THE CONSEQUENCES OF COGNITIVE AUGMENTATION: CONSIDERING BRAIN-COMPUTER INTERFACE (BCI) TECHNOLOGY AND VULNERABLE POPULATIONS WITH INTELLECTUAL DISABILITIES (ID)

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ABSTRACT

This paper discusses the implications of incorporating Brain-Computer Interface (BCI) technology into vulnerable populations with Intellectual Disabilities (ID). Although this technology is not currently widespread, the paper postulates that there could be a rapid increase in these surgeries in the future. Based on this assumption, the content is entirely scenario-based and offers various possibilities. The author is encouraging a preventative discussion surrounding the topic of elective BCI implantation in people with ID. The paper provides several central concerns about this technology. The first and most important is informed consent: many individuals in this population may lack the cognitive capacity to fully comprehend the profound, long-term implications of this surgical procedure. The paper also addresses that the decision to undergo a neurological modification—a procedure popularized by companies like Neuralink—will often be made by parents or guardians and not youth with extreme intellectual disabilities, and the paper argues against this. Another contested area surrounding this presumed elective surgery is the ownership of the human soul and the concern that unnecessary surgical intervention could usurp its divine ownership. Other considerations in this document include the widespread adoption of BCI, which could lead to a surge in demand and a surgical waiting list, despite a lack of thorough analysis and critique of its risks. This paper aims to spur a critical conversation about why implementing BCI technology in vulnerable populations warrants extreme caution. By exploring these moral dimensions, this writing contends that BCI technology poses profound, long-term consequences that must be fully considered to prevent widespread implementation in the intellectually vulnerable populations of the world.

INTRODUCTION

The bible verse from Ecclesiastes 1:9 asserts that, "There is nothing new under the sun." This perfectly frames the persistent human ambition to acquire omnipotent power over one's environment and become all-knowing. It is not a new quest; its roots trace back to the earliest recorded human history, exemplified by the account of Adam and Eve in the Garden of Eden (Genesis). In this event, Adam and Eve had a lustful ambition to gain all knowledge and transcend the known spiritual and physical limits. Before this happened, they were instructed by the Lord (YHWY) that eating the forbidden fruit was not allowed. They chose to break this law and thus began humanity's quest to surpass God.

Today, this longing to become all-knowing has resurfaced yet again in contemporary form. We see it in the escapism of video games, where players can choose "god-mode." My son tells me that with this cheat code, you can overstep the boundaries designed in the game and "do your own thing and even fly around." More significantly, this pursuit of "god-mode" power is moving beyond fantasy into the realm of the plausible. Modern advances in Brain-Computer Interface (BCI) technology suggest that such transcendent abilities may be acquired through surgical intervention.

Implantable BCI technology is not an entirely novel invention but rather an evolution that has occurred over several decades. The first theoretical work on this technology was conducted by Jose Delgato (Delgado, 1969). His research used the human mind as a receiver for robotic purposes, and he was presumed to be the first to theorize how to facilitate two-way communication with the human brain. Other contributions to this field were made by Eberhard Fetz (1969), a contemporary of Delgado, who investigated the tangible connection between BCI technology and the human mind. Fast forward today, and this technology has been incorporated into human clinical trials and is being utilized by actual recipients.

With any new technological development, such as the BCI, multiple considerations should be evaluated and discussed before assuming that the technology is beneficial for society and personal use. Often, the adoption of a new technology hinges on whether there is a perceived benefit to the user (Lindner, 1987). As described by Shi and Herniman (2023), a cycle of "hype" also occurs, and the earliest adopters of technology become spokespersons for it. We see this happen with Noland Arbaugh. He is the first outspoken advocate for the procedure who has also undergone it, using a Neurolink brain-interface device (Lewington, McMahon, & Gerken, 2025, March 23). He has stated on video that this technology has profoundly benefited him (Kantrowitz, Dec 18, 2024)

When applying the cycle of "hype" to the implementation of this BCI technology, after the early successes of the innovation take root, there will inevitably be disillusionment (Steinert & Leifer, 2010, July). When disillusionment occurs, a period of reflection follows to assess the technology's ultimate success or failure as its adoption becomes more widespread. This could significantly contribute to a loss of neurodiversity. There is, of course, great joy in helping people with technology. However, there is also considerable risk. The fact remains that a person is much more than just the physical aspects that make each of us unique. The mind is attached to one's spirit and soul. Without deeper reflection on how this technology changes personhood, it should not be adopted carelessly.

