

The Invisible Battle Between Memes and Genes (A Warning About the Extinction of a Species)

By Ramin Saadat

Abstract

This article argues that humanity is undergoing an unprecedented evolutionary transition, a shift from the dominance of genes to the supremacy of memes (cultural ideas). Social networks, by hijacking the brain's reward system, have created a crisis manifested in rising depression, social isolation, and declining birth rates worldwide. This crisis is rooted in the evolutionary history of genes and the emergence of memes, which gained independence with the invention of writing and religions. Today, digital memes and artificial intelligence pose a serious threat to our genetic survival. Solutions such as collective awareness, strict regulations, and AI control have been proposed, but obstacles like the power of tech corporations and global competition make success extremely difficult. This article invites readers to reflect on humanity's future and poses the question: Can we resist, or will we succumb to extinction?

1. The World in Crisis: The Dominance of Memes The Mental Health Crisis of the Digital Generation: A Serious Alarm Bell

Today's teenagers are more trapped in depression than ever before. CDC researchers report that the rate of major depression among American adolescents more than doubled between 2009 and 2019, rising from 8.1% to 15.7% (Twenge et al., 2019). This surge coincides precisely with the explosion of smartphone and social media use.

We now understand well how each "like" on Instagram triggers a wave of dopamine in the brain. Stanford University research shows that these likes activate the same brain regions that light up in drug addicts when receiving their dose (Sherman et al., 2016). Simply put, social networks have hijacked our brain's reward system, it's as if a "digital heroin" has taken over our minds.

Of course, social networks and memes are not the only factors in today's generation's mental health crisis; economic, social, cultural, and psychological factors also play a role, but digital technologies have accelerated and amplified this trend.

To get a better picture of these technologies' impact, let's look at a few examples:

The "Hikikomori" Phenomenon: Voluntary Withdrawal from Life

In Japan, more than one million young people (mostly male) have become "hikikomori," a phenomenon also spreading in South Korea, China, Italy, and other countries. This term refers to individuals who remain confined to their rooms for months or even years, flee from society, and communicate with the world only through the internet and video games (Saito, 2013).

These young people no longer seek spouses, never have children, and thus their genes are permanently removed from the evolutionary cycle.

The Collapse of Fertility: Unprecedented Reproductive Failure

In recent years, fertility rates have reached 1.26 in Japan, 0.72 in South Korea, and 1.24 in Italy, far below the replacement level of 2.1 (World Bank, 2023).

These numbers clearly show that societies are losing their populations and sounding alarm bells.

The reality is that young people prefer to spend hours immersed in social networks, online games, and digital entertainment platforms rather than forming relationships with real humans. Artificial dopamine has replaced the desire for relationships, marriage, and childbearing.

In this context, it's worth noting that the fertility rates of Spain (1.19), China (1.09), and Germany (1.53) are also far below replacement level.

Polarization: Separation from Relatives

A Pew Research Center study (2020) shows that 37% of Americans have severed at least one close family relationship due to political differences. This is because social media algorithms produce polarizing content to increase engagement, causing conflict and

estrangement among family members. When individuals abandon their genetic relatives because of their political ideas, it's as if a "mental virus" (meme) has separated them from their blood and genetic kin.

These ominous events are not accidental; they are signs of a fundamental transformation, a transformation in which genes are losing an evolutionary battle, and perhaps humanity is at a historical crossroads, "the transition from the dominance of genes to the supremacy of memes," and this transition may lead to "voluntary extinction" or extinction by our own hands.

But in my view, this crisis is not new and has roots in our evolutionary history. To clarify the matter, let's go back in time a bit and look at distant pasts.

2. From Genes to Memes: A Journey Through Evolution

The Legacy of Genes: Four Billion Years of Dominance

Richard Dawkins, in his influential book "The Selfish Gene" (1976), explained that our body, our brain, and all our behaviors are the result of billions of years of natural selection for one single goal: the replication of genes. He wrote:

"We are survival machines, robot vehicles blindly programmed to preserve the selfish molecules known as genes" (Dawkins 1976, p.19)

According to this view, everything we are, from sexual instinct to parental love, from fear of death to competition for resources, is designed to serve these DNA strands.

