Holotechnica: Exploring the nexus of altered states and altered traits

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Holotechnica is the practice of combining different elements and techniques to create lasting transformations of consciousness ("altered traits"). This exploration is vital in the fields of consciousness studies, art and technology research. Despite the increasing interest in this area, there remains a gap in understanding how to move from alterations ("altered states") to enduring characteristics that reshape how we perceive and behave in the world. The main goal of this study is to develop recipes that can effectively combine endo-technologies with cyberdelics and pharmaco-technologies. The methodology involved conducting 20 expert interviews where stacks consisting of ancient healing traditions, reality hacking protocols and mindfulness techniques were outlined and analysed. The goal is to create a Holotechnica framework that empowers individuals to consciously shape their reality through achieving significant and enduring transformations. Future work will focus on improving the number of measures by which we can understand when an altered trait has been achieved.

Holotechnica. Altered traits. Consciousness. Immersion. Context engineering.

1. INTRODUCTION

The definition of *Holotechnica* is comprised of the following parts:

i) Holo = to combine into the whole
ii) Technica = technique

Nexus = a connection or series of connections linking two or more things.

Holotechnica means to combine techniques in order to create the desired experience stack.

Holotechnica consists of a database of different consciousness-expanding techniques, meditations, and protocols that can be combined in a form of dialogos:

> Dialogue is really aimed at going into the whole thought process and changing the way the thought process occurs collectively. We haven't really paid much attention to thought as a process. We have engaged in thoughts, but we have only paid attention to the content, not to the process. Our thought, too, is a process, and it requires attention, otherwise it is going to go wrong. (Bohm 1996).

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2. THE INSPIRATION BEHIND HOLOTECHNICA

Some core inspirations behind the development of Holotechnica includes the Dune 'worldscape' and specifically the 'Bene Gesserit way' which is inspired by 'the way' in Taoism. It involves creating an altered trait by maintaining balance (the idea of yin yang) and control over oneself, and by extension ones environment, learning how to control every muscle (prana) and nerve (bindu) in their bodies. This is the key to many of their extraordinary abilities, rather than through relying on some kind of technological enhancement (Meza 2010).

Another inspiration for the development of Holotechnica is the folklore surrounding Soma and specifically Matthew Clark's (2020) extensive research into what constitutes the mysterious brew:

> For 250 years the botanical identity of soma has been a scholarly point of contention. The four vedas collectively refer to soma in three aspects; as a god, a plant, and the juice of a plant. This collection of mantras and hymns give tantalizing descriptions of Soma's preparation and revealingly (if only poetically) the ecstasy it produces in those who consume it. This has led some researchers to conclude that soma was in fact an entheogen - which is to say a substance with hallucinogenic properties employed in ritual practice. As a result this also provides the

opportunity to apply for phenomenological, as well as textual and cultural analysis (Clark 2020).

3. HOLOTECHNICA INGREDIENTS

For the purpose of this paper we will focus on 3 categories or classes of Holotechnica:

3.1 Pharmaco-technologies

Definition: Pharmaco-technology blends pharmaceutical science, with engineering and technological advancements to progress the development of medicines.

Examples: Psychedelics, Entheogens, Arylcyclohexamines, Psychoplastogens/ Pseudodelics etc.

3.2 Cyberdelics

Definition: The term Cyberdelic combines "cyber" and "psychedelic" with the aim to delve into realms of perception and experience, merging technology with mind expanding practices (Smith 2020). A "cyberdelic" is used to simulate or enhance states of consciousness using different elements (for instance computer technology, virtual reality and the internet).

Examples: Sound, Light Machines, AI-Generated Experiences, Neurofeedback, Biofeedback, Binaural Beats and Brainwave Entrainment, VR/AR/XR, Chi machines, Sound Baths, Binaural Beats, Brainwave Entrainment, Transcranial Magnetic Stimulation (TMS), Mindfulness Apps etc.

3.3 Endo-technologies

Definition: Endo-technologies are those experiences that we can achieve independently without the need for external stimuli, technologies, substances or other humans.

Examples: Breathwork, Fasting, Darkness retreat, Dance, Sacred sites, Sound, Trance States, Hypnopompic and Dreaming, Hypnosis, Hypnopompic and Hypnagogic States, Dreaming (individual and collective), NDEs, OBEs, Visualisation and practices from various meditative and yogic traditions etc.

One of the core contributions to knowledge of this research is to explore how we can best combine these different techniques (ingredients) into experience stacks in order to create reliable protocols for perceptual augmentation and ultimately a reliable cookery book for consciousness augmentation.

