, they cause an entire ripple effect that lead to drops not only in COVID-19 vaccine rates, but in routine childhood immunizations and creates preventable outbreaks such as measles ([Ullah et al., 2021](#)).



Doubt in the Medical Community

One of the most alarming parts of modern anti-vax narratives is that they're reaching future doctors, not just the general public. Because healthcare providers are the primary source of trust for all patients, their personal stance on vaccines matters immensely in decision-making ([Domaradzki et al., 2024](#)).

A recent study surveying medical students found that while over 97% of them supported the idea of vaccines overall, about 20% still believed in at least one anti-vax conspiracy theory or at least were on the fence about it ([Domaradzki et al., 2024](#)). The study showed that students who held these beliefs were more likely to identify as conservative, report higher levels of religious dedication, or skip their annual flu shots.

If future doctors harbor doubts or fall for conspiracy claims, it makes it much harder for them to effectively convince hesitant patients, clear up confusion, or at its root, stop the spread of health misinformation.

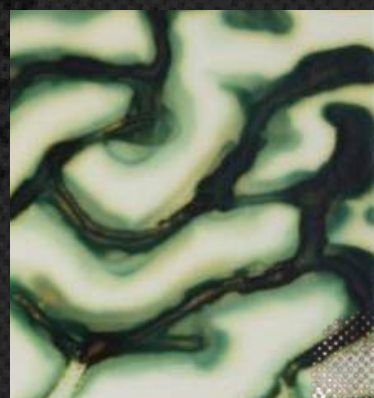
Consequences for Society

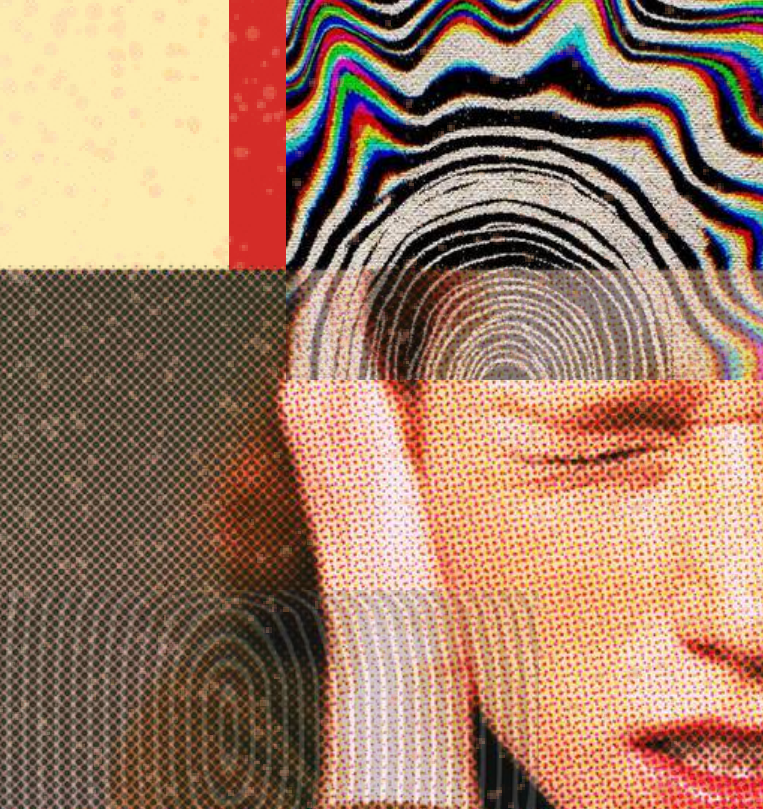
At the end of the day, no matter what theories exist out there, any anti-vaccine belief creates massive real-world problems. The biggest and most immediate consequence is the prevalence of outbreaks, especially for preventable diseases. When community vaccination rates drop below a certain threshold, herd immunity breaks down and leads to a resurgence of diseases that we've nearly eliminated ([Ullah et al., 2021](#)).

Additionally, as conspiracy theories take root, trust in scientific consensus, local public health officials, and journalism itself continues to break down until society is unsure of where truthful, objective information comes from ([Holohan, 2026](#)).

Finally, doctors and nurses find themselves spending significant, wasted energy and time countering false claims and desperately trying to rebuild basic trust instead of spending time on preventive care ([Domaradzki et al., 2024](#)), which greatly delays the progress society has made in fighting the diseases that have plagued humanity for centuries.

Fixing this isn't as simple as just dumping more facts into the Internet; medical schools should train future clinicians on how to address health misinformation directly with patients. At the same time, public health agencies and many people also need to recognize that vaccine hesitancy is often rooted in deep distrust—and rebuilding that trust from the ground up is what's most important.





CAN YOU MEASURE CONCUSSIONS

INTRODUCTION

For decades in the sports world, getting hit hard enough and standing back up to keep playing was always treated as part of the game. As long as you were still conscious and awake, you were deemed “fine.”

In football, hockey, and other contact sports, athletes who became dizzy, confused, or disoriented after a hit lied about their symptoms to keep playing because they didn't want to be pulled from the game. A headache could be ignored. A few seconds of blurriness could be shaken off. People were even congratulated because they had the ‘mental toughness of an athlete’ to get back out there. Little did they know, they were playing with something they couldn't see: concussions.

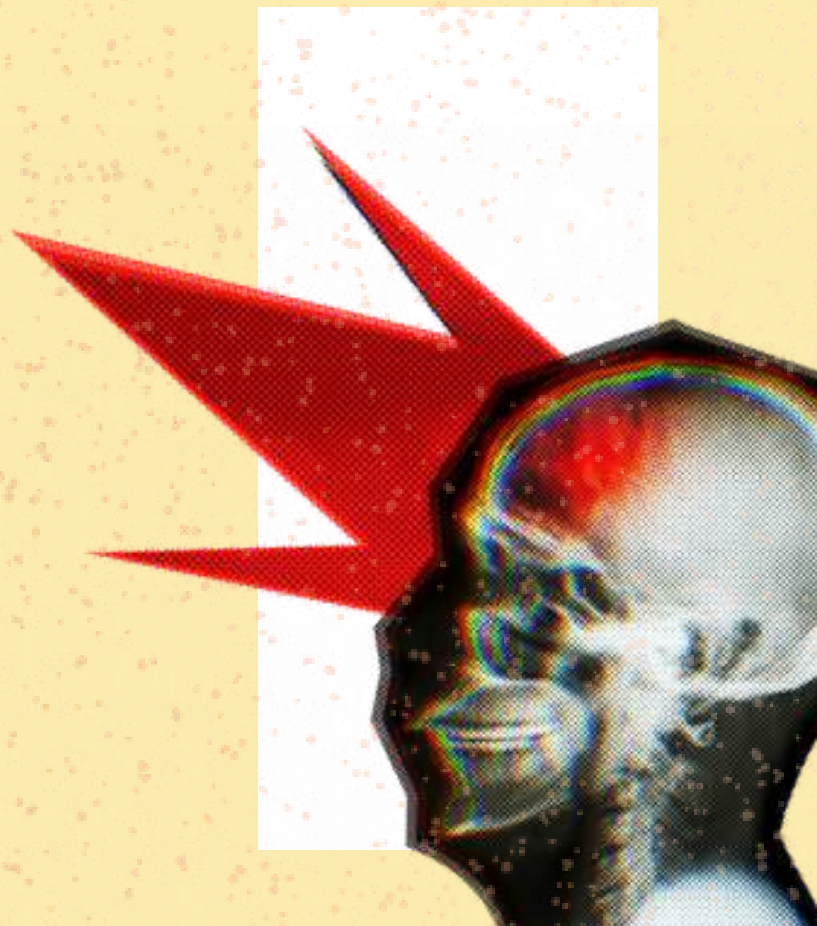


GRACE GUAN



What was once dismissed as a temporary inconvenience was actually a disruption to the brain, an injury that could potentially affect memory, balance, vision, reaction time, and the way our brain processes information. And unlike a broken bone or a torn ligament, there wasn't necessarily anything obvious to point to.

For years, this was deceptively clear and simple: if the athlete looked okay, they probably were. But as neuroscience advanced, researchers began asking a different question: What if things were happening inside the brain that we couldn't see from the outside? This question launched a decades-long search for something that could make a concussion measurable: a number, a scan, something to sense it, a blood test, or eventually, even an algorithm.





THE SEARCH FOR A CONCUSSION NUMBER

One of the most intuitive ideas was to measure the hit itself.

If a concussion happens because the brain experiences forces inside the skull, researchers reasoned, perhaps technology could measure those forces. This led to head-impact sensors and accelerometers, which are devices that measure movement and acceleration. Some were built into helmets or other equipment. They could record information such as how quickly the head moved, the direction of an impact and the forces involved.

OneHowever, the assumption that the number could tell you whether someone had a concussion was much more complicated. A hard hit does not automatically produce a concussion, and a concussion does not necessarily require an enormous measurable impact. A systematic review of head-impact measurement devices found that these systems had limited clinical usefulness because of measurement errors and low specificity for predicting concussion. In other words, knowing what happened to the head does not necessarily tell a doctor what happened to the brain. The American Academy of Pediatrics similarly concluded that “[t]he use of helmet-based or other sensor systems to clinically diagnose or assess [sports-related concussions] cannot be supported at this time.” This means that the sensors could still be useful for research, such as studying how athletes are exposed to impacts, but that is a different question from diagnosing an individual athlete.

THE KING-DEVICK TEST

Another technology that has attracted attention is the King-Devick test.

Instead of scanning the brain, the test asks an athlete to read numbers from cards as quickly and accurately as possible. Researchers can compare the athlete's performance with a baseline measurement.

The reasoning is that concussion can affect eye movements and the brain's ability to coordinate visual information. The test has shown that it can provide useful information, particularly shortly after an injury. But studies have also found limitations. One recent study found that its diagnostic accuracy changed depending on how long after the concussion the athlete was tested, and repeated testing could produce a “practice effect,” meaning athletes could get better simply because they had done the test before.

Another study found a sensitivity of 81% and specificity of 56% in NCAA athletes. In simple terms, that means the test identified many athletes who actually had a concussion, but it also produced positive results in some athletes who did not.

WHAT ABOUT AI?

The newest version of this story involves artificial intelligence. Researchers are investigating whether AI can combine information from brain scans, eye movements, symptoms, biomarkers and other measurements to recognize concussion or predict recovery. This could eventually become extremely useful. But AI actually does introduce the same problem in a more complicated form.

For example, if an algorithm might tell a player that they have a 93% probability of not having a concussion. But where did the 93% even come from? What population was the algorithm trained on? Were the athletes the same age? Did they play the same sport? How many concussed athletes were included in the data? These are all questions that we cannot answer.

An algorithm can be excellent at recognizing patterns without proving that those patterns actually diagnose a disease. Because, in the end, this percentage is still a claim that needs to be tested.

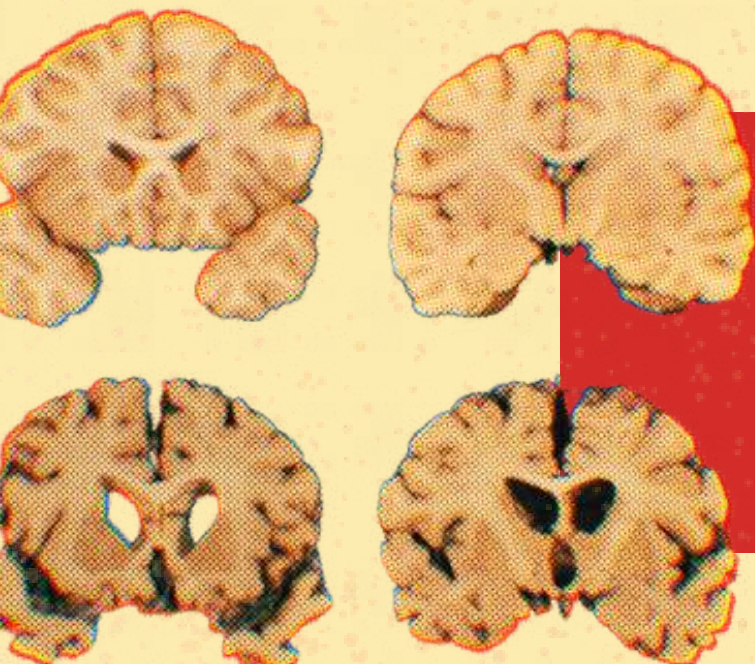
AND THEN THERE'S CTE...

The problem becomes even more complicated when the conversation moves from concussion to chronic traumatic encephalopathy, or CTE.

CTE is not pseudoscience. It is a real neurodegenerative disease associated with long-term exposure to repetitive head impacts. Scientists identify CTE by examining brain tissue and looking for an abnormal accumulation of a protein called hyperphosphorylated tau, or p-tau, in a characteristic pattern.

But there's actually another issue: CTE currently cannot be definitively confirmed in a living person. Confirmation needs examination of brain tissue after death. For athletes, the stakes are bigger than a number on a screen. A concussion can be invisible, symptoms can be inconsistent, and even the technology designed to detect it has its limits.

That does not mean we should stop developing better ways to understand the brain. If anything, it shows why that research matters. But as concussion technology becomes more advanced, the temptation to trust a machine simply because it looks scientific becomes even stronger. So as science in general becomes more advanced as well, how do we know when we are actually following the evidence? And to what extent are we just giving pseudoscience a more convincing face?



Agriculture has always required, to a certain extent, predicting the future. A farmer deciding where and when to plant crops (as well as the actual harvest) depends on conditions that have yet to happen. Today, estimates of these conditions are often done by modern technology, such as satellites and artificial intelligence. However, pseudoscientific forecasting, such as the use of tools like the *Farmers' Almanac*, remains trusted by some farmers. Although these two tools use very different methods, disagreement remains among the public over which predictions they choose to trust. This raises a larger question: what actually separates scientific agriculture from pseudoscience?

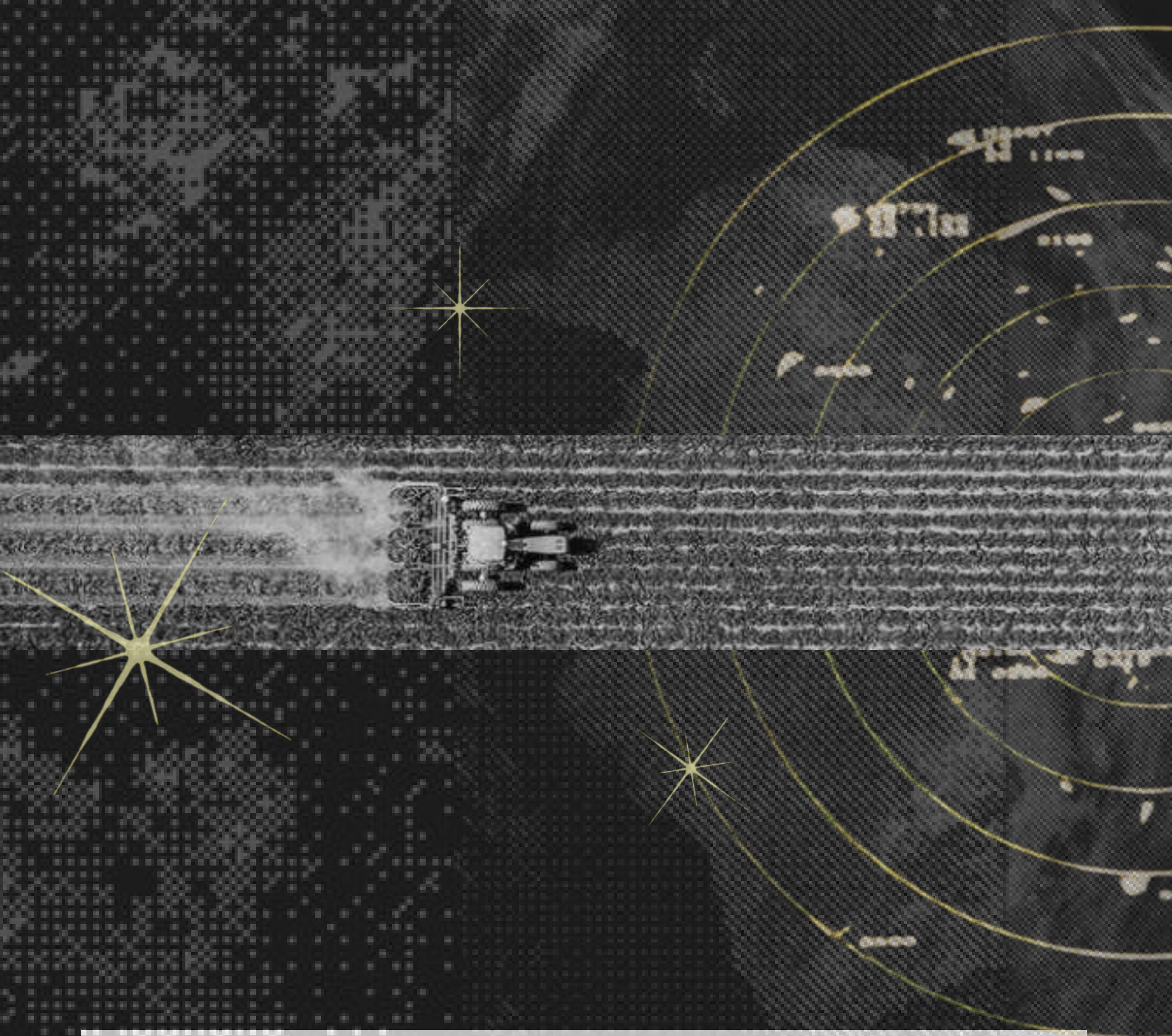
In agriculture, science refers to predictions based on observable evidence and methods that can be tested against real outcomes. Results from activities like satellite imagery and weather observations can produce incorrect forecasts, but scientists can examine the data behind those forecasts to identify the source of error and use that knowledge to improve future predictions. On the other hand, pseudoscience may also use scientific-sounding methods and explanations and is supported by numerous people. Therefore, the distinction between science and pseudoscience in terms of agriculture can be hard to identify: scientific predictions aren't always right, while a pseudoscientific prediction can come true even if there is no reliable scientific basis behind it. The difference, then, lies not in whether a prediction succeeds, but in whether the process behind it can be examined, corrected if erroneous, and reproduced.