Of course, Dawkins emphasized in the prefaces to later editions that this is a metaphor and humans have the ability to rebel against genes. But perhaps the result of this "rebellion" will be the complete defeat of the rebellious genes!

In support of Dawkins' view, many examples can be given. When we know that throughout history, we have always struggled with resource scarcity, and on the other hand, more resources meant more survival, more reproduction, and the survival of the genes of the winners of the competition. Humans have always fought for land, resources, and power, and from this perspective, tribal wars, imperial conquests, and modern conflicts (although influenced by complex cultural and

political factors) ultimately served the survival of genetic groups. Battles in which genes can be said to have been the ultimate winners.

Yes, genes were winners for billions of years. Until an unexpected rival appeared: the "meme"!

3. The Emergence of Memes: The New Rival Memes as Cultural Replicators

Dawkins, at the end of that same book, introduced the revolutionary concept of the "meme," "a unit of cultural information that replicates itself":

"Examples of memes are tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches. Just as genes propagate themselves in the gene pool by leaping from body to body via sperms or eggs, so memes propagate themselves in the meme pool by leaping from brain to brain" (Dawkins 1976, p.192)

Thus, it can be said: Memes are ideas that spread like viruses in our minds, from catchy songs to political beliefs. They are transmitted through imitation, education, and media.

Early memes (such as language, tool-making, and social cooperation) served genes. They improved our survival and facilitated our reproduction. Daniel Dennett, in "Darwin's Dangerous Idea" (1995), explains that culture was initially a "tool" for genes.

Also, Peter Richerson and Robert Boyd, in "Not by Genes Alone" (2005), show that genes and culture cooperated in a "dual inheritance evolution." For example, "the incest taboo" is a cultural meme that directly protects genetic health, or norms of childcare are cultural memes that ensure the survival of the next generation.

But Susan Blackmore, in "The Meme Machine" (1999), gives us a big warning about the cooperation between genes and memes:

"Memes do not have to be useful to genes any more than genes have to be useful to memes. Each is a separate replicator" (Blackmore 1999, p.37)

(Replicator: a unit like a gene or meme that copies itself to survive and spread)

In simple terms, memes found their own evolutionary rules.

4. The Independence of Memes: The Initial Defeat of Genes Writing: Freedom from the Brain

With the invention of writing (around 3200 BCE), memes were able, for the first time, to survive without complete dependence on the living human brain. Sacred texts, philosophical texts, and laws were written, giving memes permanence and power. An "idea" (or meme) could now outlive its author and be reborn in another mind hundreds of years later, and this was the first sign of "meme independence."

Yuval Noah Harari, in "Homo Deus" (2016), explains that the great religions are early examples of memes being able to overcome genetic instincts. For instance, in Christian monasticism, monks take vows of celibacy, and this behavior is directly against genetic reproduction, and in the idea of martyrdom and jihad, religious warriors kill themselves for an idea, which is completely contrary to genetic survival.

Harari writes:

"Myths and fictions accustomed people to think in certain ways, to behave in accordance with certain standards, to want certain things, and to observe certain rules" (Harari 2016, p.135)

In this context, the suicide operations of religious extremists can be seen as a concrete and terrifying example of the complete dominance of memes over genes. When an individual destroys themselves due to their beliefs and with religious motivations to obtain an afterlife reward or go to paradise, they lose the opportunity to have children and their genes are permanently removed from the cycle.

In another example of these behaviors, "kamikaze pilots" in World War II sacrificed their lives for an idea, an idea that extinguished their genes forever.

Dennett, in "From Bacteria to Bach and Back" (2017), calls this "cultural parasitism." A phenomenon in which memes exploit our "genetic vulnerabilities" (group loyalty, obedience to authority):

"Memes are not for our benefit... they are for their own benefit, in exactly the same sense that genes are for their own benefit" (Dennett 2017, p.206)

You might say that these are historical cases, exceptions to a general rule, and the vast majority of humans were still under the control of

genes, they married, had children, worked for the survival of their families...

You're right, historical evidence supports your statement, but what about today?