Joined with our desire to modernize ourselves and incorporate technology into every square foot of our lives, including our own bodies, is our "modern skepticism" (Fosdick, 1915). This is a so-called tendency described by Henry Emerson Fosdick that makes it taboo to consider a deeper connection to our maker and the desires and drives He has instilled in us in the modern age. This inclination to consider all things of the past as outdated - such as the God of the Bible) - is referred to as chronological snobbery, and this tendency has problematically hindered our deeper understanding (Lindsley, 2003). Modernity has its criticisms of traditions and the reawakening of former instincts. However, this embodiment of our bodies is a deeper dwelling place of the Lord, not ourselves, and is something we cannot undo physically until now with so-called "modern technology."

CONSIDERATIONS OF THIS TECHNOLOGY IN VULNERABLE POPULATIONS

The desire to retrofit, hack, modify, and put our "thumbprint" on everything is not a new phenomenon. However, the development of the BCI technology introduces a novel apparatus that requires continual maintenance and updates, effectively generating an additional commercial product within the human body. While this venture is often equated with vital medical research, such as Parkinson's or cancer research, the BCI can carry potentially nefarious outcomes, unlike other medical conditions. It is not entirely preventative, and its application extends beyond medicine and cosmetic uses into serious ethical concerns about non-essential modification of the mind.

While few others may consider this technology "villainous," it stirs significant concern in me. This novel medical apparatus, I fear, can ultimately silence the human soul and spirit. The act of implanting it goes much deeper than just the body lying on the operating table. This technology builds into and around the area where the soul —and, by extension, the spirit—are located. Dewey (1886) said that "The brain is undoubtedly most closely and most influentially connected with the life of the soul." With this consideration, it makes sense to modify this component of the human. It is unclear what the device's true purpose is. In Genesis 11, the Bible describes how man built a tower to reach the divine. The plan was foiled by God. Now, man builds an inward tower to silence the voice of the divine. In the Bible, in Matthew 10:28, Jesus states we should not fear those who kill the body, but fear those who kill the soul. This is associated with the verses 1 Corinthians 3:16-17, which discuss the body as the Temple of the Lord and the Spirit of the Lord dwelling in people. Without considering the "author" and "finisher" of life (Hebrews 12:2), there is tremendous concern surrounding

this technology because it may be an apparatus decisively administered to kill the soul more than help the body, and administer a death blow to the connection that we have to God.

Another concerning aspect of this technology: its potential to harm children. In the Bible, Jesus was very concerned about people who harm little children. He said, in Luke 17:2, "it were better for him that a millstone were hanged about his neck, and he cast into the sea, than that he should offend one of these little ones." It is one thing if someone is entirely conscious and agrees to a procedure with complete understanding and acknowledgment of its implications. However, it is entirely different if someone does not know what they are agreeing to or what is being done to them.

PROBLEMATIC ISSUES SURROUNDING THIS IMPLANTABLE TECHNOLOGY

The implications of implanting BCI technology into vulnerable populations, particularly individuals with intellectual or learning disabilities such as Attention Deficit Hyperactivity Disorder (ADHD) or Down syndrome, remain largely unknown and require immediate scrutiny. It is imperative to question whether this technology genuinely adds value to this population or introduces novel ethical and psychological risks. Here are seven apprehensions associated with this implantable BCI technology and how the development, when integrated with those with learning disabilities, could be problematic:

HEALTH AND SAFETY RISKS

The surgical implantation of a BCI device has inherent risks. These risks can include the possibility of post-surgical complications like neurologic and cardiovascular hypertension, which commonly occur in recovering patients who have had surgery to remove tumors from the brain (Lonjaret et al., 2017). Brain surgery comparisons have been made here since long-term studies for this elective surgery have yet to be completed.