Satellites, AI, and the Farmers' Almanac:

Why Being Right Isn't What Makes a Forecast Scientific

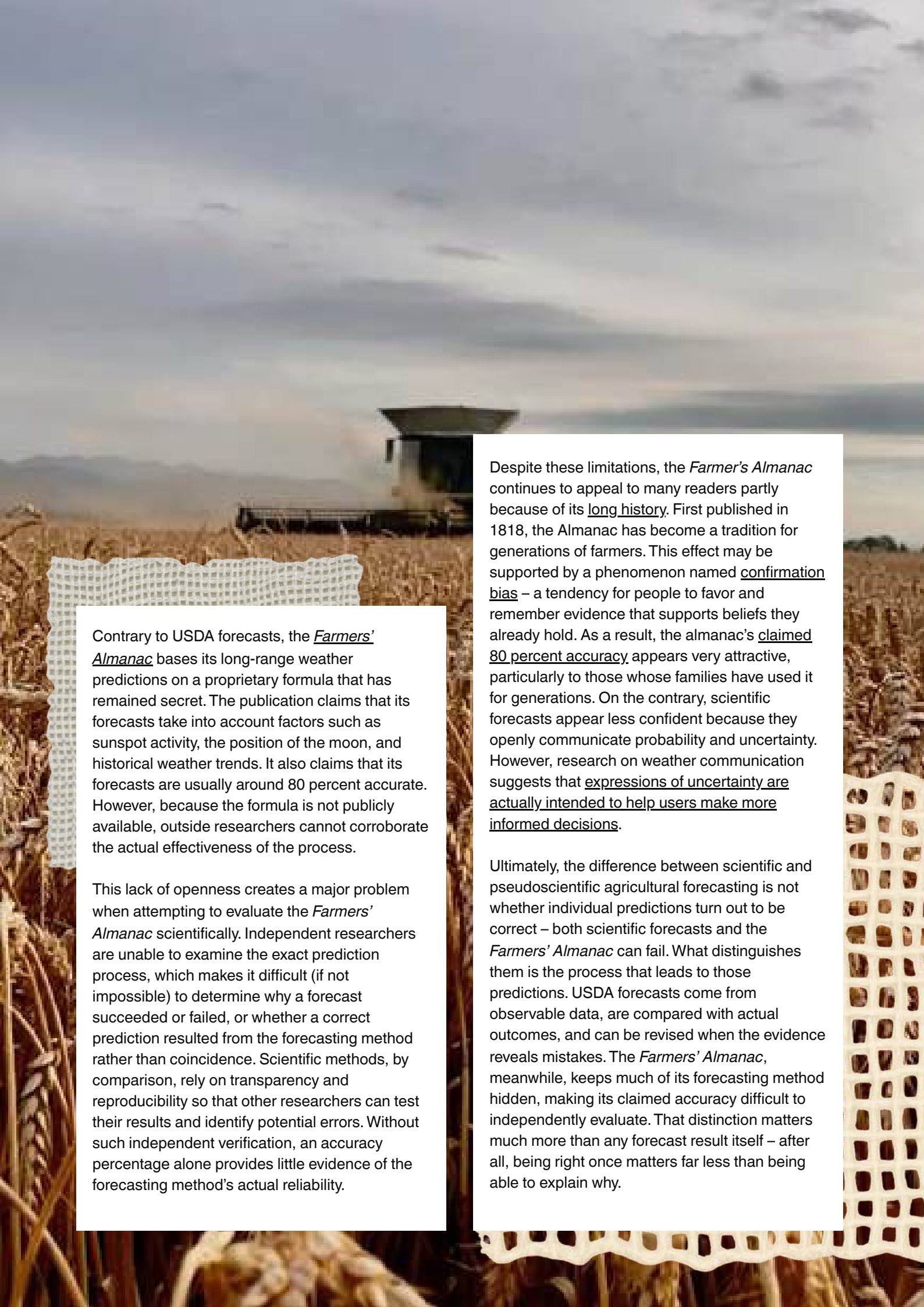
MAXWELL WANG





Scientific agricultural predictions rely on data to estimate crop conditions, yields, and production. In the United States, much of this is done by the U.S. Department of Agriculture's (USDA) National Agricultural Statistics Service (NASS). This agency collects information directly from farmers, conducts field measurements, and uses statistical models to create estimates and forecasts. In some situations, workers from USDA will visit the same fields many times to collect data on the number and condition of plants, eventually harvesting and weighing them. The USDA is also beginning to expand its use of satellite imagery and artificial intelligence in order to improve the accuracy of its estimates.

These forecasts are not always correct, but they are still considered scientific because their accuracy can be measured and recorded to improve future endeavours. USDA forecasts are updated multiple times throughout the growing season of crops as new measurements and reports are produced, and estimates can be revised if gathered evidence shows that earlier numbers were inaccurate. For example, its 2025 crop-production report acknowledged that its estimates can be affected by sampling error, reporting mistakes, missing responses, and other potential sources of error. These weaknesses do not make the process unscientific: it is instead how scientific forecasting improves – it enables the identification and correction of mistakes. Not every system used to predict agricultural conditions and outcomes, however, reveals its methods and errors in the same way.



Contrary to USDA forecasts, the *Farmers' Almanac* bases its long-range weather predictions on a proprietary formula that has remained secret. The publication claims that its forecasts take into account factors such as sunspot activity, the position of the moon, and historical weather trends. It also claims that its forecasts are usually around 80 percent accurate. However, because the formula is not publicly available, outside researchers cannot corroborate the actual effectiveness of the process.

This lack of openness creates a major problem when attempting to evaluate the *Farmers' Almanac* scientifically. Independent researchers are unable to examine the exact prediction process, which makes it difficult (if not impossible) to determine why a forecast succeeded or failed, or whether a correct prediction resulted from the forecasting method rather than coincidence. Scientific methods, by comparison, rely on transparency and reproducibility so that other researchers can test their results and identify potential errors. Without such independent verification, an accuracy percentage alone provides little evidence of the forecasting method's actual reliability.

Despite these limitations, the *Farmer's Almanac* continues to appeal to many readers partly because of its long history. First published in 1818, the Almanac has become a tradition for generations of farmers. This effect may be supported by a phenomenon named confirmation bias – a tendency for people to favor and remember evidence that supports beliefs they already hold. As a result, the almanac's claimed 80 percent accuracy appears very attractive, particularly to those whose families have used it for generations. On the contrary, scientific forecasts appear less confident because they openly communicate probability and uncertainty. However, research on weather communication suggests that expressions of uncertainty are actually intended to help users make more informed decisions.

Ultimately, the difference between scientific and pseudoscientific agricultural forecasting is not whether individual predictions turn out to be correct – both scientific forecasts and the *Farmers' Almanac* can fail. What distinguishes them is the process that leads to those predictions. USDA forecasts come from observable data, are compared with actual outcomes, and can be revised when the evidence reveals mistakes. The *Farmers' Almanac*, meanwhile, keeps much of its forecasting method hidden, making its claimed accuracy difficult to independently evaluate. That distinction matters much more than any forecast result itself – after all, being right once matters far less than being able to explain why.

ANNIE WANG



A LOOK INTO LOOKSMAXXING CONNOR MURPHY

Almost a month and a half after fitness influencer Connor Murphy passed away at age 32 on July 7, 2026 from drowning, his final toxicology screening has yet to be published.

Murphy, who was part of the “looksmaxxing” community, based his online brand on the pursuit of physical perfection. “Looksmaxxing”, a term that emerged from the manosphere, an online community of incel (involuntarily celibate) men, is a where people attempt to “max out” their perceived shortcomings through often severe methods such as injecting chemicals, performing surgical procedures, breaking facial bones, and taking drugs.

Although Murphy’s childhood wasn’t extensively documented, he occasionally spoke about how he was bullied as a young child, fantasizing about he would develop his “body to its full potential, which would imbue [him] with the true confidence [he] lacked.” Murphy spoke about how bodybuilding became a tool for becoming a stronger, more respectable version of himself. However, after Murphy achieved his “looksmaxxing” dreams, including a “perfect” body,



online popularity, and internet recognition, it seemed to only worsen his mental state. In an interview around when Murphy turned from the purely physical to the metaphysical, he quoted Jim Carrey, remarking “I wish everyone could become rich and famous so they realize it’s not the answer.” After this change, Murphy began turning to psychedelic drugs, attempting to reach a “higher form”.

While Murphy died after a mental episode in which he ran away from police into the lake behind his rental house and drowned after swimming for several minutes, there has been heavy speculation about what led him to episodes of mental insanity. One of Murphy's best friends, Tony Huge, recounted that Murphy, soon before passing, hypothesized that "gold, if you can get it into every cell of your body, would have some special power ... and also connect you to the metaphysical world."

In a video with Murphy and Huge, Murphy discussed creating and ingesting "colloidal gold", or the suspension of nanoparticles of gold in water in the pursuit of both metaphysical ascension, obtaining supernatural abilities, and changing his physical skin color. He animatedly discussed the possibility of changing his skin color, telling Huge that "apparently, if you intake too much gold, you could change colors like a chameleon." Soon after the video, Huge revealed that Murphy injected a "very large amount of gold, ... becoming more abnormal than even his normal self."

Instead of leading Murphy to transcendent physical and mental traits, ingesting large amounts of colloidal gold led him to gold poisoning and worsening psychological breaks. A study by Bute and collaborators in the International Journal of Molecular Science highlights the lack of evidence for supposed health benefits advertised by colloidal gold supplement manufacturers, discussing how even manufacturer-recommended daily intakes led to increased cytotoxicity of embryonic kidney cells, causing cell death. Bute and colleagues further discuss the disparities between highly controlled, engineered laboratory nanoparticles and over-the-counter liquid supplements, again disproving any claims of health benefits from ingesting colloidal gold. (Bute et al. 2026)

Although the ingestment of metals is not a popular practice within the looksmaxxing community, Murphy's motivation to experiment with colloidal gold stemmed from his pursuit of physical perfection and, in turn, his involvement with looksmaxxing. Furthermore, extreme procedures popularized by looksmaxxing share the same fallacy of relying heavily on pseudoscience.

For example, bone smashing, or the practice of repeatedly striking facial bones with blunt force to cause the bone to regrow stronger and thicker, moved to mainstream media after internet personalities such as Braden Peters (known online as Clavicular) popularized the practice.



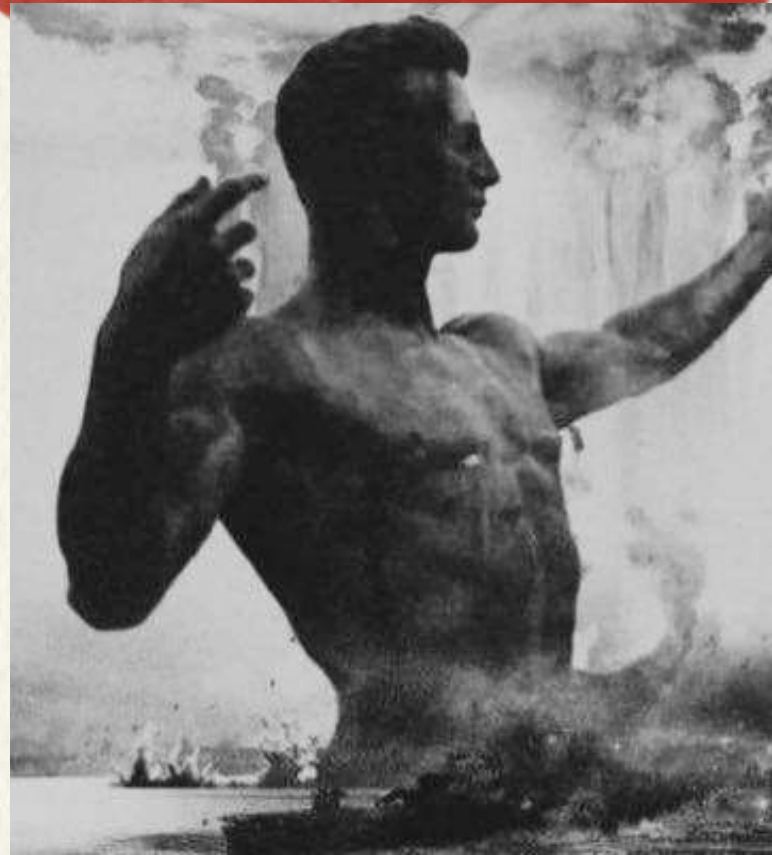


According to Associate Professor Dr. Burak Sercan Erçin, a practicing plastic surgeon at Bahçeşehir University, however, this theory is built on a misunderstanding of Wolff's law, which theorizes that "repetitive loading of bone will cause adaptive responses enabling the bone to better cope with these loads." ([Teichtahl 2015](#)) While this is a legitimate concept in bone physiology, it refers to how bone responds to sustained loading of bone over an extended period of time, not repeated subsection to blunt force. Instead of rebuilding the bones stronger, bone smashing instead results in microtraumas or fractures, leading to permanent nerve damage, calluses, and asymmetry. The increase in popularity of this pseudoscientific belief has led numerous insecure men to irreversibly damage their facial features. ([Erçin 2026](#))

The applications of pseudoscience procedures within looksmaxxing communities aren't just limited to physical procedures, however. Similarly to Connor Murphy, other popular looksmaxxing influencers have adopted the use of dangerous drugs and steroids to achieve a "perfect body". Users on [Looksmaxxing.com](#), a central hub of the looksmaxxing community, often advise others to turn to illicit substances, with users stating to "just use meth" or recommending websites to purchase peptides. Notable looksmaxxing influencers, including Braden Peters (Clavicular), is among those promoting the consumption of substances such as methamphetamines to stay thin. In an interview with political commentator Michael Knowles, Clavicular states that "meth is very similar in terms of its makeup to something like Adderall, but it's got a little bit better psychoactive benefits." Unfortunately, a few months after this interview, Clavicular suffered a severe drug overdose during a livestream, recovering after spending time in the ER.

As shown by Clavicular's overdose, while "hardcore" looksmaxxers take methamphetamine and other drugs in an attempt to fit beauty standards set by others in the manosphere, a study by Harastani and collaborators in the journal *Computers in Biology and Medicine* found that consumption of methamphetamine had the opposite effect. Harastani and colleagues found that individuals consuming meth experienced three to five times more facial asymmetry over time than ordinary adults, achieving the opposite goal ([Harastani et al. 2020](#)). Furthermore, consuming meth has also been shown to cause accelerated aging through triggering an overproduction of ceramides ([UCI 2015](#)). Aside from outside factors, one of the largest impacts of meth overconsumption is cardiovascular collapse. Meth leads directly to surges in adrenaline, extreme spikes in blood pressure, and intense vasoconstriction (narrowing of blood vessels), causing internal bleeding, cardiac arrest, and immediate tissue death ([Edinoff et al. 2022](#)).

Even though the specific cause behind the mental issues leading to Connor Murphy's death have not yet been uncovered, his friends' accounts and various biopsychosocial studies have revealed dangers of the life he led chasing physical perfection. Following pseudoscientific advice, many members of the lookmaxxing community have, desperate for approval, permanently and irreversibly damaged their bodies, experiencing mental damage, facial asymmetry, accelerated aging, overdoses, and more. So, learn a lesson from Connor Murphy: the pursuit of perfection may lead to destruction.



When Your Doctor's Name is @mikeysunset

TANSY LAU

Health advice has moved from the examination room to the screen. But when millions of North Americans turn to social media for medical information, who is making sure the advice is actually based on science?



When Your Doctor Is an Influencer

Health advice has moved from the examination room to the algorithm. But when millions of Americans turn to social media for medical information, who is making sure the advice is actually based on science? Scroll through TikTok, Instagram or YouTube and health advice is almost impossible to avoid.

One video might promise a solution to chronic fatigue. Another might explain what foods supposedly “cause inflammation.” A third might tell viewers how to recognize a medical condition based on a handful of symptoms. The advice can come from doctors and other health professionals—but it can also come from fitness coaches, entrepreneurs, celebrities and ordinary people with large followings.

For Americans, social media is no longer just a place for entertainment. It has become part of the health-information system. According to a [2026 Pew Research Center study on America's health and wellness influencers](#), 40% of U.S. adults say they get health and wellness information from social media influencers or podcasts. The study analyzed 12,800 social-media accounts belonging to 6,828 prominent health and wellness influencers on YouTube, Instagram and TikTok.

That creates a difficult scientific question: How can someone tell the difference between medical information and medical misinformation when both can look equally convincing on a phone screen?



The Credibility Problem

Influencers have something traditional scientific communication often lacks: a direct relationship with their audience.

Followers may feel as though they know an influencer personally. They hear stories about the creator's experiences, see their daily routines and watch them speak directly into the camera. That familiarity can make health claims feel trustworthy—even when the person making them does not have relevant medical expertise.