Unfortunately, in today's world, this is no longer an exception and is becoming a rule!

This new rule has occurred for two reasons: one is the inherent characteristics of memes themselves (which we will explain later), and the other is the ability of memes to exploit the vulnerabilities and weaknesses of our genetic (physiological) design.

Let's look at examples of these vulnerabilities and exploitation:

The brain's reward system: Digital memes have hijacked the biological reward system of genes, and instead of rewards from finding food or a sexual mate, we get artificial rewards from "likes."

Group loyalty: Ideological memes have hijacked the "loyalty instinct," and today, instead of loyalty to family and those who share genes with us, we are loyal to ideas and have placed family in a secondary position.

Fear of missing out (FOMO): Memes spread on social networks exploit this ancient fear of ours. We must always be "online" or else we "miss something" or "fall behind others" or are "not seen" on social networks.

But here the question arises: why can't genes resist?

In a general assessment, the most important reason can be found in the speed of gene replication and evolution.

The reality is that genes need generations to evolve (20-30 years), but memes can replicate in seconds and evolve in almost the same time. For example, when a short internet video goes "viral," in one second it covers the entire globe, millions of people see it, comment on it, and in other forms change (read: evolve) and reproduce it.

In this context, Richerson and Boyd (2005) explain:

"Cultural evolution is much faster than genetic evolution. Genes cannot keep pace" (Richerson & Boyd 2005, p.123)

As you can see, this is an extremely unequal and even unfair race!

5. Gene Retreat: Not a New Phenomenon

However, given all that we've said, it seems that the retreat of genes against their rivals is not a new phenomenon and has happened before.

For example, billions of years ago, bacteria and jellyfish were essentially "immortal." Bacteria reproduced by "binary fission" and there was no death involved. Jellyfish also continued their lives without aging, until in the course of evolution, the "mechanism of aging and death" emerged.

Regarding why the "mechanism of aging and death" emerged in the course of evolution of living organisms, there are three main theories:

1. "Adaptive Aging Theory" (Weismann 1891):

This theory suggests that aging and death actively evolved for the benefit of the species to control population congestion and accelerate genetic innovation. However, accepting this theory requires accepting the phenomenon of "group selection," which conflicts with Darwinian natural selection (selection at the individual/gene level).

2. "Mutation Accumulation Theory" (Medawar 1952):

According to this theory, in the genome of living organisms, there are harmful and lethal genes that gradually activate after reproductive age. This very fact causes such dangerous genes to escape the filter of natural selection and remain in the population. However, this theory does not explain why some organisms (like Hydra) do not age at all.

3. "Antagonistic Pleiotropy Theory" (Williams 1957):

According to this theory, some beneficial genes have "side effects" at certain stages of life. In other words, some genes are beneficial in youth but harmful in old age (like testosterone). Natural selection preserves them because their "benefit in youth" outweighs their "harm in old age." But this theory cannot explain all cases of aging.

(These theories are controversial and there is still no complete scientific consensus. We use them here as a conceptual framework, not as scientific fact)

If we want to compare genes with memes in this context, we can say that in the past, due to the problem of explosive population, limited resources, old genes hindering innovation, nature found an evolutionary solution to this issue by adopting the mechanism of

"death after reproduction" so that new generations with "better genes" would have the opportunity to replicate and evolve (better gene actually means a winning card so that in the gamble of survival, conditions may not remain stable).

But as you can see, regardless of which theory of aging is correct, one undeniable fact exists:

Genes once before in their history gave ground to a "rival": death!

Let's see this in all three scenarios:

If theory one (adaptive aging) is correct, it can be said that genes "consciously" (evolutionarily speaking) accepted to sacrifice individual immortality and in return gain species immortality and faster innovation. Here, the strategic retreat of genes means: "I die so that my generation and species may live forever"

If theory two (accumulation of useless genes) or three (side effect) is correct, it means that at some stage of evolution, genes were "forced" to come to terms with death. Natural selection determined that after reproduction, the existence of the living being no longer matters and resorted to "forced retreat." In this view, the individual dies because preserving them from this point on has no "economic efficiency" for the survival, replication, and evolution of genes.