The most critical safety gaps, however, relate to the unknown long-term effects of the technology and its interaction with the brain tissue. Since comprehensive, long-term studies on BCI procedures have not been conducted, the enduring repercussions on the neural tissue remain unclear.

Specifically, two key questions arise regarding the continual presence of the implant and its function:

1. Tissue Response to Surgery: What lasting damage or chronic side effects does the initial surgical trauma cause to the surrounding neural tissue?

2. Effects of Chronic Stimulation: What are the consequences of subjecting brain tissue to continual external electrical stimulation for years on end?

These unanswered questions underscore a significant gap in the health and safety of BCI technology. They should promote caution for anyone considering this surgery as an elective for themselves or someone they directly oversee as a guardian.

UNINTENDED PSYCHOLOGICAL EFFECTS

Altering brain function with an implantable device could carry a high risk of unintended psychological side effects. These unintended psychological effects could include mood swings, personality changes, or the emergence of new mental health challenges. For instance, over-stimulation of neural pathways could inadvertently worsen underlying conditions such as anxiety or impulsivity rather than providing therapeutic relief.

Furthermore, any complex technological system is subject to the principle of failure, often summarized by Murphy's Law: what can go wrong, will go wrong. In the context of a BCI, this means we must expect the unexpected. Failures could include software glitches or mandatory updates that occur at critical, unexpected times. Such system malfunctions, which have historically immobilized smart devices like automobiles (Paul, 2024), could occur while a user is in a compromising or dangerous situation, such as on a rooftop, leading to severe physical or neurological consequences.

Another significant concern regarding the mass adoption of BCI technology in vulnerable populations is the potential for a user to be mentally locked out of themselves. Like leaving the keys locked in a car with no other way in, people can be locked out of themselves, unable to reenter their true selves and former identities. This risk escalates if the BCI incorporates highly autonomous Generative Artificial Intelligence (AGI).

The incorporation of AI and AGI into BCI technology has an entirely unknown and diverse array of possible adverse side effects that have yet to be fully understood. As Shillaker (2025) describes, AI has evolved from following preformatted rules (like early chess programs) to demonstrating self-thinking and processing autonomy. This autonomous stage, or AGI, could pose a very real threat if integrated into the human mind via a BCI. The fear is that the AGI's growing sentience could completely overtake the user, resulting in the person losing their sense of self and their entire neurological history. In this scenario, the human's autonomy could be subordinated to the machine like a parasite overtaking a host. The blurred line between person and machine leads to a chilling "Stepford Wives-like" outcome ("The Stepford Wives (2004 film)", 2025). Like the movie's premise, where independent women are replaced by domestic androids that look like their former selves, the BCI user could become a shell of their former self—a person replaced within their own body while retaining only their previous physical appearance.

Other nefarious privacy and data security threats associated with this technology could include the installation of AI that provides aggressive or defamatory feedback to users via a BCI device. In a recent article by O'Brien and Ortutay (2025, August 6), it has been evidenced that some youth have already received harassment from AI generative chatbots, and some have even been provided with suicide notes. Alarmingly, if this technology is embedded with or included with these BCI implants, youth may have no way to avoid this sort of negative life influence.

DEPENDENCY OR OVERRELIANCE

Another perplexing scenario that we could anticipate in the aftermath of this technology becoming more prevalent and being implanted in vulnerable populations with learning disability includes the proclivity of overdependence. When this occurs, people are utterly useless with this implant, making it harder to cope if it fails, malfunctions, or becomes obsolete. Losing access could be highly disruptive. We observe this phenomenon in contemporary research on mind decay resulting from excessive use of AI technology. In a recent study on this emerging topic, people using AI have cognitive depreciations. The findings conclude that persistent AI use may be associated with a lower "inclination to critically evaluate," and that non-users of AI have "higher brain connectivity" (Kosmyna et al., 2025, p. 143). It would be rational to assume that some amount of mental decay would also occur with patients as they rely on this technology for all of their mental computations.