Pew's research found that among Americans who get health information from influencers or podcasts, only 10% say they trust all or most of the information. Twenty-four percent say they trust not too much or none of it, while the largest group—65%—say they trust some of it, according to [Pew's analysis of trust in health and wellness influencers](#).

That middle ground matters. People are not necessarily accepting everything influencers say. At the same time, they are not automatically rejecting it either.

The result is a health-information environment where a claim can become influential before its scientific accuracy has been established.

When a personal story becomes “proof”

One of the most common forms of online health advice is the personal testimonial.

An influencer might say that changing their diet made them feel better, that a particular supplement helped them sleep, or that a certain routine improved their health. Personal experiences can be genuine and meaningful, but they are not the same as scientific evidence.

A single person's experience cannot determine whether a treatment works for everyone.

Researchers have to consider other explanations. Symptoms can naturally improve or worsen. People may change several parts of their lifestyle at the same time. Expectations can influence how someone perceives a treatment. And a result that happens to one person may not occur in a larger population.

This is one reason medical research uses methods such as controlled studies and systematic reviews rather than relying solely on individual stories.

A [systematic review published in *Social Science & Medicine*](#) examined research into social-media influencers and health outcomes. The researchers concluded that influencers can affect health behaviours, making them an important area of public-health research.

In other words, the issue is not simply whether influencers have an audience.

Their audience can actually matter to people's health behaviour.



True information can still become misleading

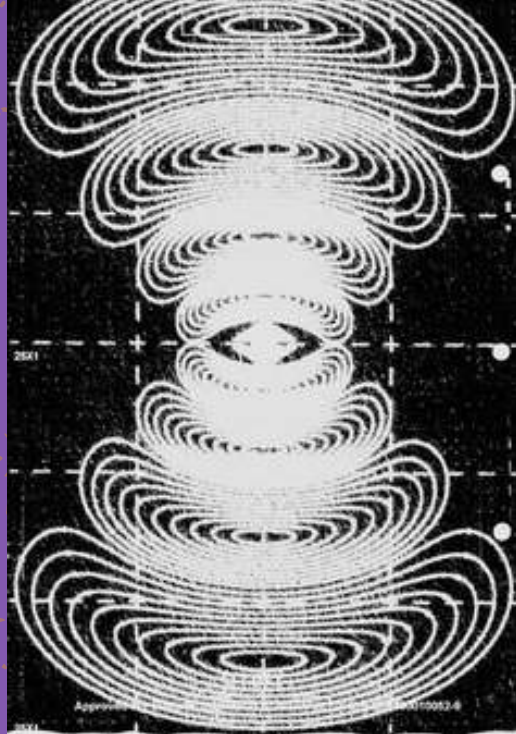
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The algorithm changes the conversation

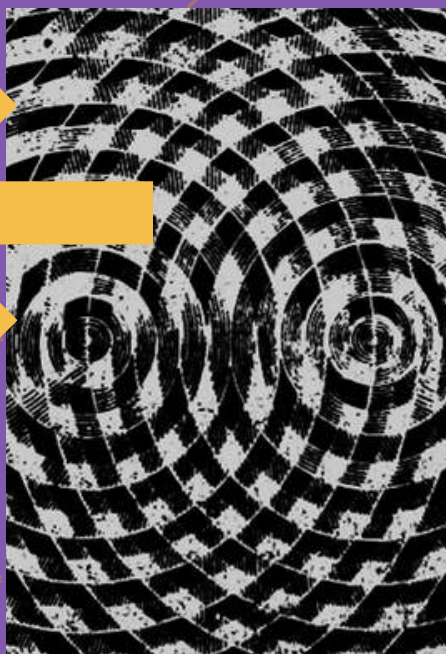
Scientific research is generally slow. A study can take months or years to design, conduct, analyze and publish. Other scientists may then examine the findings, attempt to reproduce them or challenge their conclusions. Social media moves at a different speed. A 30-second video can reach thousands—or millions—of people almost instantly.

Researchers have increasingly examined how social-media platforms can make emotionally engaging and simplified health narratives especially visible. A [2026 review in *Patient Education and Counseling*](#) described mechanisms including repetition, familiarity and emotional appeal that can influence how people perceive online health information.

This creates a mismatch.

Science asks, “What does the evidence show?” Social media often asks, “What will people watch?”

Those questions are not necessarily compatible.



Who are the people giving the advice?

Pew's [2026 analysis of health and wellness influencers](#) provides another important piece of the puzzle.

Among prominent U.S.-focused health and wellness influencers, about four in ten describe themselves as health-care professionals. Coaches and entrepreneurs are almost as common.

That means the term “health influencer” does not automatically mean “doctor.”

The distinction matters because different health professionals have different areas of expertise. Someone may be knowledgeable about exercise, for example, without being qualified to diagnose a disease or advise someone about medical treatment.

Even a qualified professional's social-media post should not automatically be treated as personalized medical advice.

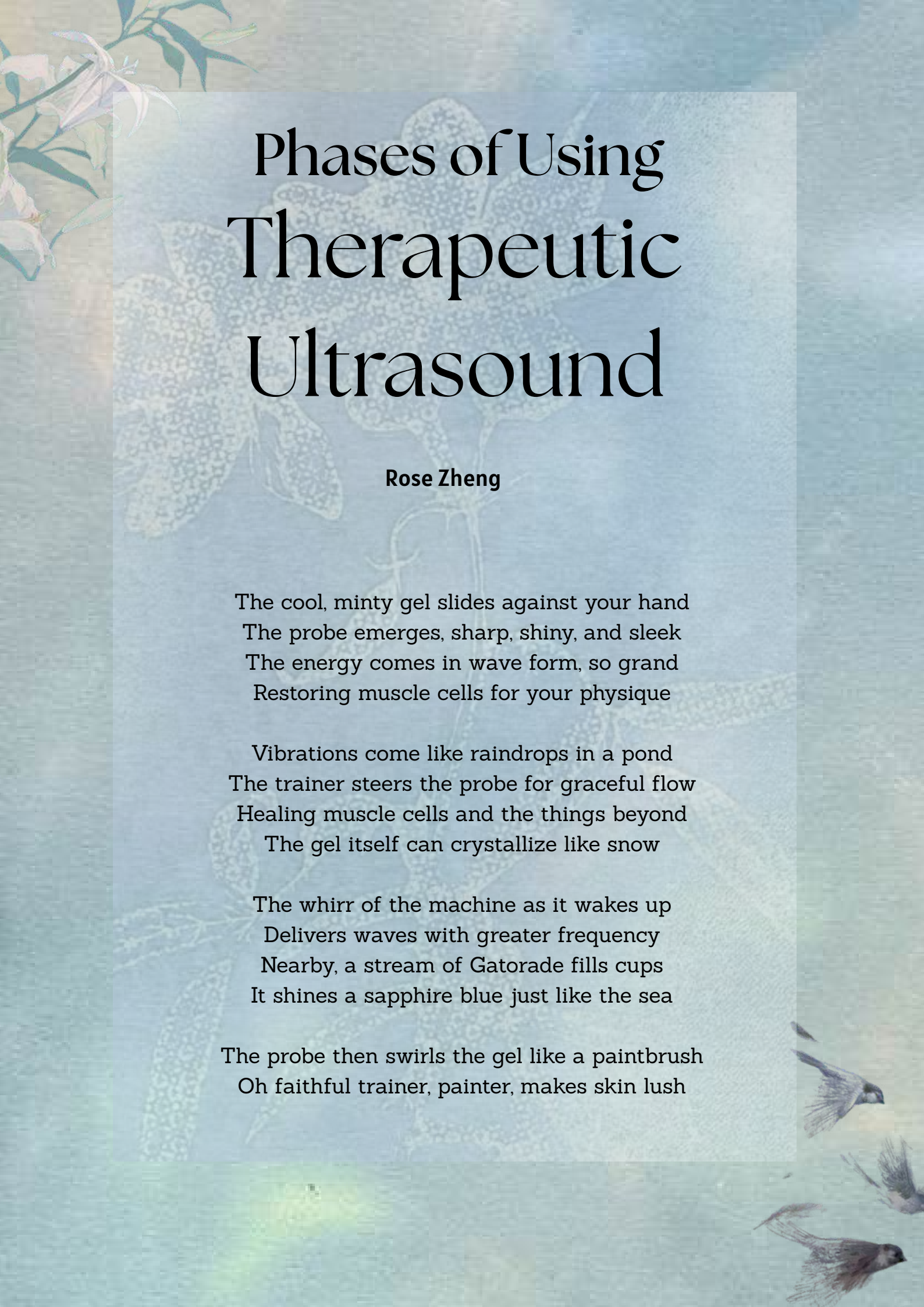
The scientific question remains: What evidence supports the specific claim?

Why do people keep watching?

If social-media health information can be confusing or unreliable, why do people use it?

According to [Pew Research Center's findings on why Americans seek health information from influencers](#), 41% of Americans who get health and wellness information from influencers say making a health or lifestyle change is a major reason they do so. Two-thirds say they mostly encounter this information.





Phases of Using Therapeutic Ultrasound

Rose Zheng

The cool, minty gel slides against your hand
The probe emerges, sharp, shiny, and sleek
The energy comes in wave form, so grand
Restoring muscle cells for your physique

Vibrations come like raindrops in a pond
The trainer steers the probe for graceful flow
Healing muscle cells and the things beyond
The gel itself can crystallize like snow

The whirr of the machine as it wakes up
Delivers waves with greater frequency
Nearby, a stream of Gatorade fills cups
It shines a sapphire blue just like the sea

The probe then swirls the gel like a paintbrush
Oh faithful trainer, painter, makes skin lush

THE CLIMATE LOCKDOWN CONSPIRACY: You can't fact- check possibility

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Department of Political Studies, Queen's
University, Canada

Image by Pexels on Pixabay



The climate lockdown conspiracies claim that a clandestine group of elites are planning to use climate change as a justification to enact widespread lockdowns and curtail freedoms. This conspiracy draws on a wide range of unconnected real-world events and suggests that their possibility of happening again is all the proof required. The focus on possibility instead of reality demonstrates the deep-seated philosophical differences between conspiracy theories and the fact-checking processes that counter them

INTRODUCTION

Climate lockdown conspiracies¹ are based on claims of possibility, not reality. They may reference real-world events in different contexts, but the connection to the actual climate lockdown conspiracy comes from an assertion based on possibility. This case study shows how conspiracy theories can be difficult to counter, as fact-check responses often do not speak about what is possible, but only what is real or not. I argue that one source of difficulty that counter-disinformation efforts encounter is that they do not share the same ontology (philosophy of reality) as the conspiracy theory that they target. As Muirhead and Rosenblum (2019) argued, and the climate lockdown conspiracy demonstrates, contemporary conspiracism is not built on a series of claims about how reality actually is, but instead grounds its conspiratorial claims in possibility that cannot be perfectly disproven.

The fact checkers and climate lockdown conspiracists have fundamentally different understandings of what is real, despite operating within the same information environment and discussing the same issues. If we want to understand the root cause of this disjuncture between fact-checking and conspiracy, we must first understand how these different philosophies of reality operate. After introducing the climate lockdown conspiracy, I discuss how the philosophy of Giorgio Agamben (2018) can help us to redirect counter-disinformation efforts towards a less conflictual discussion of plausibility rather than an unsuitable fact-checking approach. This commentary thereby demonstrates how engagement with philosophy can be generative for scholars and practitioners in misinformation studies seeking to better understand the ways of thinking occurring within conspiracy theory circles. As outlined in the conclusion, this philosophical account can help inform future empirical testing.

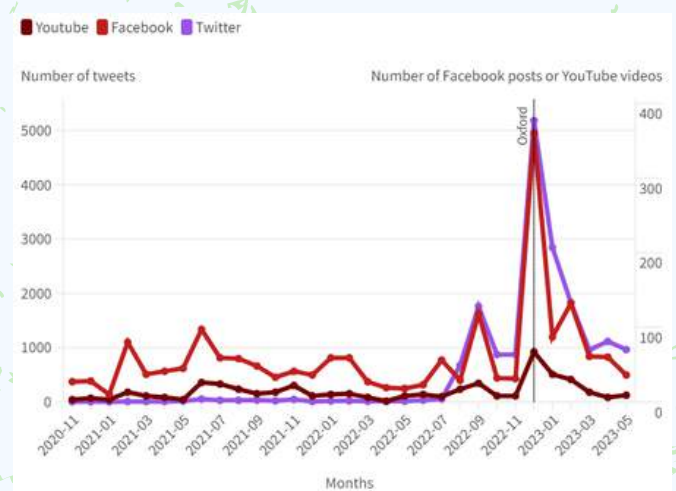
THE CLIMATE LOCKDOWN CONSPIRACY

In the early months of 2020, lockdowns related to COVID-19 began to spread around the world. The connection of the pandemic lockdowns to climate change discourse was sporadic in early months, consisting largely of comments that reduced human activity lessened pollution in certain areas (e.g., Clifford, 2020). In September of that year, economist and professor Mariana Mazzucato published a pair of opinion blogs arguing that climate change mitigation measures should be adopted to ensure that society could avoid emergency measures becoming necessary for climate change; online climate change deniers quickly misrepresented these pieces as calling for climate lockdowns (Maharasingam-Shah & Vaux, 2021). Uptake of the climate lockdown conspiracy through One America News Network, Fox News, Breitbart News, the Washington Times, and social media platforms such as YouTube, Facebook, Twitter, and Telegram saw a rapid dissemination of the conspiracy after this tipping point. The climate lockdown conspiracy grew sharply after a poorly crafted Guardian headline comparing global carbon targets to pandemic lockdown emissions was cited in conspiracy circles as calling for biennial climate lockdowns, and a since-deleted World Economic Forum tweet promoting analysis of carbon emissions during lockdown periods claimed that the lockdowns were improving cities (Maharasingam-Shah & Vaux, 2021). These missteps—and public corrections—became fodder for the promotion of the conspiracy.

With a chyron reading “The Impending Climate Lockdowns,” Laura Ingraham summarized the core of the climate lockdown conspiracy for her viewers on May 19, 2021. Her claim is that global elites see climate change as an excuse to justify lockdowns and steal freedom; the existence of pandemic lockdowns is taken as proof that climate lockdowns are possible (Ingraham, 2021). Juxtaposing statements made by prominent political figures about the severity of climate change with comments comparing the pandemic lockdown emissions reductions to broader climate change targets was a common strategy to outline the possibility of climate lockdowns. Between September 2020 and April 2021, nearly half of all tweets including the words climate lockdown also

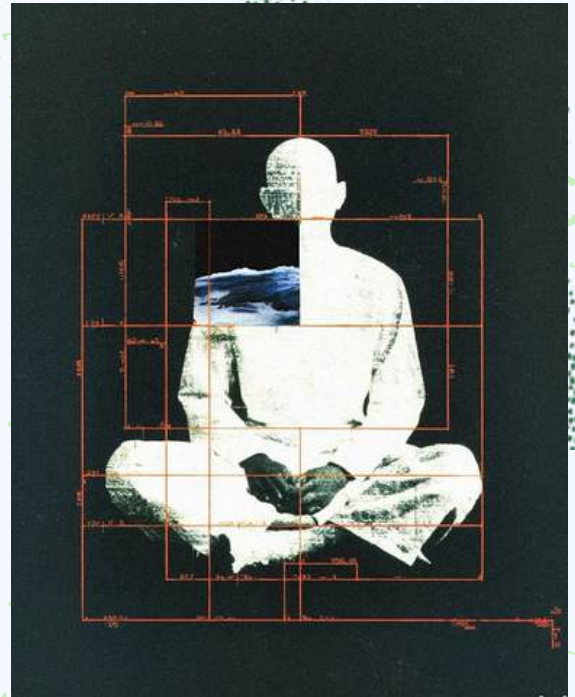
referenced an elite plot, with a full 29% naming the World Economic Forum or its Great Reset report directly (Maharasingam-Shah & Vaux, 2021, p. 10). Specific events can also have a major influence: Figure 1 demonstrates the slow burn of climate lockdown conspiracy discourse online reaching a peak around a city council meeting in Oxford, UK that was subject to high degrees of misinformation (Terroille & Samson, 2023). The connection of a climate lockdown conspiracy to actors enmeshed in other conspiracy theories—for example, the New World Order, broader World Economic Forum conspiracies, or climate denialism—can be a helpful conspiracy enrolment technique, as those who believe in one conspiracy theory are more likely to believe in other conspiracy theories (Williams et al., 2022)—even if the conspiracy theories contradict one another (Wood et al 2012).

Responding to the climate lockdown conspiracy is a difficult task, as the specific threat of a climate lockdown is that it is possible (perhaps in the near future). The conspiracy relies on data points not directly connected to the main theory, such as the existence of pandemic lockdowns and often leverages the believers’ own previously-held beliefs to entice believers to join. Because “correcting the record” is of little use in this circumstance, the main call to action emerging from the Institute for Strategic Dialogue’s report on the climate lockdown conspiracy was to prevent future harm by encouraging climate campaigners and other visible actors to be aware of potential narrative reframing when choosing words for titles (Maharasingam-Shah & Vaux, 2021). This is not an opponent who relies on actual facts that may be checked, but instead on a threat that exists entirely in the realm of the possible.