4. 'ALTERED STATE' VS 'ALTERED TRAIT'

Underlying this research is the important and fundamental difference between the 'altered state' and the 'altered trait'….

An altered state of consciousness means a shift from ones waking awareness. This can happen through methods like meditation, hypnosis, using substances or even naturally during sleep or daydreaming. These states involve changes in thinking patterns, perception of time and emotional responses amongst other things. The key aspect is that these changes are short lived – once the triggering factor fades away the individual goes back to their base level state of awareness.

An altered trait of consciousness signifies a lasting change, in our fundamental consciousness level. This idea is commonly explored in long term meditation practices where practitioners develop enduring alterations to their patterns and personality, for instance in how they cope with stress. These aren't shifts experienced during meditation sessions but are enduring transformations that influence how individuals perceive and engage with their surroundings continuously.

An altered state refers to a change in awareness whereas an altered trait signifies a transformation in our usual psychological makeup. (Goleman & Davidson 2018).

5. EXAMPLES OF ALTERED TRAITS

Richard Davidson and Daniel Goleman, in their book "Altered Traits" extensively explored the lasting impacts of meditation, on the brain. Their research highlights that consistent meditation practice can bring about enduring changes in traits like increased ability to handle stress, capacity for empathy, better focus and also mental wellbeing improvements. Their studies indicate that certain meditation techniques, such as mindfulness and loving kindness practices can genuinely transform ones qualities influencing behaviours and experiences. People with years of meditation experience. Individuals who have devoted time to practices (such as those with thousands of hours under their belt) exhibit notable differences in brain activity.

These seasoned practitioners often display heightened levels of gamma brainwaves linked to enhanced abilities and a heightened state of awareness. Importantly this elevated brain activity is not just observed during meditation sessions, it seems to be an aspect of their cognitive functions hinting at a lasting change or shift in their mental processes (Fleming 2018).

There is also research on stacking the combined impacts of psychedelics and meditation techniques. Scholars are exploring how substances such as psilocybin and practices like focused attention meditation can jointly influence consciousness. These studies aim to uncover the potential for long term benefits and transformative encounters that extend beyond temporary altered states (Millière et al. 2018).

6. STACKS BETWEEN THE STACKS

Within the three categories chosen for this research (Endo-technologies, Cyberdelics and Pharmaco-technologies) each category on its own has a multitude of complexity. That complexity however is vastly amplified when we attempt to combine the stacks within these categories i.e how do we create altered states and altered traits by stacking Endo-technologies with Cyberdelics and Pharmaco-technologies? How will these ingredients affect each other in the stack and what new qualia will these synergies create?

The next section will outline 3 examples of 'stacking between the stacks':

6.1 DMT extended state (DMTX)

DMTX is an innovative pharmacokinetic model combining the technology (or cyberdelic) category with Pharmaco-technologies category. This innovation is designed to safely prolong DMT encounters. While a typical DMT "flash" usually lasts around 5-7 minutes offering a glimpse of a profoundly intricate inner world, DMTX utilises cutting edge medical technology to maintain DMT levels in the bloodstream allowing for an extended peak, without the risk of overdose or harm to the individual exploring psychedelics. The intensity of the peak and duration of the DMT encounter can be precisely programmed and adjusted in real-time throughout the experience. This can be applied to various therapeutic purposes including advanced problem solving and consciousness exploration journeys. By combining healing practices with medical innovations this method could herald an entirely novel form of psychedelic expedition leading to altered traits.

6.2 Moistmedia

Moistmedia (Ascott 2000) represents a multiplicity of media; on the one hand a convergence of dry computational systems and on the other wet biological processes. A good example of Moistmedia is the reddit subnet group called 'Rift into the Mind' which documents a user-generated list of drugs that work well in VR (thereby combining Cyberdelics with Pharmaco-technologies) and what

type of combinations are optimal for creating flow states.

6.3 Hedonic engineering

Jamie Wheal's 'Hedonic Engineering' (Wheal 2021) delves into the concept of crafting and fostering optimal mental and physical states to boost human performance and overall wellbeing. By blending the idea of "hedonic" linked to pleasure, with "engineering" indicating a method for attaining states of awareness. Wheal proposes utilising diverse techniques like meditation, controlled breathing exercises, neurofeedback and pharmacological aids to enter flow states and enrich cognitive and emotional encounters. The goal is to empower individuals to attain lasting change with increased satisfaction, creativity, efficiency and interpersonal bonds through an approach grounded in insights, for managing and enhancing their internal experiences.