Therefore, from all three cases, it can be concluded that:

Genes "learned" that individual immortality is indefensible.

Genes "accepted" that the container (body) is disposable.

Genes "retreated" from a territory they once owned completely (immortality).

And this was the first "great defeat of genes." They could no longer preserve everything and were forced to abandon part of this territory; the lost territory was "eternal survival of the individual" and the remaining territory was "generational survival through childbearing."

The Second Defeat of the Gene: Contraception

The second instance of the gene's retreator defeat, against the meme can be seen in the phenomenon of birth control.

Reproduction and the creation of new life are among the most basic mechanisms nature has built into living organisms. Richard Dawkins's

idea of the “selfish gene” also places this drive at the very core of genetic survival, seeing it as nature’s most vital strategy for the continuity of life.

From this perspective, humanity’s effort to prevent pregnancy can be viewed as a direct act of defiance against the biological program deeply embedded in all living beings, a symbolic victory of meme over gene.

At present, there is no solid evidence that early humans, those living as hunter-gatherers, made conscious efforts to prevent pregnancy. Yet we can at least imagine that in times of famine or drought, when food was scarce, they might not have welcomed the birth of new children, since infants could not contribute to hunting or foraging and only consumed precious resources.

Later, however, traces of contraceptive practices began to appear in various societies.

For instance, in ancient Egypt, women reportedly used a mixture of honey, sodium carbonate, and crocodile dung to prevent pregnancy (Natural Cycles, 2022).

In ancient Greece, the plant silphium was famous as a contraceptive, though it eventually went extinct due to overharvesting (Europeana, 2022).

In ancient China, mixtures of lead and mercury were used for the same purpose, though, of course, these methods posed serious health risks (Natural Cycles, 2022).

Religious texts also refer to early attempts at birth control. In the Book of Genesis (in the Hebrew Bible), there is mention of coitus interruptus, withdrawal before ejaculation, as a means of avoiding conception (PBS, 2023).

By the nineteenth century, in the United States, devices known as womb veils became common as a means of birth control. These were precursors to modern diaphragms and were advertised at the time as “safe for women” (History Hub, n.d.).

In more recent decades, cultural, social, and economic changes, including higher levels of education, women’s independence, and shifts in family structure, have transformed attitudes toward reproduction and contraception. Birth control has come to be seen as a

personal and social choice rather than a moral or biological obligation (Healthline, 2021).

In France, the Neuwirth Law, passed in 1967, lifted the ban on contraceptives. Named after French politician Lucien Neuwirth, it is regarded as a major milestone in expanding access to birth control methods in France (ECLJ, 2017).

The historical evolution of contraception reveals a complex interplay between genes, culture, religion, and politics. These interactions show that humans have always tried to influence reproduction, shaping it to fit their social and cultural conditions.

Today, as we speak, contraceptive methods are used worldwide. Cultural shifts, new lifestyles, women's autonomy, economic pressures, and rising education levels have all contributed to the widespread adoption of childlessness, and with it, the interruption of genetic transmission, as a socially accepted and expanding meme across the globe.

In this sense, birth control represents yet another defeat of human genes at the hands of cultural memes.

Beyond these historical retreats, we face a new one today. Memes are now competing not with genes, but with each other, struggling for replication and survival in the digital realm.

This competition manifests as the battle for user attention and visibility online. Its unintended side effect for us humans is social isolation and declining fertility, an evolutionary byproduct that nonetheless benefits memes by freeing up more space for the next generations of themselves.

In short, in the past, physical death cleared the way for new generations of genes; in our time, the death of memes, their cultural extinction in social networks, makes room for new "memetic" lineages to emerge.

Thus, the first retreat, millions of years ago, was a kind of compromise: a trade of personal immortality for the continuation of the species through reproduction.

But the second and third retreats, unfolding before our eyes today, signal a total defeat: reproduction and genetic continuity are vanishing without bringing any benefit to our genes.

Here, the new rival of the gene is the meme, and the outcome is the disappearance of both the body and the genetic line, forever.

If the memes, throughout the past ten millennia, did not completely annihilate the genes (except in cases of martyrdom, suicide missions, or dying for faith or homeland), it was because they still depended on the human body and brain for their survival.