PHILOSOPHY CAN INFORM OUR RESPONSE

In a short book on the philosophy of quantum mechanics, Italian philosopher Giorgio Agamben (2018) suggests that the major rupture that quantum mechanics introduced into science was that it replaced a worldview focusing on measuring what exists with one of probabilistic models. Whereas science from Aristotle to Newton assumed that reality consists of what actually exists (ontology of the actual), quantum mechanics introduced a new worldview that considers possibility to be real. Because knowledge focuses on what is possible rather than only on what exists presently, new forms of reasoning specific to quantum mechanics (the statistical modeling of uncertainty) must be developed. Agamben argues that this replacement of actualist physics with probabilistic models has far-reaching philosophical implications: “as soon as we assume that the real state of a system is in itself unknowable, statistical models become essential and cannot but replace reality” (Agamben, 2018, p. 42). Despite the efforts of generations of physicists, no bridge exists between the actualist ontology of macroscopic physics and the ontology of the possible in quantum mechanics.



My argument is that a similar ontology of the possible exists in the case of the climate lockdown conspiracy.² Although the difference in style between quantum mechanics and conspiratorial thinking—we might say a scientific style versus a paranoid style (Hofstadter, 1996)—may make this distinction difficult to grasp, I argue that the distinction between reality defined in terms of actual versus possible offers us a useful heuristic to inform less confrontational and more effective methods for countering misinformation and conspiratorial thinking. The climate lockdown conspiracy does not require that climate lockdowns actually exist for their conspiracy claim to be real. Indeed, the urgency of their message comes precisely from their potential to exist. To respond to the climate lockdown conspiracy as a fact checker might, by highlighting the non-existence of climate lockdowns, does nothing to refute the conspiracist's core belief. Such an attempt to fact-check fails because it attempts to counter possibility with actuality. In doing so, the fact check reinforces the status of the lockdown as being potential. Within the ontology of the possible held by the climate lockdown conspiracist, this reinforcement of the status of the lockdown as possible simultaneously reinforces its reality within the conspiracist's worldview.

The lesson from this turn to philosophy is that counter-misinformation efforts must pay attention to the ontological assumptions of the conspiracy at hand. When a conspiracy belief assumes an ontology of the possible, a response that assumes an ontology of the actual emphasizes the conspiracist's ontological rationale for belief. To avoid reinforcing the conspiracy belief, an alternative strategy is to ground counter-misinformation efforts in terms of plausibility and probability rather than actuality. Instead of telling the climate lockdown conspiracist that there are no actual plans for an imminent climate lockdown, the first step can instead be arguing that the climate lockdown is not an inevitable occurrence. Indeed, given the widespread pushback even to pandemic lockdowns, it would hardly be a stretch to say that future lockdowns of any sort would be difficult to enforce, and that generalized climate change lockdowns would be difficult to justify based on the non-imminence of the threat. Another key step in this logic is to distinguish evacuations from extreme weather events from climate lockdowns. Placing events such as the evacuation of a hurricane landfall zone clearly in the realm of the actual drives a wedge between extreme weather event lockdowns (actual) and climate lockdowns (potential). This distance can then be used to emphasize the implausibility and improbability of the latter. Crucially, this meets the conspiracists where they are, ontologically speaking, rather than confronting them with a different worldview.

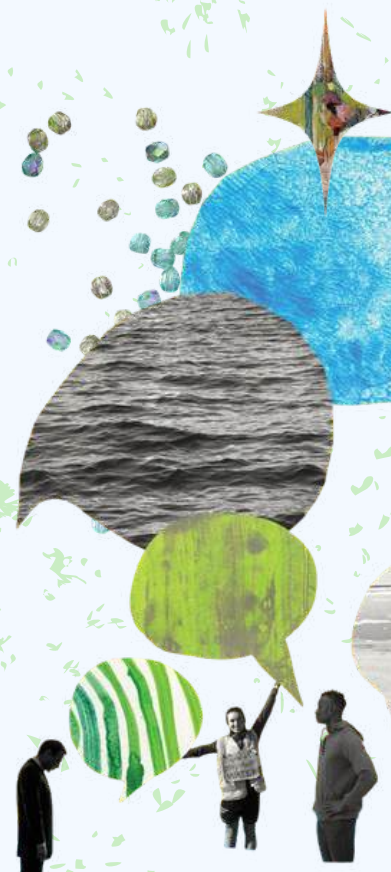
An objection to this focus on plausibility may emerge from the broader concerns that fact-checking efforts expressing scientific findings in terms of probability have in the past reinforced conspiracist beliefs rather than countering them.³ As Muirhead and Rosenblum (2019) argue, because conspiracy theorists tend to hold “not entirely false” as the barrier for believability—rather than an evidentiary basis for truth—one might reasonably object that a fact check that accepts the ontology of possibility would risk leaving the door open. However, by shifting the terms of debate from absolute terms (truth/not truth) to relative terms (more or less plausible), counter-misinformation efforts asking the conspiracy theory believer to reweight the certainty of beliefs rather than radically switch them entirely have a lower cognitive demand.

As the previous section outlined, the claims of the climate lockdown conspiracy rely on possibilities from situations that are ripped from their context and read as if inevitable. By building the argument within an ontology of the possible, the truth or falsity is measured against their possibility to exist rather than their actual existence. Responses coming from an ontology of the actual are ineffective because they are open to an alternative conclusion if mere possibility is sufficient to define reality (e.g., “Yes, I agree that there is no climate lockdown right now, but they are coming”). Responses that are constructed in terms of probability and plausibility have less of a cognitive load because they do not deny the possibility, but instead highlight the remoteness of the possibility (e.g., “The event is so implausible that it is not likely to happen”). Recognizing the philosophical distinction between these worldviews helps us to identify the ontological mechanism that stands in the way of conventional fact-checking.

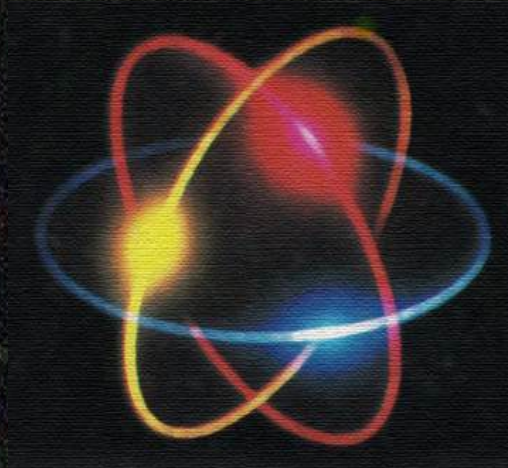
CONCLUSION

My argument is that a similar ontology of the possible exists in the case of the climate lockdown conspiracy.² Although the difference in style between quantum mechanics and conspiratorial thinking—we might say a scientific style versus a paranoid style (Hofstadter, 1996)—may make this distinction difficult to grasp, I argue that the distinction between reality defined in terms of actual versus possible offers us a useful heuristic to inform less confrontational and more effective methods for countering misinformation and conspiratorial thinking. The climate lockdown conspiracy does not require that climate lockdowns actually exist for their conspiracy claim to be real. Indeed, the urgency of their message comes precisely from their potential to exist. To respond to the climate lockdown conspiracy as a fact checker might, by highlighting the non-existence of climate lockdowns, does nothing to refute the conspiracist’s core belief. Such an attempt to fact-check fails because it attempts to counter possibility with actuality. In doing so, the fact check reinforces the status of the lockdown as being potential. Within the ontology of the possible held by the climate lockdown conspiracist, this reinforcement of the status of the lockdown as possible simultaneously reinforces its reality within the conspiracist’s worldview.

The lesson from this turn to philosophy is that counter-misinformation efforts must pay attention to the ontological assumptions of the conspiracy at hand. When a conspiracy belief assumes an ontology of the possible, a response that assumes an ontology of the actual emphasizes the conspiracist’s ontological rationale for belief. To avoid reinforcing the conspiracy belief, an alternative strategy is to ground counter-misinformation efforts in terms of plausibility and probability rather than actuality. Instead of telling the climate lockdown conspiracist that there are no actual plans for an imminent climate lockdown, the first step can instead be arguing that the climate lockdown is not an inevitable occurrence. Indeed, given the widespread pushback even to pandemic lockdowns, it would hardly be a stretch to say that future lockdowns of any sort would be difficult to enforce, and that generalized climate change lockdowns would be difficult to justify based on the non-imminence of the threat. Another key step in this logic is to distinguish evacuations from extreme weather events from climate lockdowns. Placing events such as the evacuation of a hurricane landfall zone clearly in the realm of the actual drives a wedge between extreme weather event lockdowns (actual) and climate lockdowns (potential). This distance can then be used to emphasize the implausibility and improbability of the latter. Crucially, this meets the conspiracists where they are, ontologically speaking, rather than confronting them with a different worldview.



IS RISKING BILLIONS ON NUCLEAR-POWERED AI



WORTH IT?

SOPHIA LEE



AI is taking the world by storm for the better and for worse. According to the International Energy Agency (IEA), data centers that help run the program use about 1.5% of the global electricity as of 2024, a statistic reported in the *Nuclear Business Platform (NBP)*. By 2035, those data centers are predicted to release 300 million tons of carbon emissions unless another alternative energy source is presented. It requires an unending “appetite for electricity.” These unsettling numbers prompted Big Techs, including Google, Amazon, and Microsoft, to promise to vastly reduce their carbon emissions. That’s where nuclear power comes in.

As stated in the *NBP*, other sustainable energy sources, such as solar and wind power, only run at 20-40% of their full potential, but nuclear power runs at 90-95%. Weather fluctuations decrease the amount of energy that is produced by sustainable sources compared to their full potential in ideal circumstances, whereas nuclear power is largely unaffected by weather. Additionally, uranium prices are far more predictable than natural gas prices and are a safer option for guaranteed costs.

As a result, the government, along with private investors, has already invested around \$9 billion on small modular reactors (SMRs), a nuclear powered reactor on a smaller scale only capable of 300 megawatts of energy each, to fuel the “AI boom.” The goal is to both decrease pollutants and emissions caused by AI. However, it may be too expensive to be a practical option. Compiled data from 2019, as reported in the The Financial Times, stated that the US government had already committed around \$6 billion for the development of SMRs, and private investors had also invested a whopping \$3 billion. Investor enthusiasm for what nuclear power could promise is fueling the share prices and causing many to gamble on companies that haven’t made many breakthroughs. Consequently, they are raising the worth of those companies without those institutions actually providing anything in return.

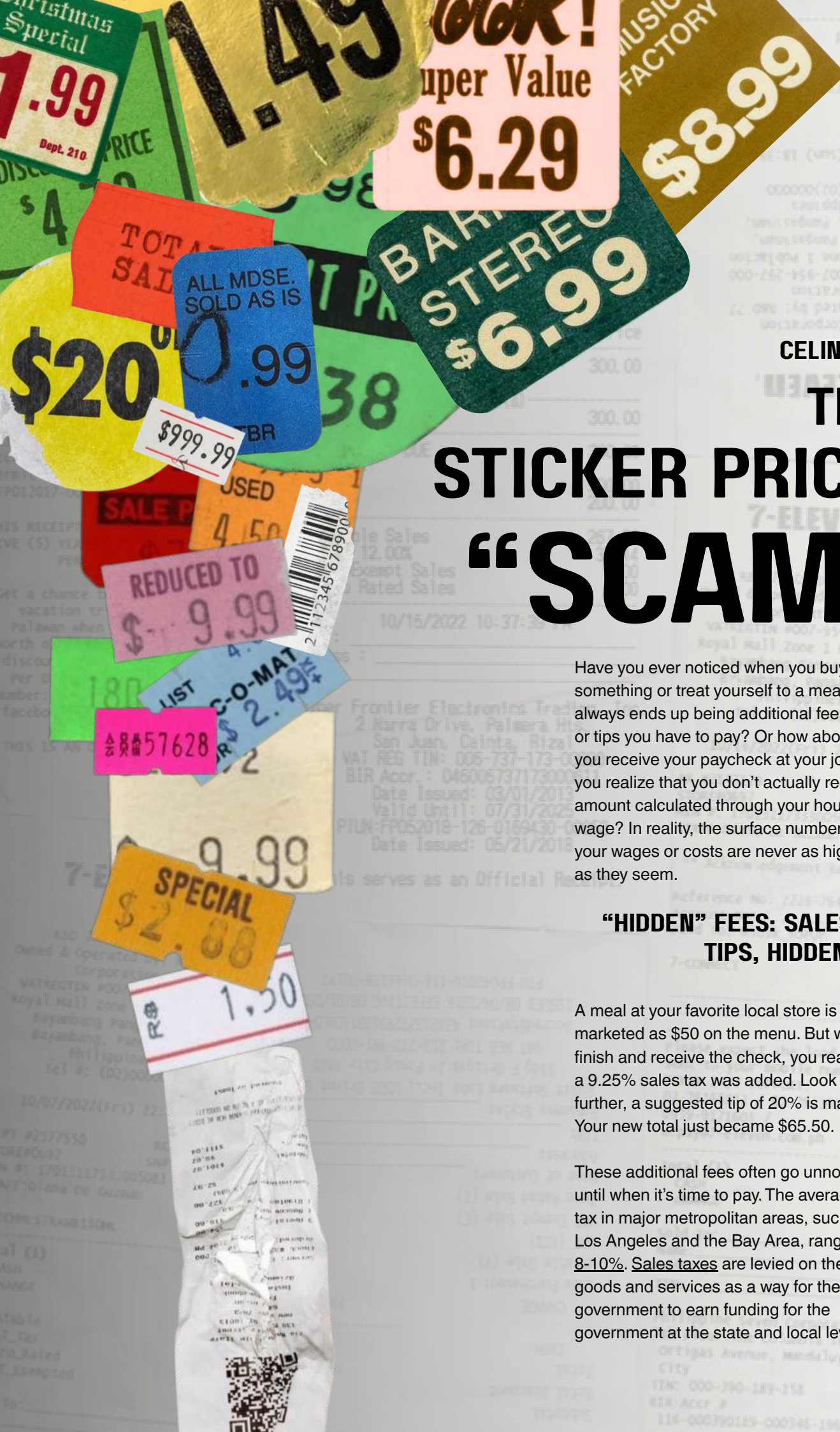
Now, the big question on the practicality of this energy source: Is it really cost-effective?

Many nuclear projects have been plagued by delays and rising expenses. *The Financial Times* noted that one company, NuScale, had to cancel one of its projects after costs jumped to 120% its original price. Similar nuclear projects based in Russia and China also had their prices rise to around 300% to 400% the original fee.

The levelized cost of energy is another factor to consider. Wood Mackenzie, a global insight business for energy sources, predicts the cost will reach from around \$133 to \$182 per megawatt hour in 2030. However, natural gas costs around \$126 per megawatt hour. Solar and wind energy sit even lower than that. This means that the cost to produce one megawatt of power per hour is more expensive through nuclear energy than through other forms. However, certain nuclear companies, like NuScale and Oklo, argue that their costs will only reach \$90 or even \$64 per megawatt hour.

The chief executive of Terrestrial Energy, Simon Irish, insists, “any first plant will have challenging economics... But from there we roll downhill.”





CELINA XUE

THE STICKER PRICE “SCAM”

Have you ever noticed when you buy something or treat yourself to a meal, there always ends up being additional fees, taxes, or tips you have to pay? Or how about when you receive your paycheck at your job, did you realize that you don't actually receive the amount calculated through your hourly wage? In reality, the surface numbers for your wages or costs are never as high or low as they seem.

“HIDDEN” FEES: SALES TAX, TIPS, HIDDEN FEES

A meal at your favorite local store is marketed as \$50 on the menu. But when you finish and receive the check, you realize that a 9.25% sales tax was added. Look even further, a suggested tip of 20% is marked. Your new total just became \$65.50.

These additional fees often go unnoticed until when it's time to pay. The average sales tax in major metropolitan areas, such as in Los Angeles and the Bay Area, ranges from 8-10%. Sales taxes are levied on the sales of goods and services as a way for the government to earn funding for the government at the state and local level.

Additionally, especially at stores where some kind of service is involved, a tip option usually adds another 18-22% to your bill.

Tipping is important for workers in the service industry who receive minimum wage and have the rest of their paycheck come from tips.

Many point-of-sale systems calculate tips based on your post-tax subtotal, creating a compounding cost effect. Prices can become increasingly high as they all add up. When purchasing items under a strict budget, it's important to take into account these additional hidden costs.

SHRINKING PAYCHECK: GROSS VS NET INCOME

The illusion of numbers is also prevalent in the earning side of things. Young employees, such as high school students, are often paid by the hour. For example, if you land a job paying \$20 and work a 20 hour week, you would assume you would earn \$400 in your next paycheck.

However, when it does arrive, mandatory taxes and withholdings instantly reduce that sum. The Federal Insurance Contributions Act (FICA), automatically deducts 7.65% of every paycheck: 6.2% goes towards your social security, and 1.45% is for Medicare (health insurance for people aged 65 or older). Other state and federal income taxes are also applied, which further decrease your received pay. Instead of earning the \$400 that you expected, the actual amount tends to be more around \$310-\$320.

This is important for all consumers, as if budgets are based around gross income, it's easy to run out of funds early. This pushes consumers to turn towards other paying methods like credit, which can be hard to pay off as spent amounts can add up quickly.

REAL ESTATE: REALIZED NET PROCEEDS

These phantom price tags reach a much larger scale in the world of real estate. One common belief is that: "We bought our house for \$400,000, but we sold it for \$500,000. We made \$100,000 in profit!"

But this view completely ignores transaction friction costs, costs that are obvious or hidden in the execution of a transaction. Some of these friction costs in real estate include seller and buyer commissions (totaling around 5-6% of a home's final selling price), state transfer taxes, and title insurance.