7. HOLOTECHNICA INTERVIEWS

The following five interviews are indicative of the research aiming to map out Holotechnica as a discipline. Each interview documents a protocol that involves stack that is intended to enable the development of altered traits.
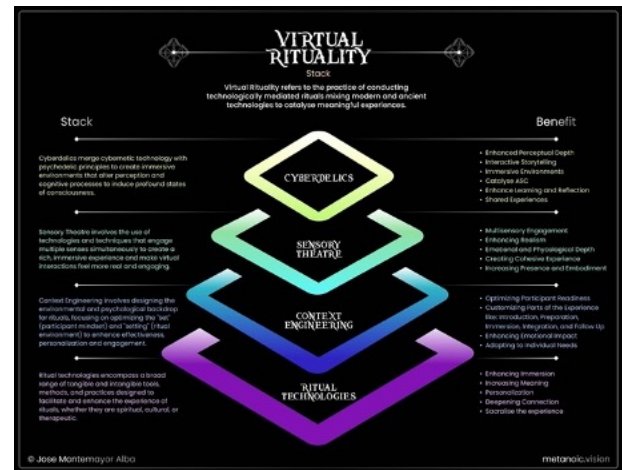
7.1 STACK 1: JOSE MONTEMAYOR ALBA

Figure 1: Virtual Rituality

'Virtual Rituality'

Virtual Rituality (Figure 1) refers to the practice of conducting technologically mediated rituals, mixing both modern and ancient technologies to catalyse meaningful experiences. On the one side we have the ritual technologies from our ancestors who left both tangible and intangible tools, methods and practice designs to facilitate and enhance the experience of rituals, whether they are spiritual, cultural, or therapeutic, ritual in itself has been one of the most ancient technologies that mankind has

adopted to transform the human mind. And on the other side, we have the advent of new technologies like XR, virtual, mixed and augmented realities, as well as brain computer interfaces, biofeedback technologies, sensory stimulation, kinetic technologies, and artificial intelligence. All of these technologies when merged with psychedelic or transpersonal principles give rise to what we know as cyberdelics which aim to create immersive environments that alter perception and cognitive processes in order to induce profound states of consciousness.

Now, let's focus on the middle layers of the stack. Context Engineering (CE) (Smith 2014) is involved in designing the environmental and psychological backdrop for the virtual reality. CE focuses on optimising the set and the setting to enhance effectiveness, personalisation, and engagement. It is involved in customising parts of the experience like the introduction, the preparation, the immersion, the integration, and the follow up. The third layer of the stack is the sensory theater. This layer glues all the rest of the layers together. Especially because when we are working in a ritual context, what gives technology its main purpose is to catalyse us into another state but we tend to forget about the analog, the senses, the body. The sensory theater involves the use of analog techniques that engage multiple senses simultaneously. This stack creates a rich, immersive experience that makes virtual interactions feel more real and engaging. It increases presence and embodiment, which are actually key for high levels of immersion.

To conclude, it's important to mention that when conducting a virtual rituality, one must make sure that it takes into account the psychological, physical and spiritual safety of the users. When putting together all these layers, you can create a very powerful effect, such as that you can radically transform the participants perspective on reality, themselves and others, so you bear the responsibility to ethically guide the design and hold space for people to safely explore these types of experiences. (Alba 2024)

7.2 STACK 2: MichAel GarfIeld

'Cyberacoustic guiitar'

I've been playing guitar for twenty-six years and looping guitar for eighteen. Originally the looping started as a way of providing very simple accompanying grooves behind singer-songwriter material, but it has since eaten and digested my entire way of playing and my philosophy of music. I now see the process of sampling and remixing live instrumentation as a performance version of my academic background as an evolutionary biologist. My pedalboard is "the tangled bank" of Darwin's

evolutionary vision, an ecosystem of interacting players whose identity emerges out of their relationships, a musical version of the genetic sampling and remixing that goes on all the time in nature and in our bodies.

The goal with this rig is to perform a cybernetic, evolutionary worldview in which human subjectivity is understood as the behavior of entire ecosystems. I tell my audiences that this music implicates us both as the near and far ends of a single event observing itself from multiple angles. For "cyberacoustic" music, the self—the human-with-guitar that more traditional styles place in the foreground—becomes the "fruiting body" of a vast web of connections we don't ordinarily perceive. It's explicitly hyperhuman even as it cherishes the warmth and the tradition of acoustic folk guitar, by weaving the familiar into that "tangled bank" of signal path and temporal manipulation.