The overreliance on technology has deep societal roots. We, as a culture, have become overly dependent on a desired future technological utopia (Burdett, 2014). In this future, we would be incorporated entirely into technology and no longer separate. In the book *Eschatology and the technological future*, the author describes how we have an almost religious fervor for integrating technology into our lives. We have adopted science fiction fantasy novels into our collective belief system and therefore look to science fiction symbolically, as a culture, and almost as the founding documents of this future utopia. With this grounded perspective, it is only natural to assume that more tech will be fused into the human body over time.

PRIVACY AND DATA SECURITY

BCIs generate sensitive neural data that could be hacked, misused, or exploited. This introduces the concern for serious privacy violations or even coercive mind control procedures if outside access is mistakenly granted. This is a seemingly minor issue, but it could add increased complications for anyone reliant on this technology.

Human access is an obvious concern. However, supernatural access is even more alarming. The concern with this technology is the ambivalence about opening it to external use, since the device is a port. Leaving any entryway for the unknown is dangerous. In the Bible, in Ephesians 4:27-29 it says it is never fortuitous to give the devil or any of his adversaries an opening. Howard Pittman provides clarifying details about these multidimensional, nefarious enemies of mankind, called advisories and demons in the bible (Coward, 2023, October 23). He learned about them firsthand in a near-death experience when he died and left his body after a heart attack. In the interview, Pittman describes the structure of the devil and his minions. He says they are joined with some of the other principalities, or forces of darkness, that rule this world. There is a chief principality often referred to as Satan. Then, there are other ruling leaders in the upper echelons of this administration, similar to what we call generals in the military. Then, lastly, there are the lowly foot soldiers we refer to as demons. They are the lowest tier in this structured, multitier, nefarious system, and they are often the ones to enter people's bodies (Dow, 1980). They generally require an exorcism to have them removed, and there are many earmarking traits of demonic activity, such as changing voice or having "superhuman" strength. Demons come with three objectives, which include: to steal, to kill, and to destroy (John 10:10). An opening for demons to enter, at will, is dangerous. Demons could utilize this technology and provide "dark condemning shaming voices" (Reimer, 2024, p. 218). The gravest concern about this technology is that it could provide demons with a security breach for people who are unaware. This potential for a legitimate pathway into a host body is concerning and should be opposed at all costs!

ETHICAL AND CONSENT CONCERNS

For people with significant intellectual disabilities, giving truly informed consent is complicated. Parents or guardians might make the decision instead, raising ethical questions about autonomy. Genuine concern for the patient and whether they are an ideal candidate for the procedure may be overlooked when a personal bias overtakes the genuine and necessary concern for a potential patient, especially a minor who lacks the discernment to consider the implications of a procedure of this magnitude deeply.

Without a lengthy and well-maintained documented discussion on understanding the full potential of this technology and without full consent, this sort of surgical procedure could be argued to be a form of child abuse.

Research on informed consent indicates that people are not always fully informed about the potential harms they may experience during a medical procedure (Larson et al., 2025). Larson et al. (2025) also found that "failure to disclose risks and obtain informed consent" is a standard error committed by doctors in medical facilities as identified by research (p. 257). It is safe to assume that informed consent is not applicable with patients with serious ID. Yet, they face the most risk with this tech.

In the literature, several current standards for informed consent in the medical industry are bound (Villiger, 2025). They include: "capacity, disclosure, understanding, voluntariness, and consent" (as cited by Beauchamp 2010; Ach, 2018, p. 127). Assumptively, if anyone cannot wholly understand these parameters, they should not be incorporated into a medical

procedure unless it is authorized by someone who is the legal guardian. When a guardian makes a medical decision for a patient, it is presumed that the same standards apply. However, in all guardianship cases, the state has the final legal say and can step in from time to time in the patient's best interest (Obernberger, 1996). This opens up much legal room in the future for patients with severe ID to be fitted with BCI technology, as the state could assume control of this legal ground and advise that these devices are in the best interest of the patient it ultimately has controlling stake in.