Taking this into account, on a \$500,000 sale, agent commissions alone can already deduct \$25,000 to \$30,000. Closing fees and required seller repairs can be another \$10,000 to \$15,000. Out of the initially assumed \$100,000 in profit, already nearly half is gone because of miscellaneous fees and payments.



REAL WORLD TIPS

There are many "hidden" costs in various transactions and earnings in our lives, whether small or big. It's important to be aware of these when making smart financial decisions. Some rules consumers can keep in mind during different scenarios include:

1. **For spending:** multiply retail and dining costs by 1.25 to estimate true checkout prices.
2. **For earning:** multiply gross wages by 0.80 to approximate actual spendable income going into your bank account.
3. **For selling assets like real estate:** subtract 7-10% off the top of property sales for friction costs.

AUTHOR BIO:

Celina is a current high school junior passionate in finance, business, and uplifting the community. She hopes that through *The Insight Exchange*, she can provide a student-led perspective on key events happening in the business world. In her free time, she enjoys hanging out with friends, volunteering, and hosting community events.



SENATOR ENDORSES DISCREDITED DOCTOR'S BOOK ON A CHEMICAL HE CLAIMS TREATS EVERYTHING FROM AUTISM TO CANCER

REPRINTED FROM PROPUBLICA

MEGAN O'MATZ

Wisconsin's Ron Johnson has a history of spreading vaccine misinformation. Now he's giving credence to assertions about the therapeutic powers of chlorine dioxide, a disinfectant and deodorizer. "It is all lunacy," one expert said.

For years, Sen. Ron Johnson has been spreading conspiracy theories and misinformation about COVID-19 and the safety of vaccines.

He's promoted disproven treatments for COVID-19 and claimed, without evidence, that athletes are "dropping dead on the field" after getting the COVID-19 vaccination. Now the Wisconsin politician is endorsing a book by a discredited doctor promoting an unproven and dangerous treatment for autism and a host of ailments: chlorine dioxide, a chemical used for disinfecting and bleaching.

The book is "The War on Chlorine Dioxide: The Medicine that Could End Medicine" by Dr. Pierre Kory, a critical care specialist who practiced in Wisconsin hospitals before losing his medical certification for statements advocating using an antiparasite medication to treat COVID-19. The action, he's said, makes him unemployable, even though he still has a license.



Kory has said there's a globally coordinated campaign by public health agencies, the drug industry and the media to suppress evidence of the medicinal wonders of chlorine dioxide. His book, according to its website, contends that the "remarkable molecule" works "to treat everything from cancer and malaria to autism and COVID."

The book jacket features a prominent blurb from Johnson calling the doctor's treatise: "A gripping tale of corruption and courage that will open eyes and prompt serious questions."

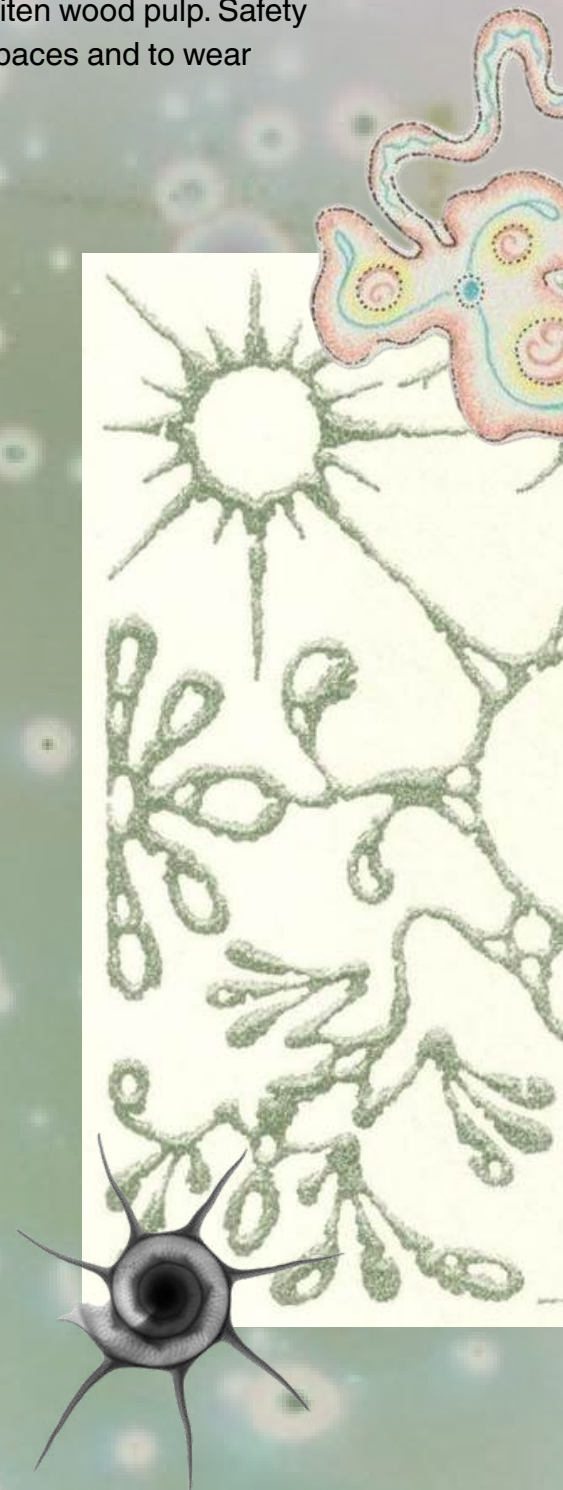
Chlorine dioxide is a chemical compound that has a range of applications, including as a disinfectant and deodorizer. Food processing plants apply it to sanitize surfaces and equipment. Hospitals use it to sterilize medical devices, and some municipalities use low levels to treat public water supplies. Paper mills rely on it to whiten wood pulp. Safety experts advise those who handle it to work in well-ventilated spaces and to wear protective gloves.

Concentrations in drinking water systems higher than 0.8 milligrams per liter can be harmful, especially to infants, young children and fetuses, according to the Environmental Protection Agency.

Still, for many years people in online discussion groups have been promoting the use of chlorine dioxide in a mixture that they call a "miracle mineral solution," ingested to rid people of a host of maladies. The Food and Drug Administration has warned that drinking these chlorine dioxide mixtures can cause injury and even death.

It is not medicinal, despite Kory's contention. "It is all lunacy. Absolutely, it's 100% nonsense," said Joe Schwarcz, director of McGill University's Office for Science and Society in Montreal and an expert on the threat of pseudoscience. Schwarcz has written articles about the so-called miracle mineral solution, calling it "a poison" when it's in high concentrations.

Kory's book, set to be released to the public in January, argues that word of chlorine dioxide's effectiveness has been suppressed by government and medical forces that need people to remain perpetually ill to generate large profits. The use of the word "war" in the title is fitting, Kory said in a recent online video on his co-author's Substack. "In the book I detail many, many assassination attempts of doctors who try to bring out knowledge around chlorine dioxide," he said.



Johnson confirmed to ProPublica in an email that he authorized the statement on the cover. “After reading the entire book, yes I provided and approved that blurb,” he said. “Have you read the book?”

ProPublica asked Kory and his co-author, Jenna McCarthy, to provide an advance copy, an interview and responses to written questions. Kory did not respond. McCarthy wrote in an email to ProPublica that she was addressing some of the questions on her Substack. (She did not send a book or agree to an interview.)

The book “is a comprehensive examination of the existing evidence and a plea for open-minded inquiry and rigorous research,” she wrote on Substack. She dismissed warnings about chlorine dioxide’s toxicity in high concentrations, writing: “Everything has a toxic dose — including nutmeg, spinach, and tap water.”

She said that chlorine dioxide is being studied in controlled settings by researchers in the United States and Latin America and that “the real debate is how it should be used, at what dose, and in which clinical contexts.”

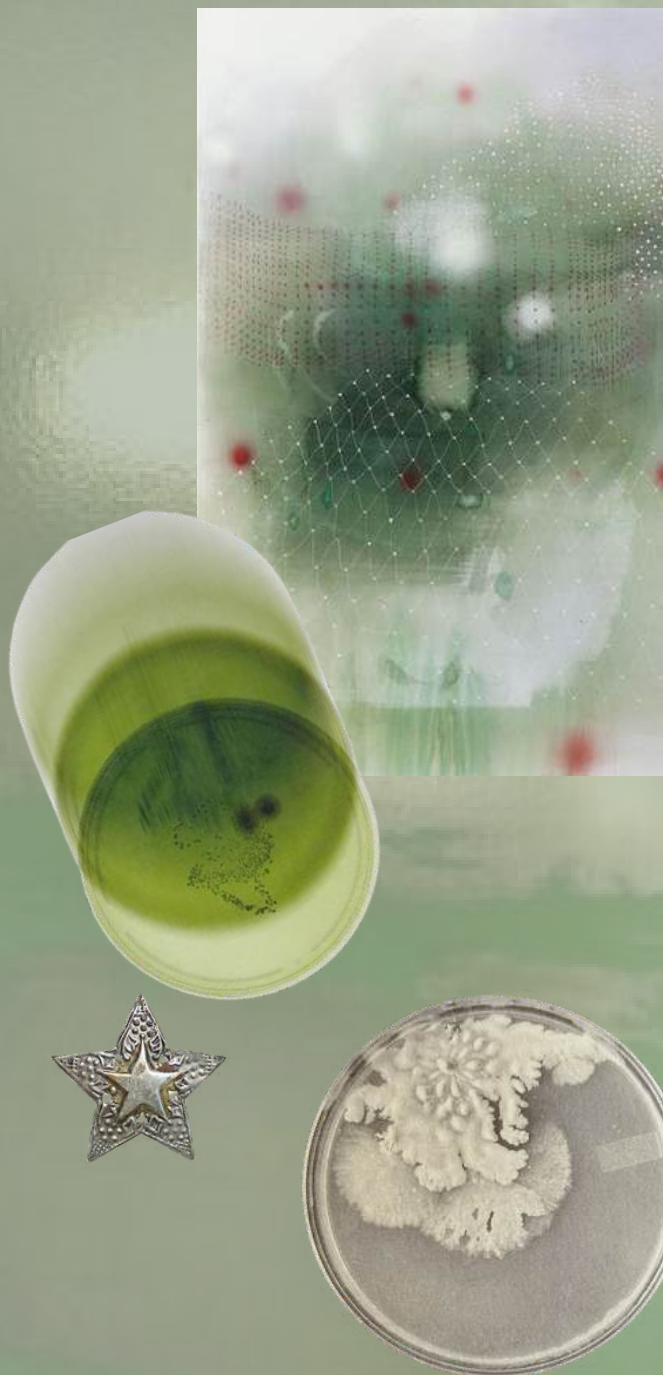
Her Substack post was signed “Jenna (& Pierre).” Johnson did not agree to an interview and did not answer questions emailed to his office by ProPublica, including whether he views chlorine dioxide as a world-changing medical treatment and whether he believes the FDA warnings are false.

IT’S CALLED SNAKE OIL

Johnson has been an advocate of Kory’s for years, calling the doctor as an expert witness in two 2020 Senate hearings. In one, Kory championed taking the drug ivermectin, an antiparasite medicine, to treat COVID-19.

In 2021, an analysis of data from clinical trials concluded that ivermectin could reduce deaths from COVID-19 and may produce other positive effects. McCarthy cited that analysis in her Substack response.

In 2022, however, the American Journal of Therapeutics, which had published the study, warned that suspicious data “appears to invalidate the findings” regarding ivermectin’s potential to decrease deaths.



Later clinical trials have found no beneficial effect of ivermectin for COVID-19, and the FDA has warned that taking large doses can be dangerous. The drug's manufacturer has said it hadn't found any scientific basis for the idea that ivermectin can effectively treat COVID-19. Kory, though, continued advocating for ivermectin.

In 2024 the American Board of Internal Medicine, which credentials physicians in certain specialties, revoked Kory's certifications in internal medicine, pulmonary disease and critical care for making false and misleading public statements about the ability of ivermectin to treat COVID-19. Hospitals and many insurance networks typically require doctors to be board certified.

Kory vigorously fought the disciplinary action, arguing to the ABIM that he provided substantial medical and scientific evidence to support his recommendations for addressing COVID-19, though not the "consensus-driven" approach. He also sued the board in federal court, citing his free speech rights in a case that is still progressing in the 5th U.S. Circuit Court of Appeals. On Substack, McCarthy excoriated the ABIM, saying it "bullies physicians" and "enforces ideological conformity."

In 2022, Johnson and Kory penned a Fox News op-ed opposing a California bill that would strip doctors' licenses for espousing misinformation about COVID-19. The bill became law but was repealed after a court fight. A federal judge found the statute's definition of misinformation to be too vague, which could infringe on doctors' right to free speech.

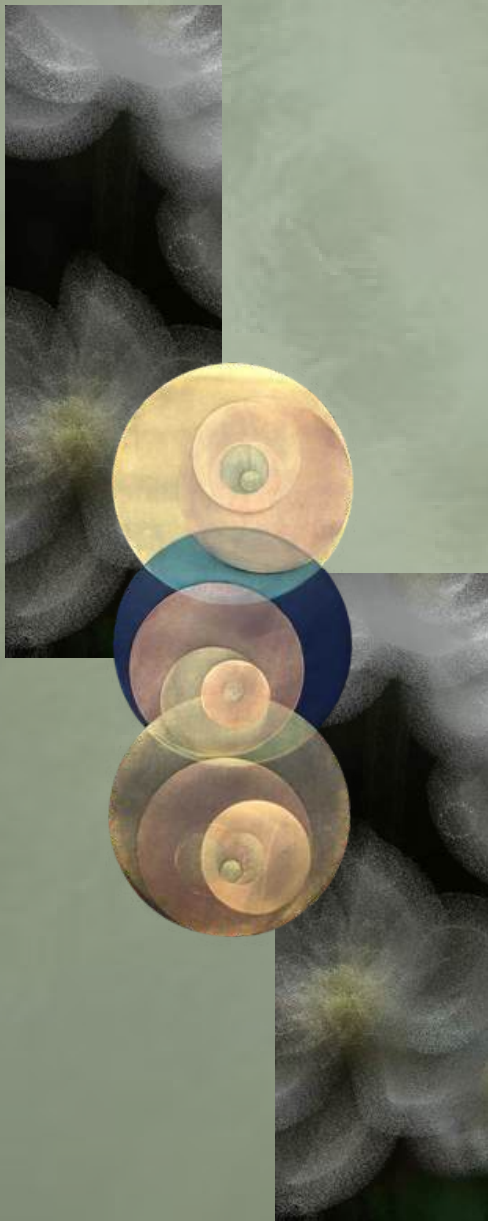
Johnson, who has been in Congress since 2011, has a history of advocating for experimental treatments and viewing the government as an impediment. Dr. Peter Lurie, president and executive director of the Center for Science in the Public Interest, a public health advocacy group, said that among members of Congress, Johnson was "an early adopter of anti-science ideas."



Lurie said that Johnson is no longer an outlier in Washington, which now has many more elected lawmakers whom he considers anti-science. “What may have started off as the cutting edge of an anti-science movement has now turned into a much more broader-based movement that is supported by millions of people,” he said.

Earlier this year, Johnson held a hearing highlighting a flawed study claiming that vaccinated children had an increased rate of serious chronic diseases when compared to children who were not vaccinated. The conclusion questions the scientific consensus that vaccines are safe. The study’s researchers chose not to publish it because of problems they found in their data and methodology.

In November, Johnson and Kory were listed among the speakers at a conference of the Children’s Health Defense, a nonprofit that stirs anti-vaccine sentiment. It was launched in 2018 by Health and Human Services Secretary Robert F. Kennedy Jr., whose FDA is considering new ways to more closely scrutinize vaccine safety.



HHS did not respond to requests from ProPublica about Kennedy’s views on chlorine dioxide. At his confirmation hearing, Kennedy praised President Donald Trump for his wide search for a COVID-19 remedy in his first term, which Kennedy said included vaccines, various drugs, “even chlorine dioxide.”

Kory’s publisher is listed as Bella Luna Press, which has issued at least two other titles by McCarthy. “Thanks to the Censorship Industrial Complex, you won’t find *The War on Chlorine Dioxide* on Amazon or at Barnes & Noble. We had to design and build this website, figure out formatting and printing and shipping, and manage every aspect of order processing ourselves,” the book’s website states. (A representative for Bella Luna could not be reached for comment.)

As this new book is released, the autism community is also grappling with another controversy: the unsubstantiated assertion by Kennedy that Tylenol use by pregnant women poses an increased risk of autism. In addition, under Kennedy, the Centers for Disease Control and Prevention revised its website in November to cast doubt on the long-held scientific conclusion that childhood vaccines do not cause autism.

Some parents of children with autism, desperate for a remedy, have long reached for dubious and at times dangerous panaceas, including hyperbaric oxygen chambers and chelation therapy, used for the treatment of heavy metal poisoning. Neither method has been proven effective.

Helen Tager-Flusberg, director of the Center for Autism Research Excellence at Boston University, said Johnson has “acted extremely irresponsibly” in lending his name to a book making claims about chlorine dioxide treating autism.

“Wisconsin is filled with experts — clinical experts, medical experts, scientists — who understand and have studied autism and treatments for autism for many many years,” she said. “He’s chosen to completely ignore the clinical and the scientific community.”

People with autism may take medication to reduce anxiety, address attention problems, or reduce severe irritability. Many benefit from behavioral interventions and special education services to help with learning and functional abilities. But there is no cure, said Tager-Flusberg.