But now, memes no longer need our bodies or our genes, for they can live independently in servers, artificial intelligence systems, and digital networks, surviving without any biological host.

Yes, it can be said that today genes have retreated again; the first time they survived, but the second time, perhaps not!

If you ask why memes can easily triumph over genes, we must return to Blackmore's (1999) words, who lists three winning characteristics of memes:

1. Copying fidelity: meaning in writing and digital, copying is exactly without error.
2. Very rapid fertility and reproduction: a video can reach billions in one day.
3. Longevity: digital data (theoretically) can last forever.

Unfortunately, genes have none of these advantages, and the result is that memes are stronger, faster, and more durable and triumph over genes in competition.

But this capability did not happen overnight, and memes, like genes, have traveled a long and perhaps hundreds of thousands of years journey to reach this level of capability and superiority.

It can be imagined that in the early days of the emergence of the intelligent human species, memes gradually replicated themselves in the specific clothing of a group of humans, the flag erected at the entrance of a cave or hut, the types of sounds that people of a group or tribe imitated, dialect, language, sounds and songs, or the totem and gods of the tribe.

Later, with the emergence of written language, books and writing, memes placed themselves inside clay tablets, tanned animal skins, and finally paper, were replicated, and reached us, the humans of the twenty-first century. Throughout these long distant eras, memes depended on the human brain for survival and replication, and on our

body for movement. But what about today? Do memes still need our physical body?

The answer is undoubtedly negative because in today's world, memes use technology. Obviously, memes are not one with technology but ride on technology, and this characteristic has provided the following capabilities to memes:

Social networks: Billions of humans produce, replicate, and transmit billions of memes every second in cyberspace and social networks. Virtually no one has control over this volume of data and content, and memes can remain forever and go to the depths of space.

Cloud storage: Has infinite capacity and can store all the books, music, art, and ideas of humanity. Even in case of an EMP or cyber attack, information can remain for millions of years without human need in "information clouds."

Artificial intelligence: Language models can produce and maintain all types of textual, visual, and auditory memes.

Blockchain and autonomous systems: Smart contracts that execute without human intervention; DAOs (decentralized autonomous organizations) exist that no human controls.

Thus, Harari's prediction in "Homo Deus" must be taken seriously:

"Once algorithms outperform us in making decisions, Homo sapiens will become economically useless and politically powerless" (Harari 2016, p.349)

But here you might ask: now that memes have overtaken genes, do we have a way to resist or will we surrender to fate? What will humanity's future be like? Fight or surrender?

Let's be realistic and stop wishful thinking. There is no one, no individual human, no government or international organization that is unaware of this danger, but at the same time, no one stops using social networks and the internet, and no government is willing to withdraw from the AI competition and restrict the internet. Regardless of whether such a thing is even possible given the nature of administrative automation and bureaucracy governing our civilization, the only thing people and governments have been able to do is attack the weakest link in this chain: children!

Yes, since we couldn't force governments, companies, and organizations to follow strict rules against the internet and social networks, we've only had the power over our children and we restrict them, the only ones we can "still" and "traditionally" boss around and bully and show power to. Is this behavior honorable and humane?!

Thus, if we want to be realistic (or pessimistic, because these two always mean the same thing!), we can envision the following scenario for the next stages of meme advancement and their victory over us:

Phase One: This phase, which is occurring, includes the transformation of humans into "meme production machines," the result of which, as you can see, will be reduced births (gene extinction), increased depression, and psychological-social harms.

Phase Two (2030-2050): Includes a population crisis due to fertility rates dropping to critical levels, and countries' populations begin to decline rapidly.

Phase Three (2050-2100): The era of AI independence. In this phase, AI reaches superhuman levels, memes no longer need the human brain, and humans become economically and evolutionarily "obsolete."

Phase Four (after 2100): In this phase, AI may decide that humans are generally "inefficient" (Bostrom 2014), in which case humans and their genes become completely extinct, but memes will still remain.

Or a small number of humans are kept in "protected reserves," but have no impact on the planet's fate.

6. Is This Catastrophe Inevitable?

Regarding how likely these scenarios are, thinkers have different perspectives.