I want my concerts to help people understand intuitively how we're all just something Earth is doing, indistinguishable from nature, and that our machines are every bit as natural as the jungle, and that we aren't separate from them or from each other. Cyberacoustic guitar seems to work really well for this, taking people into trance with just enough emotion to create a sense of having made it as a species, having overcome the boundary between the body and the mind that made modernity so difficult.

Figure 2: Michael Garfield

7.3 STACK 3: Gavin Mckenzie Lawson

'A Technological approach to wellbeing in the music industry'

Engaging in creative activities provides an outlet for emotions and helps relieve stress and anxiety. In the world of electronic music there exists a unique fusion of art and science, where the technical aspects of sound and real world data sets are brought to life in a symphony of auditory experiences.

7.3.1 Sonification

Sonification and musification explores the concept of sonified data as a compositional tool in digital music production. The use of Generative Pre-Trained Transformers as a function of AI convert real world .json data from weather to mono nucleotides into notation for musical expression combined with isochronic tones or binaural beats. This opens up the opportunity for dialogue with the machine in digital compositions using music production software in this case Ableton Live, revealing the intricate bindings between creativity and technology, unlocking new methods of understanding that can enrich the lives of artists and musicians.

> "As we augment our reality and step closer to AI infusions in creative media, we can use spatial technologies to support a new wave of industry specialists that focus on mental well-being."

7.3.2 Spatial audio

Spatialised audio is a more immersive and dimensional approach that mimics the way people hear music and sound in real life, Planner magnetic technology supports an almost real life experience in binaural spatialisation with the Audeze LCD-X open back headphones and the use of SPAT max for live plugins designed by IRCAM, "Spat is a software suite for spatialisation of sound signals in real-time intended for musical creation, postproduction, and live performances. "I feel it's worth considering a more nuanced, and ultimately more beneficial - use case, that of spatial audio for wellbeing."
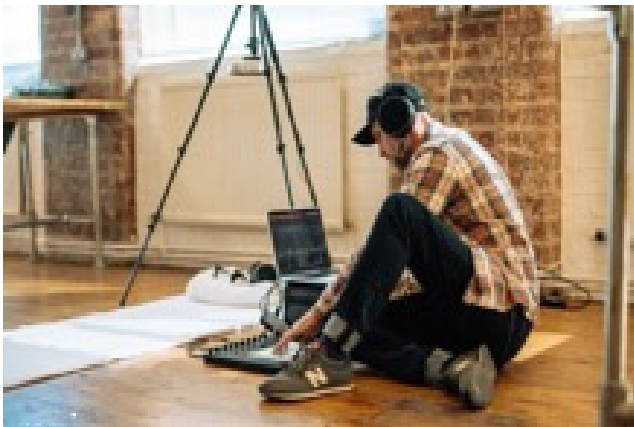

Figure 3: Gavin Mckenzie Lawson

7.3.3 Practicality in wellbeing

The combination of electronic music, sonified data, isochronic tones, and audio- visual entrainment (AVE) are technological support systems for the creative industries, this could be further developed for use with individuals who are impacted by stress-related conditions as a stacking system fitting the Holotechnica framework. As we delve deeper into this fascinating realm of inquiry, it's important to explore the possibilities with music technology and stroboscopic light in wellbeing. Thus, expanding on the research and continued studies with AVE, isochronic tones, sonification, and spatial audio as a whole. Exploring how the brain reacts to auditory and visual stimulation provides a new perspective on the dynamics of sensory inputs and neural processes.

7.3.4 Psychosocial characteristics

The creative industry, more specifically the music sector is known for increased pressure, extensive touring and a lifestyle of excess, leading to a number of stress related conditions "We know that working in the electronic music industry can be very rewarding and offers many opportunities, however it can come with a set of unique pressures. These include long hours, high stress, a higher incidence of drugs and alcohol abuse, isolation and insecure work.

7.3.5 Consciousness augmentation

Through research and personal development my creative practice involves using the Roxiva RX1 and Ableton Live to navigate the inner realms of the mind and express these experiences into sonic compositions exploring the field of enquiry and subsequently releasing the album Audyssey - Geom on Bullet Dodge Records. The concept of using sonified DNA sequences in F# minor pentatonic scale, middle tuning system I and II developed by Maria Renold and a series of unique Max for Live devices supplied by Isotonik Studios. The development of a new Max for Live device by 'Phelan, Kane. MsC' sends OSC data packets to the Roxiva RX1 from Ableton Live in realtime controlling the stroboscopic light frequencies synchronised with audio and midi sources.