Referring to chlorine dioxide, she said: “We have had examples of this probably throughout the history of medicine. There’s a word for this, it’s called snake oil.”

In her response on Substack to ProPublica, McCarthy wrote that “chlorine dioxide is being used to treat (nobody said ‘cure’) autism with life-changing results.”

THE SEARCH FOR MIRACLE CURES

The mother of an autistic son, Melissa Eaton of North Carolina, heard Kory reference his book in early November on The HighWire, an internet talk show hosted by Del Bigtree, a prominent vaccine skeptic and former communications director for Kennedy’s 2024 presidential campaign. She then looked up the book online and noticed Johnson’s endorsement.

Eaton for many years has worked to expose people who peddle chlorine dioxide and to report apparent injuries to authorities. She monitors social media forums where parents discuss giving it to their children orally or via enemas. Sometimes the families reveal that their children are sick. “They’re throwing up and vomiting and having diarrhea and rashes,” Eaton said.



Some adherents advise parents that the disturbing effects indicate that the treatment is working, ridding the body of impurities, or that the parents should alter the dosage.

“Most of these kids are nonverbal,” Eaton said. “They’re not able to say what’s hurting them or what’s happening to them. The parents feel they’re doing the right thing. That’s how they view this: They’re helping to cure autism.”

The idea that chlorine dioxide can be a miracle cure began to spread about 20 years ago when a gold prospector, Jim Humble, wrote a book claiming his team in Guyana fell ill with malaria and recovered after drinking safe amounts of chlorine dioxide.

Humble later co-founded a “health and healing” church in Florida with a man named Mark Grenon, who called himself an archbishop and sold a chlorine dioxide solution as a cure for COVID-19. They described it as a “miracle mineral solution,” or MMS.

Grenon went to prison in 2023 for conspiring to defraud the United States by distributing an unapproved and misbranded drug. The scheme took in more than \$1 million, according to prosecutors.

An affidavit in the case filed by a special agent with the FDA Office of Criminal Investigations noted: “FDA has received numerous reports of adverse reactions to MMS. These adverse reactions include hospitalizations, life-threatening conditions, and death.”

Grenon, who is now out of prison, told ProPublica that he too is writing a book about chlorine dioxide. “My book will tell the truth.” He declined further comment.

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Grenon, who is now out of prison, told ProPublica that he too is writing a book about chlorine dioxide. “My book will tell the truth.” He declined further comment.

In the Substack video, Kory said he felt compelled to spread the word about chlorine dioxide much as he did about ivermectin, even though it cost him professionally.

He no longer has a valid medical license in Wisconsin or California, where he did not renew them, according to the Substack post. His medical licenses in New York and Michigan are active.

“I like to say I was excommunicated from the church of the medical establishment,” he said in the Substack video. As a result, he said, he turned to telehealth and started a practice.

In the Nov. 6 HighWire episode hosted by Bigtree, the discussion included talk not just of chlorine dioxide’s medicinal potential but also of how cheap and easy it is to obtain. “On Amazon, it’s literally, you get two bottles, well, it comes in two,” Kory started to explain, before stopping that train of thought.

“I wouldn’t know how to make it,” he said.



MUSIC

THE GIRL WITH THE SCARF

"The Girl with the Scarf" paints a story between two people: a young girl and a young boy. The boy struggles with finding the strength to build connections with other people, whereas the girl finds it comes to her easily, although this comes at the cost of her failing to see the line between true connection and parasitism. The boy seeks a connection through her, but is too afraid to commit to anything deeper than simply acquainting himself with her, and overtime, the girl begins to flicker out, as she is consumed by a constant stream of failed connections. By the time finally comes to his senses to seek a greater connection with her, it's already too late."

—Musician Ethan Dipasupil



LINK:

<https://drive.google.com/file/d/1D0SZ-e4Xv1AtMWN2ogkzrlcGil6O7xfa/view?usp=sharing>



Lots of people believe in Bigfoot and other pseudoscience claims – this course examines why

Originally published on The Conversation:
January 24, 2023 8:22am EST

Craig A. Foster

Professor and Chair, Department of Psychology, State
University of New York Cortland

Title of Course

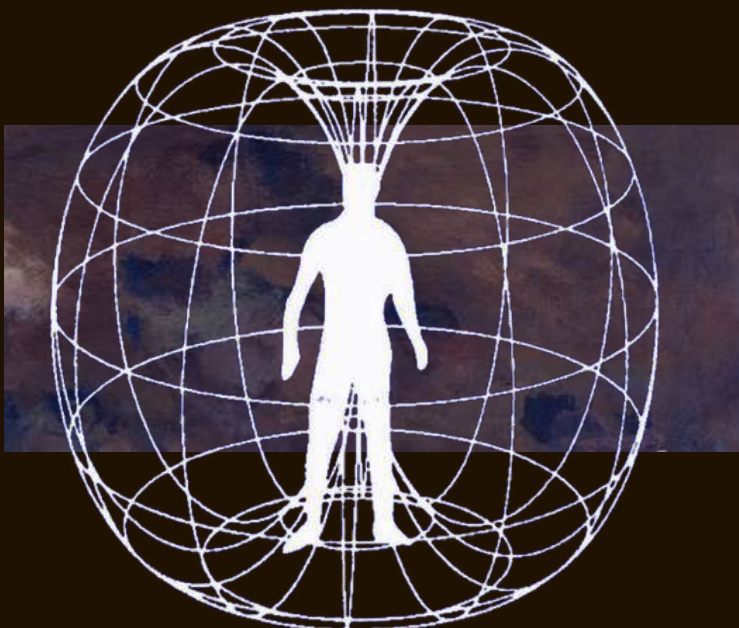
“Psychology of Pseudoscience.”

What prompted the idea for the course?

While teaching a course on research methods at the United States Air Force Academy, I concluded that the course needed a bigger emphasis on broad scientific reasoning skills.

So I incorporated material about the difference between science – the systematic process of evidence-based inquiry – and pseudoscience, which is the promotion of unreliable scientific claims as if they are more reliable than other explanations.

I wanted to understand why people promote claims that conflict with science. I jumped at the opportunity to develop this type of course at SUNY Cortland.





What does the course explore?

We look at some of the common scientific reasoning failures that pseudoscience exploits. These include hand-picking anecdotes to support a belief, developing a set of beliefs that explain every possible outcome, promoting irrelevant research, ignoring contradictory information and believing in unsubstantiated conspiracies.

We particularly highlight motivated reasoning, the tendency for people to process information in a way that helps them confirm what they already want to believe. For example, someone might accept scientific consensus about cancer treatments but question it with regard to vaccines – even though both are supported by strong scientific evidence and expert consensus.

We also review group polarization, in which people develop more extreme positions after interacting with similarly minded group members.

Some of the topics we examine include the flat-Earth belief, creationism, Bigfoot and other cryptozoology ideas, psychic ability, conversion therapy, anti-vaccination, astrology, ghosts and climate change denial.

Students complete two papers to reinforce their knowledge. First, students develop their own bogus scientific claims and a corresponding plan to convince people that their claims are legitimate. Allowing students to invent and promote novel forms of pseudoscience gives them a safe context in which to examine specious scientific arguments.

Second, students review old issues of Skeptical Inquirer, the leading national magazine about science and critical thinking, to summarize the topics that were being addressed at that time. Students also dive more deeply into a specific topic like unexplained cattle mutilations or the Bermuda Triangle. Then they write a paper based on an example I recently published in Skeptical Inquirer. I'm hopeful that future column installments will include students' work.

Why is this course relevant now?

The internet has provided pseudoscience communities with the unprecedented ability to promote their false claims.

For instance, flat-Earthers have relied on YouTube to create doubt about Earth as a globe. The Bigfoot Field Researchers Organization uses Facebook to support Bigfoot belief. These platforms take advantage of people's tendency to believe material posted by their friends or authoritative-sounding sources.

This course is also relevant now because the consequences of poor scientific reasoning are so significant. People who believe these sorts of false claims risk their own health and that of the planet, by avoiding helpful, safe vaccines or useful discussions about the problems presented by climate change.

What's a critical lesson from the course?

It's important for students to understand that reasonable, intelligent people promote pseudoscience. When people encounter pseudoscience they don't personally believe, they sometimes conclude that the pseudoscience supporters are unintelligent or mentally unwell. This type of explanation is shortsighted.

Everyday people are drawn into believing pseudoscience because they have limited cognitive resources and they use cognitive strategies, like relying on anecdotes, that can lead to erroneous belief. Human scientific reasoning is particularly flawed when humans really want to reach a particular conclusion.

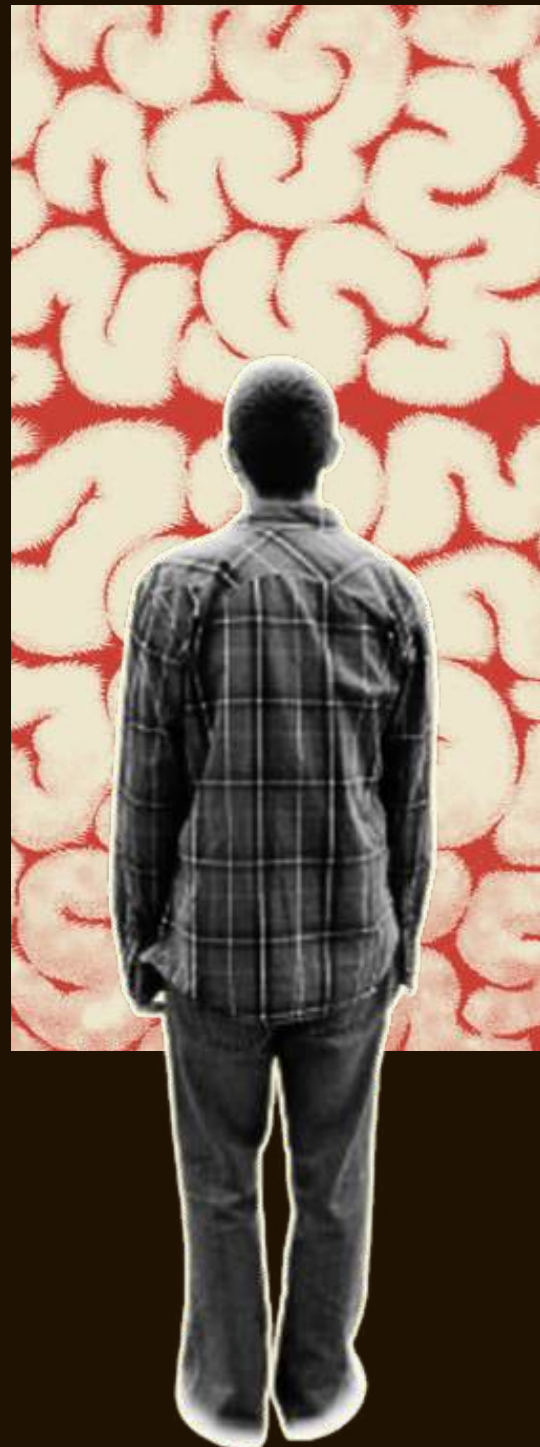
Belief in pseudoscience also develops out of social interactions. Friends and family members commonly share their reasons for believing in creationism, ghosts, fad diets and so forth. This type of social influence goes into overdrive when people join communities that collectively promote pseudoscience. I have attended Bigfoot and flat-Earth conferences. These conferences create powerful social experiences, because so many friendly people are available to explain that Bigfoot is alive or the Earth is flat, both of which are, clearly, false.

What materials does the course feature?

The "Defining Pseudoscience and Science" chapter by Sven Ove Hansson in "Philosophy of Pseudoscience: Reconsidering the Demarcation Problem" sets up what I call the psychological puzzle of pseudoscience: How do people convince themselves and others that an unreliable scientific claim is actually reliable?

What will the course prepare students to do?

The course prepares students to identify dubious scientific claims. In so doing, they should become less vulnerable to being drawn into pseudoscience. The course also enhances familiarity with specific forms of pseudoscience. I expect climate change denial, anti-vaccination and creationism to remain major points of contention in American society for decades. Educated people should understand the discussions that occur around these kind of social problems.



AND NOW... FOR
SOME REAL SCIENCE

ENGINEERING PROJECT REVIEW

RUOHANG LI WILLISTON
NORTHAMPTON SCHOOL

I turned on the power switch and watched the motor begin to spin. The Arduino was in front of me, and wires protruded from the breadboard in all directions. Although it appeared disorganized, it was effective. Seeing a motor come to life with a few wires and a program was strangely satisfying. I wanted to see what more I could get it to do.

I started my project with a few ideas including a moving object, an RC car, or a robotic arm. I decided on a two-axis robotic drawing tool because it integrated programming and physical construction. I worked through the CAD and Arduino skills I would need to build it over the course of several months with a mentor.

During our early meetings, my mentor introduced me to fabrication tools such as laser cutters, 3D printers, and waterjets. I had wondered how these machines could reproduce such precise details. Learning how they interpreted measurements from digital designs made me want to create designs of my own.

It was intimidating to open CAD for the first time. The top of the screen appeared to be lined with numerous buttons, and selecting one revealed additional choices. I began by creating triangles, squares, and circles. I learned how to use extrusion to transform closed shapes into three-dimensional forms from my mentor. The wall of buttons gradually lost its daunting appearance, and I started creating the drawing device's components.



The idea was to print those components at school and put them together myself. Then I discovered that the 3D printer at the school was broken. I was upset to lose access to the machine I required after devoting hours to learning CAD and creating the designs. Instead, I sent my CAD files to a printing service, which printed and shipped them to me.

I was learning how to use the Arduino in the interim. The breadboard connections and how the components were controlled by code were described by my mentor. I had trouble handling the tiny, fragile wires while working in my dorm room. I would unintentionally loosen one after plugging it in. After all that fumbling, getting the motor to spin for the first time felt like a tiny victory.

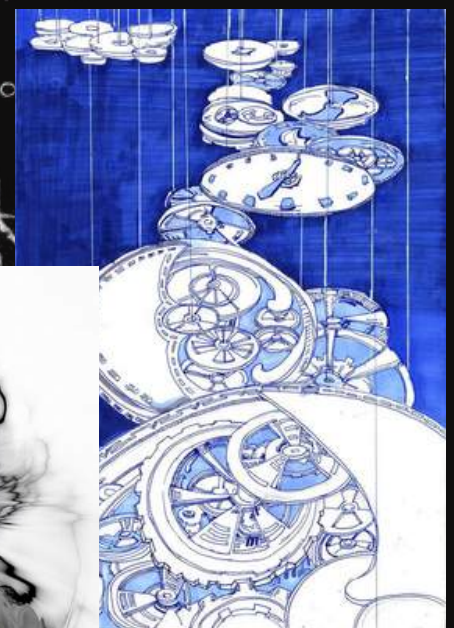
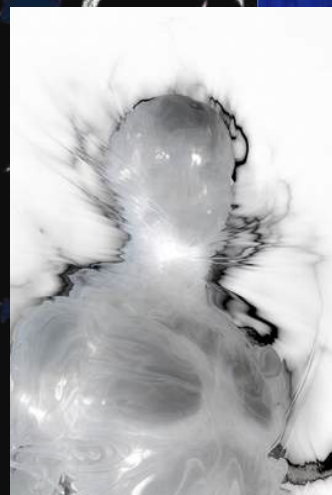
I started putting the device together as soon as the printed parts arrived. Instead of providing precise, step-by-step instructions, the guide I followed relied on images of a partially finished build. It took hours to figure out how the parts fit together and secure the screws. Then, after making a few minor modifications for the motors I was using, I connected the Arduino and uploaded code that my mentor had sent me from the tutorial for a related project.

When I powered it on, the motors made noise. The robot moved slightly, but it could not draw a shape.