Optimists (like Dennett) believe that humans are aware and can resist. We can choose which memes to accept and which to reject.

Dennett, in "From Bacteria to Bach and Back," writes:

"We are being invaded by memes... our minds are their habitat" (Dennett 2017, p.345)

But he adds:

"Unlike genes, we can understand memes, and understanding is the first step to resistance" (Dennett 2017, p.401)

On the other hand, pessimists (like Bostrom and Harari) believe it's already too late, the young generation is addicted, the global economy is dependent, and competition between countries prevents AI restrictions.

But the common point of both groups is that if we want to prevent extinction, we must act now, and their suggestions are usually these:

Public awareness: Education about digital addiction mechanisms in schools and starting advertising campaigns, etc.

But the question is: will anyone listen to these words?

Today, when we are all delighted with "dopamine pumping" from AI-generated images and videos, short clips and likes, does anyone pay attention to awareness warnings? Do you? Are you leaving social networks?

Strict regulations: Such as banning polarizing algorithms? Restrictions on social networks for children and putting filters on internet streaming devices...

But can you deprive anyone of access to information and news in today's world? Also, how long do these restrictions last?

Can we impose restrictions on the young generation who have superior intelligence and high technological capability, or will they quickly find a way out and bypass us?

Cultural change: Meaning promotion and emphasis on returning to "family-centered values," creating "anti-memes" that support genes, etc.

But who should really do this work? Governments that we know are usually filled with corrupt politicians? Companies that only work for profit and money?

Well-intentioned and philanthropic organizations that have no executive power and can only recommend? Celebrities who have no goal other than fame and staying in the headlines?

AI control: Such as halting AGI development until it's certain it's safe and correct work. Also making laws to prevent the use of AI in education and entertainment, etc.

But really, how dependent are we on AI and can we set it aside from our daily lives?

Who can issue the command to stop progress? The United Nations? Will countries that ignore this organization's resolutions on war crimes follow this organization's orders? How much have countries adhered to global agreements like the Nuclear Non-Proliferation Treaty to expect them to agree here?

Let's be realistic, the probability of success for these solutions is very, very low...

The reality is that today we are at a crossroads in history. For four billion years, genes were winners. But now, for the first time, a new replicator has emerged that is stronger, faster, and more durable than genes: the meme!

Final Warning

This article is not a prediction; it's a report of a trend in progress. The evidence is everywhere: a fertility rate of 0.72 in South Korea, one million hikikomori in Japan, a 100% increase in adolescent depression, and billions of humans staring at screens for hours daily. Genes are fading away. Memes are winning.

The main questions are:

Are we aware enough to see this battle?

Are we brave enough to resist?

Do we still have time?

If you read this text and thought "interesting," and then continued browsing social networks, you are doing exactly what this article warns about.

If you have no children because you "don't have time" or "having children is stressful," the bad news is that unfortunately your genes are losing this battle.

If you've quarreled with family members over politics or ideology, a mental virus has separated you from your genetic relatives.

This article is an evolutionary analysis based on scientific data, and if we as a species decide to do nothing, then in the next century, the last human will die...

Memes will live on. And genes, those DNA chains that struggled for four billion years to get here, will be extinguished forever.

Is this the fate we want?!

As I write this article, two children are playing in the park across the street.

I tell myself perhaps they are the last generation with a chance to choose, to choose between serving genes or enslaving memes

Or a third path that we don't yet know what it is!

Perhaps our salvation lies in coexistence or a new combination between meme and gene, a kind of "new co-evolution" that keeps both alive. This third path can save us from the dark dead-end we've depicted. Remember that humans are very strange creatures and have survived great predicaments many times in history. Perhaps with human ingenuity and collective wisdom, we can pass through this stage and this "bottleneck" of civilizational progress as well...

This article is written not to discourage but to awaken; because the first step to resistance is seeing the enemy and correctly understanding the situation.

Perhaps, just perhaps, if enough of us humans in the year 2025 wake up and become aware, we can create a different destiny. A destiny in which humans are neither slaves to genes nor zombies to memes, but free and conscious beings who choose their own future.

The End

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