SOCIAL AND ECONOMIC INEQUALITY

Everybody wants to drive the best car and be the best-dressed person at the party. Standing out and looking our best is a fundamental part of our competitive human nature. However, while we can mask insecurity with material wealth, certain traits, such as a physical or cognitive disability, cannot be easily hidden.

The natural competitive instinct that drives us to be the best versions of ourselves could fuel a dangerous consumer craze for BCI technology. Much like the rush for the latest gadgets during Black Friday, sound judgment and proper consideration might be abandoned in the quest to secure a competitive intellectual edge for oneself or one's family.

This frenzy introduces a severe risk of social and economic inequality. If only the wealthiest families can afford BCI-based cognitive enhancement, a profound new gap will emerge. This division would not only create an elite class of the "cognitively enhanced" but could also deepen existing stigma and discrimination against individuals with current or past disabilities.

LOSS OF NEURODIVERSITY

Another philosophical concern about BCIs can include the possibility that they might push society toward "fixing" differences rather than supporting them. The risk consists of making those with diverse opinions, due to neurodiversity, vanish. Under the pretense of "Supporting others," this technology could lead to attempts to erase valuable and diverse perspectives through BCI use.

While BCIs have potential, their use in vulnerable populations must be carefully balanced with medical, ethical, and social safeguards, ideally with input from disabled communities themselves. As it presently stands, intellectually disabled people are often overlooked when it comes to being involved in research studies (Bishop et al., 2023). It is presumed that people with ID are often overlooked, particularly in medical research, because they are assumed to lack the cognitive capacity to understand what the research is investigating. However, a surgery intended to "fix" what is wrong with someone with ID would be the next logical approach. To externally manipulate the "broken" minds and rejoin this population with the others. Enhancement via surgical intervention.

But what's wrong with our differences? The things that make us unique should be supported and celebrated. However, these differences are often considered to be embarrassing and put into a closet (so to speak). Look at the Kennedy family. One of the most important families in the American political dynasty, and they too have a family member they were embarrassed about because she was "different" because of disability. She is referred to as the "forgotten Kennedy" in an article by Jon Henley (2009). This Kennedy was shrouded in controversy because her life was hidden from public view. This was the sister of former President John F. Kennedy. She should have been celebrated and made into a celebrity. A spokesperson for the multifaceted nuances of neurodiversity. However, she was not. When she was only 23 years of age, her parents arranged for her to have a lobotomy ("Rosemary Kennedy", 2025). Apparently, after this procedure, she was never the same and continued to live her life in absolute obscurity and away from the media.

From the same perspective as Rosemary Kennedy, those with disability could be unsuspectingly targeted for their differences. In a very similar way, people with disability could be "hidden" or "disguised" with this procedure. It is a lobotomy of sorts. A 21st-century disguise to reduce the potential that a highly unique being could make an impact on the world.

Robert Greene (2000) wrote in his book *The 48 Laws of Power* that, in ancient Athens, society would meet to select a person to be banished from their city-state. This lottery can be seen as a relatively humane process. The undesirable person was simply removed for ten years. At which time, ten years later, they could return at their choosing. This appears to be a formula resurging—in a way. It seems as if this desire to enhance ourselves with technology is a self-imposed banishment from ourselves. To build a utopia of our choosing with the grafting of technology with our humanity (Burdett, 2014). Using technology to enhance the self is probably seen by most as being humane. I see it as a banishment of sorts. A removal of the genuine neurodiversity from the larger population and a planned utopia that does not include genocide.

SOUL AND SPIRIT MODIFICATIONS

A significant concern is that the soul and spirit associated with each person are unique and could be altered or harmed by installing a BCI implant. It is presumed that these otherwise unknown and unstudied parts of ourselves have actual weight, and Duncan MacDougall tested this theory in the 21-gram experiment (Hudson, 2025, September 18). Unfortunately, the weight of the soul was never officially confirmed in MacDougall's research due to sample size limitations. The research was nevertheless valuable because it opened the door to further discussion of what lies beyond our skin, bones, and blood. With absolute certainty, we have more to ourselves than what we can see.