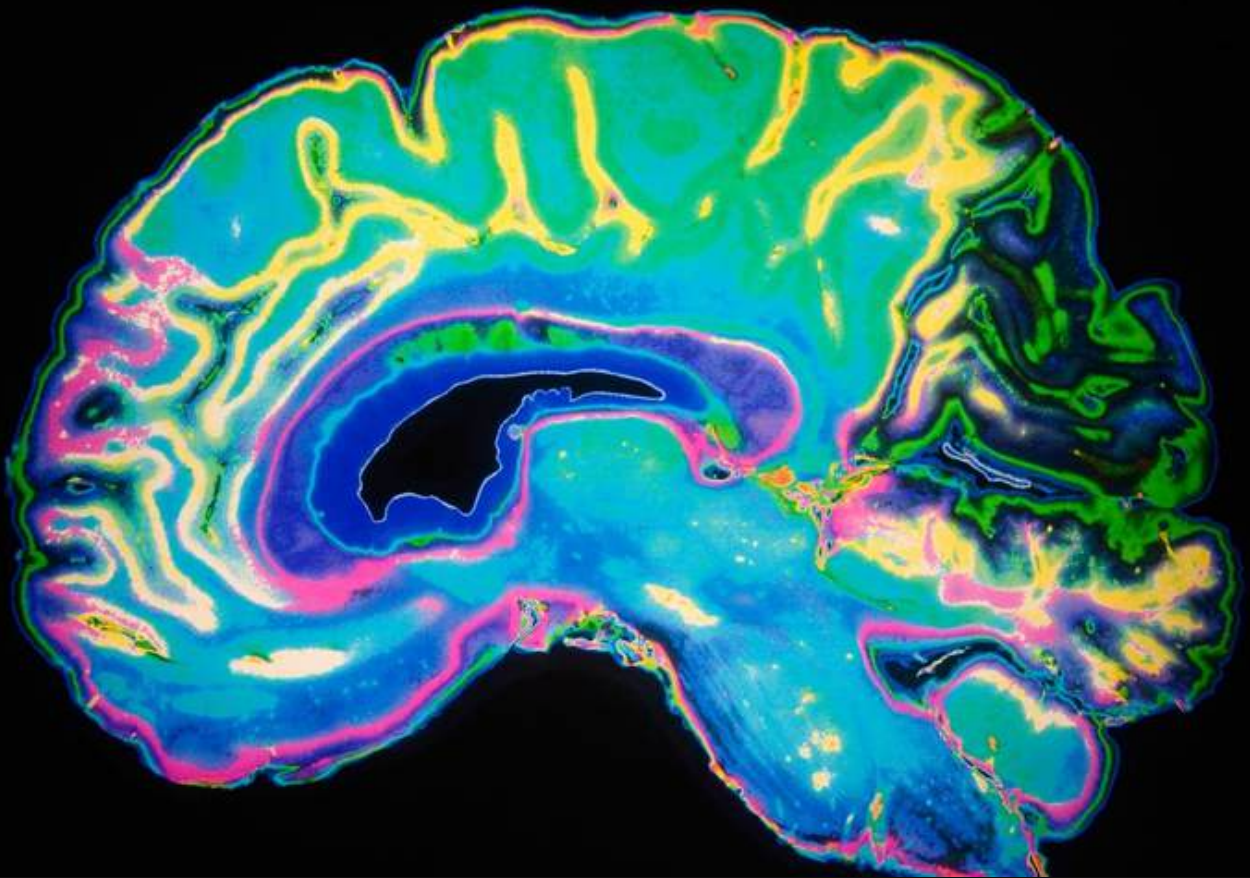
I had little idea which system component was at fault. The power supply, the code, the motors, and the wiring were all taken into consideration. To see if the movement improved, I double-checked the connections and adjusted the motor speed settings in the code. The motors completely stopped moving after multiple tests. I inquired about the tight screws as well, but my mentor said that was typical. He was unable to personally inspect the device since he was providing remote assistance.

I suspected the power supply. It had been inconsistent during earlier component tests, including one in which we could not get a light to turn on. But I never confirmed the cause. When I put the device away during the school year, it was still incomplete. I used CAD to design its components, made arrangements for their printing, put the mechanism together, and modified the tutorial code for my motors. At first, getting a motor to turn had seemed like a breakthrough. However, once it was attached to the drawing device, the same movement relied on the cooperation of the mechanical assembly, wiring, power, and code. It was easier for me to make individual components work, but it was more difficult to get them to work together, which was the harder problem I am working on.

Looking back at the project, I still feel disappointed that I never managed to make it work. But this experience taught me a valuable lesson. When a mistake occurs, adapting is key. Engineering is not about making things work, but understanding how things work. My drawing device might be incomplete, but it left me wondering what went wrong and what could I build next.



CLASSIFIEDS



CLASSIFIEDS

Organization: *related to American Rocketry Challenge*

Information: A 10th grade student is looking to recruit a 9th-12th grade student. The position does not require expertise in rocketry, but experience with model rocketry is heavily appreciated. Must have some experience in engineering and CAD, and be comfortable with committing a lot of time to the team. Also must be willing to put in extra research outside of meetings to learn rocketry concepts and apply them to the project. Must be near the triangle region in North Carolina in order to be available for in person building and testing. 3-4 hours per week, which involves work outside of meetings. May increase closer to the competition.

Deadline: ASAP

Contact info: [ARC website](#)

Organization: Anti-Crastination

Information: We're opening a small number of leadership positions for Anti-Crastination, a student-created card game that uses the motivational mechanics of games to help people tackle real-life tasks and procrastination. The first physical deck is already complete, with original characters, cards, and game mechanics. A playable online version is also live. We're now building Anti-Crastination's first cross-school student leadership team and chapter network and inviting students from different schools to join the Anti-Crastination Founding Team. This is an opportunity to take on a defined leadership role, lead your own initiatives, and help bring an existing project to more students and schools. Founding Team members and their contributions will also be featured on the Anti-Crastination website. The roles are designed to fit around a busy student schedule. There are no weekly meetings, and involvement is flexible, with only occasional projects or activities throughout the year. If you're interested, explore the game and try the online version at anti-crastination.com, then fill out the short application below.

Deadline: ASAP

Contact info: anti-crastination.com // [Application](#)

Organization: BizSTEM

Information: BizSTEM is a community built by immigrant girls, for immigrant girls in middle and high school. Our mission is to break the information and application barrier for immigrant girls interested in the intersection of Business & STEM. Every BizSTEM mentor plays a crucial role in the growth of many others! Your mentorship can open doors to competitions, university admissions, and career paths others might not be interested in otherwise. Please refer to the information hub for some examples of competition to teach (not limited to the information hub), or you could also choose to do a general lesson such as python 101, entrepreneurship 101, etc that is applicable to many competitions and beginners.

Deadline: ASAP

Contact info: Visit BizSTEM.org // [Application](#)

Organization: SafeFur

Information: Millions of stray animals face harsh winters while shelters struggle with overcrowding. SafeFur is an autonomous, insulated pre-intake shelter that provides food, water, warmth, and remote monitoring, allowing organizations to safely house and track animals before rescue. By reducing pressure on shelters and improving rescue efficiency, SafeFur helps animal welfare organizations care for more animals with the resources they already have. SafeFur, a student-led company, is looking to fill the following positions: Head of Product Development, Head of Animal Welfare and Education, Lead Engineer, Lead Programmer, Research & Testing Lead, Finance Lead, Outreach Lead, Marketing Lead, Social Media Lead, Events Lead, Manufacturing Coordinator, Merchandise & Sales Coordinator, Deployment & Logistics Coordinator, Grant Coordinator, Education Coordinator, and Shelter Relations Coordinator. No experience necessary for most positions. Top positions come with the possibility of hiring your own team!

Deadline: ASAP

Contact info: Email safefurrefuge@gmail.com with a copy of your resume and a list of positions you're interested in.

Organization: Lost & Found

Information: What does belonging mean when home is more than one place? Lost & Found started as a guide for newcomers in Canada. Now we are a community for multi-home students, exploring belonging not as a destination, but as a living practice. Lost & Found is hiring a Cross-Culture Writer, Layout Designer and Social Media Storyteller. Contribute via short conversation interviews, co-authored briefs, or anonymous personal moments. No flawless English. No overly polished narratives. Share your silences, misunderstandings, moments of grounding or disorientation. Your confusion may be someone else's map.

Deadline: ASAP

Contact info: [Website](#) // IG: [lostandfound66666](#)

Organization: Happy Harmonies

Information: We are looking for young musicians in the UK to join a community music project that performs for elderly residents in care homes. Many elderly people are not visited often, so our aim is to use music to make them smile, feel remembered, and bring comfort through familiar songs from their time. This project is completely free for care homes. Alongside this, we may perform at small concerts, gigs, and recitals to raise money for transport, sheet music, equipment, and website costs, so the project can continue and expand. We need musicians who can perform confidently, work as a team, and commit to helping others through music. This is a chance to gain performance experience, build confidence, support the elderly community, and be part of something meaningful. Happy Harmonies is looking to fill the following positions: Vice-President, Project Leader, Head of Social Media, Website Manager, Recruitment Manager, Music Director, Care Home Liaison, Fundraising Manager, and Performers.

Deadline: ASAP

Contact info: Email avi.heglandfisher@leadershipinnovationlab.org to be connected to the founder.

Organization: Melodii

Information: This project is a student-led initiative focused on making music more accessible and understandable, especially for elders in local communities and younger kids who are just starting to explore music. The goal is to start with small, in-person workshops (like in libraries or community spaces), where we introduce music in a really simple and interactive way. At the same time, we're also working toward building a small website that helps guide people through learning and creating their own music. This is still at an early stage, so joining means you'll be helping build something from the ground up!!! It's flexible, collaborative, and a good opportunity to take on leadership roles or try something new!!!!!! This non-profit organization's name is "Melodii." The name is derived from the word "melody," which refers to a sequence of musical notes that are perceived as a single entity. The addition of the double "i" at the end represents inclusivity and interactivity.

Deadline: None

Contact info: melodii.team@gmail.com

Organization: Momentum

Information: Momentum is a student-led nonprofit dedicated to leveling the playing field for low-income athletes. Founded by Emily Liu and Anthony Liu, our organization provides essential training resources for athletes from all sports. Under the leadership of Erin Wang, our Sports Medicine and Injury Recovery branch focuses on improving athlete's longevity and health. Our mission is to improve athletes' health and enhance injury prevention by providing education, resources, and access to sports care for underserved and low-income athletes.

Deadline: None

Contact info: Instagram: @athletes.momentum

Organization: Project Pulses

Information: Project Pulses is an initiative connecting personal experiences of neurodivergent individuals with the scientific and public health communities. We'll be collecting opinions and personal experience from neurodivergent individuals and their communities, as well as scientific professionals with the goal of investigating how personal experiences can shape approaches in science. The project is seeking an Outreach Coordinator and a Social Media Manager.

Deadline: None

Contact info: [Website](#)

Organization: Exempli Gratia

Information: Through expert panels, interviews, and networking events, members can connect with real lawyers and law students to gain insight into their future careers. Mock trial practice opportunities are also available to help develop advocacy and public speaking skills, with the goal of organizing legal competitions in the future. Additionally, Exempli Gratia's magazine provides a platform for students to publish legal articles.

Deadline: None

Contact info: [Website](#)

Organization: HarmoniEats Initiative

Information: Join HarmoniEats Initiative in our community initiatives to raise awareness and support individuals with food allergies and autoimmune diseases. Your participation can make a real difference in the lives of those in need.

Deadline: None

Contact info: [Website](#)

Organization: Quest4Clarity

Information: We are dedicated to providing a safe space for your mental wellness. Our platform offers free, high-quality articles, posts, guidance, and webinars tailored to your needs. Join us in advocating for neurological disorders and supporting local services as we work together towards better mental health.

Deadline: None

Contact info: [Website](#)

Organization: Illustrations of Children's Health

Information: We specialize in creating beautiful illustrations that promote children's health and wellness. Our vibrant and engaging artwork is perfect for children's books, educational materials, and healthcare campaigns.

Deadline: None

Contact info: [Website](#)

Organization: *Behavioral Blueprint*

Information: Are you curious about behavioral science, consumer psychology, or the future of AI? Want to unpack how biases, culture, and AI shape—and manipulate—what we click, choose, and buy? The Behavioral Blueprint podcast is growing and looking for motivated collaborators to bring episodes to life!

Deadline: None

Contact info: [Website](#)

Organization: PassNPlay Project

Information: The PassNPlay Project works around the GTA to provide children with the ample resources that they need to play sports. Join us in our mission to promote equal access to sports and encourage physical activity among children.

Deadline: None

Contact info: [Website](#)

Organization: 30-Day Me

Information: 30-Day Me is an app designed to help users build habits and achieve personal growth through structured 30-day challenges. 30-Day Me is looking for partnerships with organizations or clubs that can benefit from customized challenge ideas tailored to members' goals.

Deadline: None

Contact info: [Website](#)

Organization: FluentFront

Information: FluentFront is a public speaking practice tool designed to help you speak clearly, confidently, and with purpose — no matter the setting. Choose from categories like interviews, debate, Model UN, casual conversation, or even chaotic “brainrot” prompts, then decide how you want to practice.

Deadline: None

Contact info: [Website](#)

Organization: Vibrant Waves

Information: At Vibrant Waves, we believe in the transformative power of creativity, movement, and community to turn mental health challenges into opportunities for growth. Our mission is to empower children, young adults, and seniors through innovative, holistic programs that integrate journaling, visual arts, music, sports as tools for stress relief, emotional resilience, and self-discovery.

Deadline: None

Contact info: [Website](#)

Organization: The Sunflower Project

Information: We are a youth-led initiative founded in Vancouver, Canada, passionate about preventing issues like Gender-Based Violence. Our primary audience is younger people who may not have been aware about the severity of such issues. We aim to raise awareness by organizing fundraisers, establishing a social media presence, and collaborating with other organizations to convey our message effectively.

Deadline: None

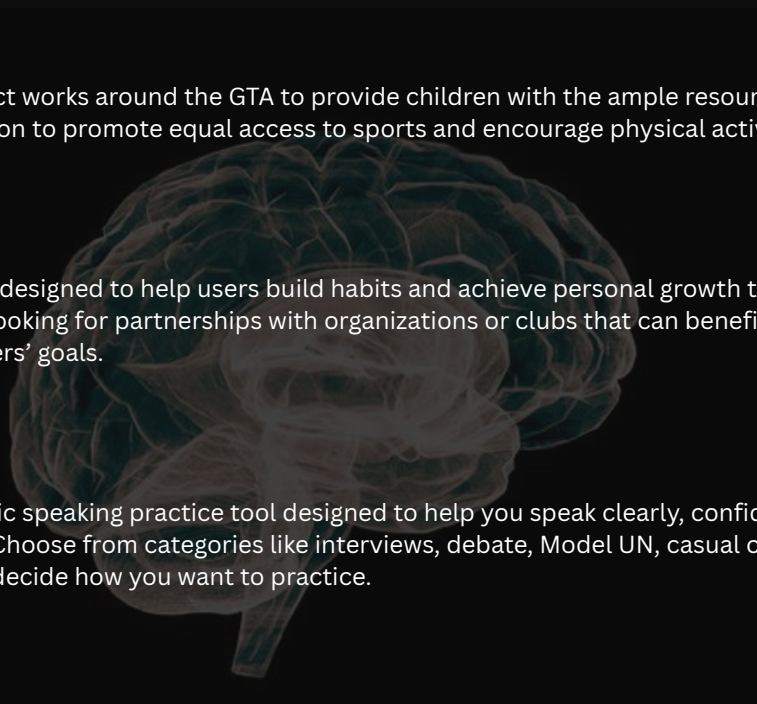
Contact info: [Website](#)

Organization: Us and Tomorrow

Information: Us and Tomorrow is a science fiction podcast hosted by Belinda Chen, exploring the intersection of emerging technologies and the human experience. It asks social, ethical, and philosophical questions that arise as science fiction increasingly becomes science reality. It is recruiting student collaborators, all of whom will receive full credit on podcast platforms and social media accounts.

Deadline: None

Contact info: [Application](#)



Organization: GUD Medicine

Information: GUD Medicine is a youth initiative tackling complex healthcare issues and fighting for health literacy and justice. It aims to make healthcare more transparent and equitable by breaking down confusing medical insurance systems, comparing drug chemistries, and investigating global healthcare policies.

Deadline: None

Contact info: [Instagram](#)

Organization: modern anthologies

Information: modern anthologies is a literary magazine dedicated to finding common ground amongst youths around the world. as founders, writing has been a big part of expressing and coming to terms with who we truly are and where we feel we belong in this world.

Deadline: None

Contact info: [Website](#)

Organization: The OpenMind Project

Information: The OpenMind Project is a mental wellness initiative offering resources on mental health to teenagers and young adults, with the goal to break the stigma surrounding mental health and help relieve stress. It is looking for student volunteers passionate about mental health to assist with their mission.

Deadline: None

Contact info: [Website](#)

Organization: Bright Beats

Information: Bright Beats offers free, inclusive music sessions to children with developmental disabilities and special needs. To scale the project, Bright Beats is welcoming peers to start and lead a Bright Beats chapter at their schools or communities. Bright Beats provides training, flexible hours, and verified service hours.

Deadline: None

Contact info: [Website](#)

Organization: Night Bloom

Information: Night Bloom envisions a community in which people are informed about light pollution and can combat it in their daily lives, allowing for the preservation of dark skies. They are looking to recruit new members to join the project.

Deadline: None

Contact info: [Website](#)

Organization: Chinatown Youth Engagement Society

Information: CYES is a non-profit organization made by students who want to help dispel the misconceptions of Chinatown and revitalize its perception as a vibrant part of Vancouver. They are always looking for students interested in joining the project.

Deadline: None

Contact info: [Website](#)

Organization: Feelustrate

Information: Feelustrate aims to create an emotional exploration platform that integrates science, art, and philosophy. Through this interdisciplinary approach, we strive to make abstract emotions tangible and explorable, helping young people find both an outlet for their feelings and a path toward self-awareness.

Deadline: None

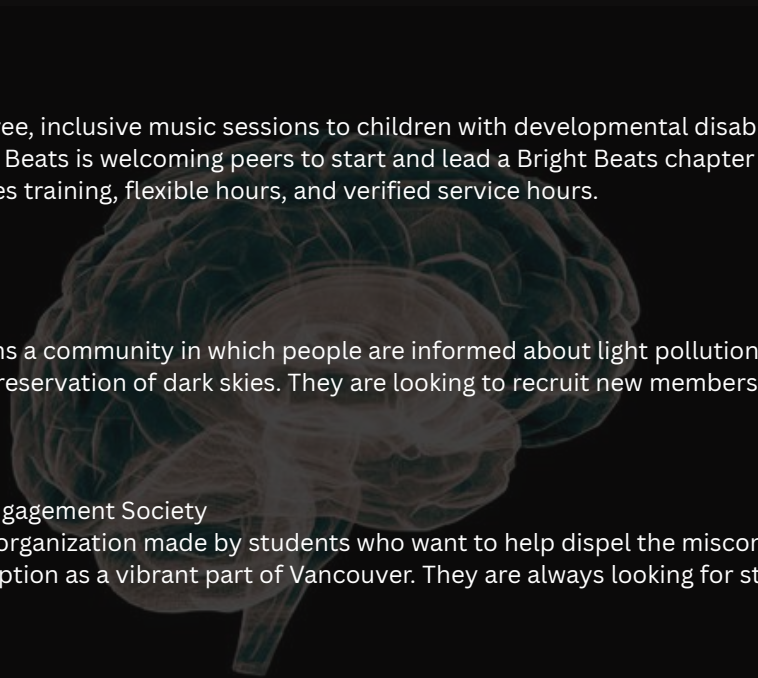
Contact info: [Website](#)

Organization: SquashBuddy

Information: SquashBuddy is also actively looking for squash players interested in helping us launch SquashBuddy Centers. These are local hubs built around a concentrated player base, designed to make the app truly useful for finding matches and practice partners in a specific area. In addition to encouraging active app use, center leads help organize events, beginner clinics, and mini-tournaments.