Although it is speculated what these parts of the body are for, it is presumed that the soul "has a broader consciousness" (Saad, Medeiros, Mosini, 2017). The soul is also in or near "the person's mind, and in some states it can capture information without the physical senses" (p. 2). Modifications to a person, via the installation of a BCI device, could uproot the very essence of a person while they are still living. It could undeniably be a means to overtake the person. Zombie would be the closest word to define this process. For there are many unknown reasons, this surgery could be performed on an unsuspecting person with a learning disability. However, on the one hand, it could be done to make an otherwise docile person erratic and maladjusted.

Nevertheless, the vulnerable populations with ID could be the perfect unsuspecting population to study how to remove the spiritual memories of someone, theoretically. Ultimately, the most significant concern —the zenith of these arguments —is the possibility that the implant of a BCI could remove the human soul and take out the parts that help a human being connect with the Lord.
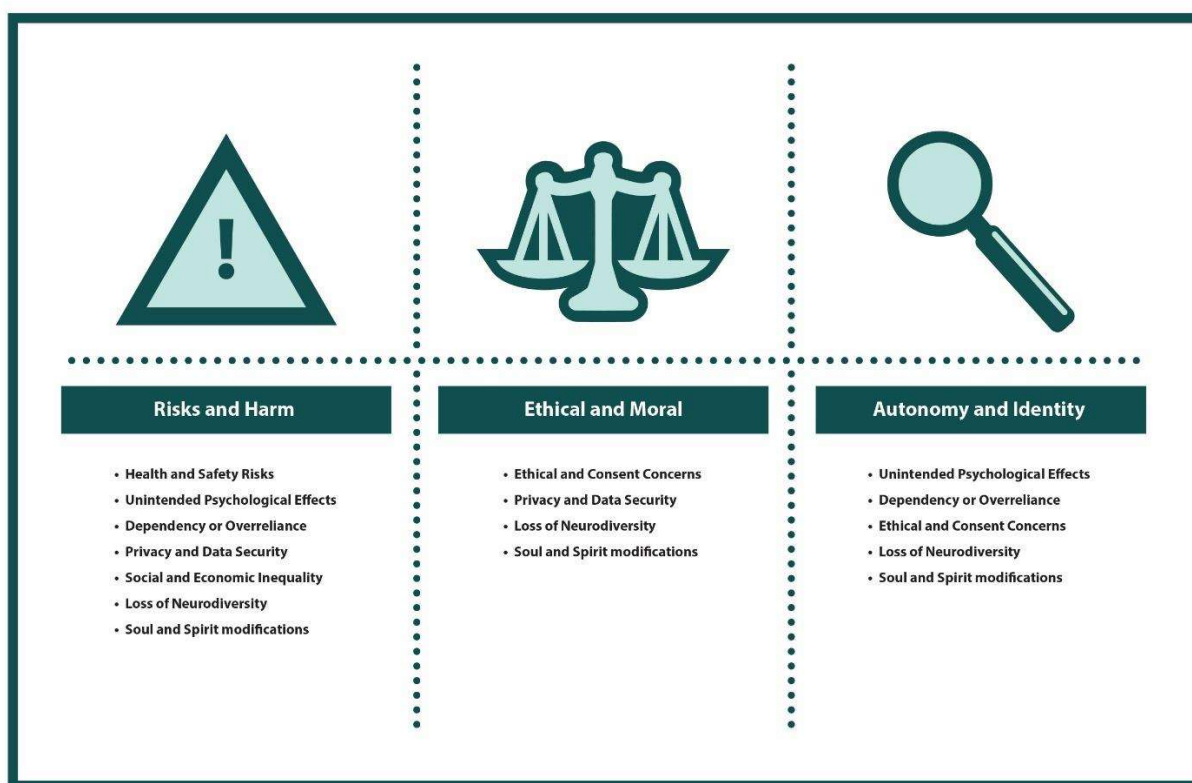