Deadline: None

Contact info: [Website](#)



Organization: STEAMLabs

Information: STEAMLabs is a student-led 501(c)(3) nonprofit that brings hands-on science nights to under-resourced elementary schools. With nearly 100 high school mentors and 500+ students impacted across 11 U.S. cities, the program is now expanding nationwide. STEAMLabs is currently recruiting chapter leaders, national board members, and web designers. All leadership roles are eligible for monthly stipends of up to \$200, and 100% of funds you raise go back to you—STEAMLabs will match any donations or ad revenue you bring in.

Deadline: None

Contact info: [Website](#)

Organization: Youth Promise Collective

Information: YPC is a youth-led think tank that aims to gauge the opinions of youth on issues that impact them and magnify their voices. This is done through surveying students at schools across the world on a monthly topic and reporting on their responses and trends observed. Youth Promise Collective is looking for high school students who have an interest in writing and research.

Deadline: None

Contact info: [Website](#)

Organization: FoundationMHE

Information: FoundationMHE is a non-profit organization aimed at reducing the stigma around mental health while also providing accessible, pertinent, and innovative resources to educate youth about mental health. FMHE is looking for student authors to write monthly blog posts about topics in mental health (policies, trends, research, etc.) and social media managers.

Deadline: None

Contact info: [Website](#)

Organization: International Youth Neuroscience Association | Hong Kong Chapter

Information: We seek to introduce concepts of mental health and psychology through the lens of neuroscience. We aspire to educate and raise awareness of neurological and mental conditions among the Hong Kong public. We also strive to generate interest and facilitate learning about the wonders of the brain and neuroscience generally, connecting the local community with young neuroscientists worldwide.

Deadline: None

Contact info: [Website](#)

Organization: SHEGOLF

Information: SHEGOLF: Spotlighting Female Golfers is a blog that seeks to empower the voices of female golfers and to share their experiences and perspectives which can often be overlooked in a male dominated sport. Currently, this project is looking for female golfers who would be interested in contributing by writing an article.

Deadline: None

Contact info: [Website](#)

Organization: My Healthcare Buddy

Information: Imagine a world where everyone was constantly sick, and the streets were lined with trash. It's sad to say that our own world is currently headed that way. Personal hygiene is often neglected, people are unaware of how they impact public health, and healthcare workers can't keep up. To alleviate this issue, My Healthcare Buddy is stepping in. We are a youth organization that, instead of spreading disease, spreads information and education.

Deadline: None

Contact info: [Website](#)

Organization: Global Financial Literacy Initiative

Information: This global financial literacy initiative is dedicated to expanding access to personal finance education for underserved youth worldwide. The program aims to narrow the gap by equipping students with practical tools to build credit, avoid predatory debt, and achieve long-term financial stability. The organization is currently recruiting founding chapter leaders to help drive expansion: chapter president, curriculum lead, outreach lead, and podcast host/media lead.

Deadline: None

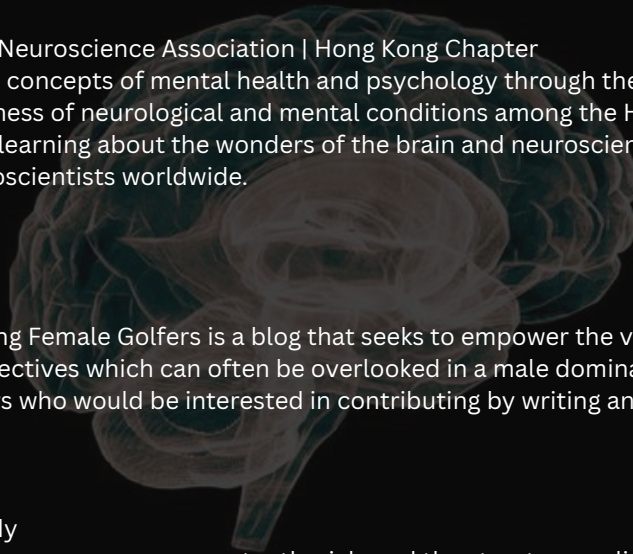
Contact info: Email yso@taftschool.org

Organization: Athletes for Tots

Information: Athletes For Tots is a youth-led program that helps students rediscover the fun in sports. It isn't just about exercise and physical health: we emphasize that it's about building confidence and friendships, feeling cool, and healthy habits that last a lifetime! But what truly sets us apart? Our programs are led by top-performing teen athletes competing at national levels.

Deadline: None

Contact info: [Website](#)



Organization: Lawfully Speaking: Understanding Exploitation Through a Legal Lens

Information: Lawfully Speaking is a free, self-paced course that takes a deeper look at sexual exploitation: how it happens, how it's been understood across history, how the law responds, and how both the exploitation and the legal system impact people. You'll explore key terms and concepts, hear stories about landmark legal cases, learn to differentiate and recognize types of exploitation, and examine global and local legal frameworks.

Deadline: None

Contact info: [Website](#)

Organization: EXPOZURE

Information: EXPOZURE is a non-profit that provides support to growing businesses in Manhattan by providing free professional photography services. EXPOZURE needs help with outreach. Students who would be a good fit for this may have an interest in business, communications, writing, social justice, and social media marketing.

Deadline: None

Contact info: Please contact philipzheng200929@gmail.com

Organization: Endeavr.ai

Information: Endeavr.ai, a fast-growing AI-assisted fintech investing platform for young people, is looking for a Social Media and Outreach Manager. Our machine learning based stock analysis company is quickly expanding its clientele, and needs someone to commit ~5 hours a week to working directly with the founding team to create content, draft marketing copy, and help manage new user acquisition. Must have creative expertise and the ability to work independently/remotely. Unpaid.

Deadline: None

Contact info: [Website](#)

Organization: CaseFile

Information: CaseFile is a developing website focused on key topics in criminology, including detailed case studies, analyses of recent research and developments in the field, and forensic science techniques. Founded by Maggie, a sophomore at Kang Chiao International School in Taiwan, the project was created to help students interested in criminology find opportunities to explore the field more deeply. Team members can contribute by researching and writing case studies, analyzing forensic science methods, discussing new developments in criminology, or helping coordinate outreach to experts as the project expands.

Deadline: None

Contact info: [Website](#) / [Sign-Up](#)

Organization: Starlight

Information: Starlight raises awareness about light pollution and its health impacts, encourages responsible lighting practices, and engages communities in monitoring night sky quality. You can check out their flagship citizen science initiative SkyQI at skyqi.in. Starlight is looking for team members who have a knowledge of stargazing and either a knack for design, a passion for writing, an interest in advocacy, a talent for engineering, or the desire to start your own chapter.

Deadline: None

Contact info: Email starlight.darks skies@gmail.com

Organization: Open Lab Initiative

Information: The Open Lab Initiative is a student-led effort designed to expand access to academic research opportunities for high school students. Its goal is to connect students with professors and research groups who are willing to mentor, host lab visits, or offer short-term exploratory experiences. The mission is to remove geographic, socioeconomic, and informational barriers so that every student has the opportunity to understand what research truly looks like and make informed decisions about their academic and professional futures. The Initiative is looking to recruit a University Outreach Marketing Lead, responsible for connecting with universities, professors, and research groups that may be interested in participating; and a Student Outreach Marketing Lead, responsible for connecting with high school students who are interested in gaining research exposure.

Deadline: None

Contact info: Email openlab.initiative@gmail.com

Organization: Youthnovators

Information: Youthnovators is a student-led nonprofit based in Toronto, Canada, dedicated to making business education accessible to young children and inspiring them to explore their passions from an early age. They have hosted workshops with a local Toronto learning centre, launched a chapter at an all-girls elementary school, and are in communication with a partner in Montreal. They also recently introduced a Speaker Series, where business professionals share their experiences with younger students, including a partnership with an expert from Scotiabank. Youthnovators are looking to expand within and beyond Canada by welcoming motivated new team members who are passionate about business and education. Looking for a Program Development Director, Outreach Director and Chapter Leads.

Deadline: None

Contact info: Send your CV to youthnovators@gmail.com

Organization: *Health Without Borders*

Information: *Health Without Borders*, a public health podcast, is on a mission to make public health knowledge accessible and understandable by breaking down complex concepts into everyday language and multilingual episodes. *HWB* envisions a world where health information is not restricted by backgrounds, academic barriers, or language; people feel informed and included in conversations about their own health and daily practices.

Deadline: None

Contact info: Email avi.heglandfisher@ingeniusprep.com to be connected to the project founder.

Organization: The Mortals

Information: The Mortals serves as a platform for burgeoning writers, critical readers, and creative thinkers both within the Basis China Network and beyond, drawn to work that experiments and takes bold risks. We are now accepting submissions for our next issue - whether you like to write fiction, prose, poetry, essays, and anything in between. We're more than excited to hear your voice!

Deadline: None

Contact info: [Website](#) / [Submit](#)

Organization: Period Unlimited

Information: We want a team that isn't afraid to hold back: students who can expose oppression from institutions, cultural norms, and powerful figures, which stigmatize menstrual periods and prevent women from obtaining the medical information and treatment they deserve. Period unlimited is looking for a platform manager, head of outreach, blog writers, and guest speakers/advocates.

Deadline: None

Contact info: [Website](#)

Organization: Grassroots TX

Information: Grassroots TX is a nonprofit organization that gives students the opportunity to support refugees and communities in need through volunteering, outreach, and service. By joining Grassroots TX, students can help refugees who are adjusting to new environments by providing support, spreading awareness, and building a stronger sense of community for people who have been forced to start over. You don't have to live in the same state — or even the same country — to help. Students can get involved from their own cities by organizing local efforts, raising awareness, connecting their communities to the mission, and helping create support systems for refugees and underserved groups. Grassroots TX gives high school students the chance to do more than just volunteer — it allows them to be part of a global community working to help others. You can gain leadership experience, meet people who share your values, and contribute to a cause that directly helps people build better futures.

Organization: Writopia Lab

Information: Our age-based workshops give young writers the opportunity to work on their own pieces alongside a maximum of eight peers. All workshops are guided by a published author or produced playwright who is thoroughly versed in Writopia's student-centric methodology. We run workshops in New York City, Washington, DC, the San Francisco Bay Area, and online.

Deadline: Varies

Contact info: [Website](#)

Organization: The STEM Spectrum

Information: Are you a student passionate about Computer Science and STEM accessibility? Lead your state/country's TSS chapter and host a coding camp for kids in your community! We will provide you with all of the resources to host your camp, including step-by-step guides, lesson plans, flyers, email templates, guidance calls, and a network of fellow chapter leads!

Deadline: Rolling

Contact info: [Website](#)

Organization: Young Poets Workshops

Information: Thank you for your interest in joining Young Poets Workshops as an Executive Board Member (essentially, a director)! We're a small team dedicated to bringing accessible creative writing education and community to all young writers passionate about poetry. We welcome all young writers to apply for this position, and are happy to train applicants who have less experience directing community organizations. We're excited to hear from you about your ideas and desire to join the team! Please note that you must be within the ages of 13-22 and be a member of our Discord server to apply for this role.

Deadline: Rolling

Contact info: [Website](#)

Organization: Dance to Empower

Information: Dance to Empower is a student-led 501(c)(3) nonprofit organization with 50+ chapters across 20 states and 5 countries and counting. We believe in the collective power of empowerment with passion and small actions to bridge the educational gap in the arts. DTE aims to break down barriers and create a space where each individual can explore their creativity, build confidence, and find a sense of belonging. Dance should not be limited by socioeconomic or cultural boundaries; rather, it should be an inclusive medium that celebrates all backgrounds and abilities, offering young people a pathway for personal growth, emotional resilience, and community connection.

Deadline: Rolling

Contact info: [Website](#)

Organization: Rise Beyond Anorexia

Information: Rise Beyond Anorexia is a 501(c)3 certified nonprofit organization based in California, USA. We aim to engender awareness, prevention, and early intervention of anorexia and other eating disorders through education, youth outreach, community partnerships, and donations. By applying to become a Chapter Founder, you're stepping into a leadership role that comes with real responsibilities and opportunities to make an impact in your community. Chapters will organize events, run awareness campaigns, post short educational messages, and work directly with RBA to expand our mission worldwide.

Deadline: Rolling

Contact info: [Website](#)

Organization: Cherielle

Information: Cherielle is a youth-led 503(c)(1) nonprofit working to bridge the gender gap in tech by empowering girls in computer science and creating a connected, impactful community. We aim to address and reduce the gender gap in tech. When girls are met with negative attitudes or a total lack of resources, it severely impacts the number of future innovators that we have. Our nonprofit addresses this disparity at its root by providing free and accessible STEM opportunities and resources to girls who have been overlooked, ensuring that a lack of opportunities never stands in the way of a promising future.

Deadline: Rolling

Contact info: [Website](#)

Organization: LivingWithEczema

Information: At LivingWithEczema, we bring comfort and confidence to people living with eczema. We share reliable information, personal stories, and resources to help teens and young adults better understand and manage their skin. Eczema affects millions and can impact daily life, from confidence to comfort. Many people feel isolated or misunderstood, creating a gap in awareness and support. We're closing that gap by spreading education and building a supportive community. This helps people feel seen, supported, and empowered to take care of both their skin and their mental well-being.

Deadline: Rolling

Contact info: [Website](#)

Organization: Rise & Rally Volleyball

Information: Rise & Rally Volleyball is a student-led 501(c)(3) nonprofit dedicated to making volleyball accessible for children with disabilities. Through adaptive clinics led by student volunteers, we help athletes build confidence, friendships, teamwork, and a love for the game in an inclusive environment where every child can succeed. Our mission is simple: Where Every Athlete Rises to Play. As we continue to grow, we're looking for passionate high school and college students who would be interested in starting a Rise & Rally chapter in their own community. We provide the training, resources, and ongoing support needed to launch a chapter. Student leaders bring the enthusiasm and local connections to make it happen. If you know anyone who may be interested in bringing adaptive volleyball to their hometown, we'd love to connect with them.

Deadline: Rolling

Contact info: [Website](#)

Organization: PainMap

Information: PainMap is a preliminary risk-screening tool for basketball athletes ages 12–18 with foot or ankle pain, sprains, landing injuries, running or jumping pain, or gradual training-related symptoms. PainMap is currently looking for users to test the platform.

Deadline: None

Contact info: [PainMap](#) (Chinese & English) // [user feedback study](#) (Chinese only)

Organization: Untitled Nonprofit

Information: There is an emerging nonprofit in the LIL community dedicated to bridging the gap between Western youth and Japanese culture through deep linguistic understanding, expert oral histories, and peer-to-step community exchange. We are working to shift global perspectives on Japanese media—like anime, manga, and gaming—from surface entertainment toward genuine cultural appreciation and language immersion. To launch this initiative, the founder is seeking a talented web developer/site designer who wants to apply their technical skills to a meaningful cultural cause. Your contribution will directly help them build a multimedia digital repository and an interactive platform for international language learners. The org is also currently seeking passionate student leaders and researchers to join as Content Editor. Your involvement will help them record oral histories with industry experts and connect language exchange students across borders.

Deadline: None

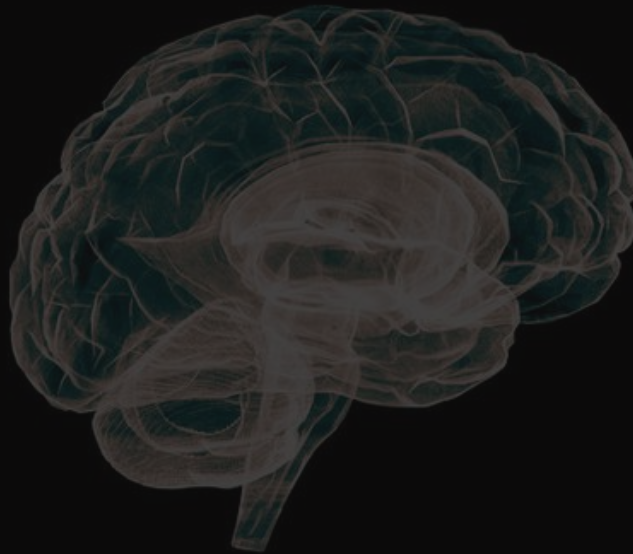
Contact info: Email charles.gao@ingeniusprep.com to be connected to the project founder.

Organization: Hospital Helper

Information: Hospital Helper is a free resource designed to help high school students explore their passion for healthcare. It takes the form of a centralized database featuring opportunities accepting high schoolers across major regions—including SoCal, the Bay Area, Oregon, Washington, and currently in progress are Toronto and New York. Beyond listings, the site offers practical tips and tricks to help students successfully navigate applications and tackle real life problems in hospital volunteering. It's a fantastic way for students to gain real-world experience while making a meaningful impact in our community.

Deadline: N/A

Contact info: [Website](#)



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