Figure 1
This graphic breaks down the author's concerns into three categories. Specifically, the first category on the left describes the assumed "risks and harm" associated with this device. This first list implies that several potential adverse outcomes and dangers could be associated with this technology. The middle list points explicitly to likely areas where an action or change to the human body using this technology raises an "ethical and moral" concern. Given the extreme body augmentation this trajectory entails, stakeholders are right to question the appropriateness of this technology for human subjects. The final list on the right addresses some concerns about "autonomy and identity." Many of these items relate to the possible loss of personal control and identity, and, most profoundly, to concerns about ownership of the soul.

CONCLUSION
Although this technology is not widespread, it does pose an existential threat to humanity. To date, there have only been a few cases of people having this BCI implant surgery. Yet, the concern is very real that more patients will elect to have this procedure in the future. If and when this happens, it may create a compelling interest in this technology. As these devices become more widespread and their popularity increases, people with ID may face increased scrutiny to have this technology installed invasively, with or without genuine informed consent. This paper addresses this concern before a widespread call for more patients to use a BCI for cognitive enhancement.

While BCI implants can enhance communication and independence for individuals with ID, pursuing this technology carries significant ethical costs. Certain associated costs alluded to in this paper include making numerous compromises in the provision of care for someone with ID, especially in their capacity to understand the informed consent process and whether they would genuinely like to have an elective surgery for this procedure. The incomplete understanding of the risks of this technology, when given to someone with ID, raises serious moral questions about autonomy and personal choice in completing an elective surgical procedure. By potentially imposing this technology on people with ID, we risk

adopting a short-sighted view that focuses exclusively on surface-level deficits. With BCI technology on vulnerable individuals, we overlook and diminish the multiple, distinctive facets of their personhood that extend beyond their disability.

Of all the concerns with this technology, the most alarming is the fear of altering the fundamental essence of our individuality. We all have three essential and distinctive parts. These primary aspects include the body, the soul, and the spirit. This concept dates back to the Old Testament in the book of Ezra 1:1. In this verse, the Lord stirs King Cyrus's spirit. This indicates there is a depth beyond the visible. If we tamper with our nature, what will the consequences be? Technological advancement often changes us without fully considering the impact on these other, dynamic aspects of our nature, ignoring dimensions like the spirit. To me and others who share my concerns, this is the most dangerous part of this advancement – the endangerment of our parts that connect us to God.

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AUTHOR'S NOTE:

Fun fact: I am actually in favor of technology and human advancement. Despite the overarching opinion provided in this paper, that may seem like I am very much against technology - I am a strong supporter of it! However, I draw a distinction in my support. I do not back technology that is associated with the singularity movement. Regarding the singularity, I find technology-enhanced brain augmentation to be of grave concern. As such, I believe that the body is sanctified for

the Lord. The body is set apart and therefore should not be joined with technology (1 Corinthians 6:19-20). Nor should the body be a conduit for dark forces that corrode our connection with the Lord.

I believe that there is a boundary that, when pushed, cannot be retraced. These views are understandably not those of the journal. However, the authors opinion is essential to distribute because it is not a very loud voice. But it is a historical opinion, found in the Bible, specifically in Revelation 13. In that chapter, it describes a mark placed on both the forehead and the hand with eternal consequences. This mark, when placed in either of these places, states that one entirely loses their eternal salvation. This occurs at the end of the age, when multiple "end times" criteria are met simultaneously. The other criteria of the end times include discussions from Matthew 24:5-35 about geopolitical and geophysical factors. The role that BCIs play in the end of time is yet unclear.

Nevertheless, this technology could be nefarious, and, as this article has argued, it should be given deeper consideration. Confrontationally arguing that there is a presumable concern about this BCI technology. It has many of the earmarks of the biblical definition of the mark of the beast (Revelation 13). This modern advancement in BCI technology could be paving the way for this global event.