7.4 STACK 4: SARA PHINN HUNTLEY

'Visionary synthesis, the fusion of psychedelics, VR and art '

I'm a multi-dimensional artist, writer, performer and researcher who has spent the past two decades at the nexus of technology and the arts. As a psychoanalytic cartographer, my work employs VR to investigate real time visual/spatial imagination, and its effects on brain remapping.

7.4.1 Music as a catalyst

Essential for both ideation and maintaining flow. The proverbial all spice of the stack music evokes strong emotions, enhancing the cinematic experience of the creative process.

7.4.2 Virtual reality as an immersive medium

Acts as a portal to altered states of consciousness. Synergistic with other catalysts, especially dissociatives, enhancing the hyper real experience.

7.4.3 Dissociatives in artistic exploration

used in deep ideation in VR, aiding in the creation of immersive and innovative art pieces. Enhances the suspension of disbelief, allowing magical almost cyber-hyper sigilistic aesthetic experiences.

Figure 4: VR piece 'Abracadabra'

7.4.4 Dance and Flow Arts

Utilises dissociatives and ritual dance to access extrasensory fields in forming artistic consciousness. Video projection art is used to enhance trance states and channel mythic consciousness.

7.4.5 Visionary Journey Stacks Retrospective

Combinations of dissociatives, psychedelics and digital enhancements e.g. binaural beats and visual stimulation to access altered states.

7.4.6 Dream Work and Meditation

Use of lucid dreaming techniques aided by herbal teas and essential oils to access lucid dreaming and tools like AI image generation to illustrate dream journaling.

7.4.7 Collaboration with community

On networking dream sites, such as (dreamfields.net), to explore shared thematic elements and dreams as well as leveraging chatGPT for dream interpretation.

7.4.8 Integration of philosophy and technology

Incorporating philosophical audiobooks into the dream state to influence the dream narrative and its imagery.

7.5 STACK 5: CAZ CORONEL

'Loop busting'

I am a composer, music producer, DJ and sound designer. I write music to alter consciousness. Although all music does this, I do it intentionally to create *targeted brain states*: specifically feelings of 'energised calm' and wellbeing. I collaborate with The Monroe Institute using *Monroe Sound Science* brain entrainment in my music to facilitate these brain states.

My music has recently been showcased in the Orrb, a state of the art meditation pod. It will soon be used in a peer-reviewed study in Ascension Hospital (Jacksonville, USA). The study aims to prove that the stacked modalities of environment, comfort, music, sound entrainment, visuals and breathing techniques can refresh surgeons and doctors in less than 10 minutes.

Brainwave entrainment is the phenomenon where the brain's electrical activity synchronises to an external rhythmic stimulus, such as modulating sounds or flashing lights. This induces specific mental states associated with the corresponding brainwave frequencies. My music has been added to the RoXiva flashing light, to create a profound altered state.

Figure 5: Caz Coronel

The RoXiva can be used for therapeutic purposes, healing, self-improvement and pure enjoyment. Even though all the lights are white, participants report seeing vivid, colourful moving geometric patterns. This can induce hypnagogic visions. It can also have effects beyond the visual modality, including inducing kinaesthetic, cutaneous and

visceral sensations and changes to mood, emotions, arousal and time perception. Light flickering can promote sleep, alleviate depression, PTSD and anxiety. Research has shown that both sound and light entrainment around 40hz can reduce amyloid plaque in patients with Alzheimer's.

I am a certified NLP practitioner and hypnotherapist. I am the founder of the *Conscious Explorers* (dedicated to exploring altered states and consciousness) and *Loop Busting Therapy* (LBT). LBT was conceived after curing a 27-year battle with an extreme form of bipolar disorder. I would swing from suicidal to a manic euphoric every three-quarters of a day and back again. The first step to my recovery was discovering that my bipolar was a loop.

8. CONCLUSION AND FUTURE WORK

Holotechnica is ambitious. If we consider just one modality, the ingredient of sound, and take a trip back in time to the 10th-century India where sound practitioners were already mastering the ability to heal each organ in the body using different sounds and frequencies (Menen 2004). Can we re-animate that knowledge today to enable the construction of sound hospitals using this incredible and largely lost science of sound? If we combine sound with other modalities, will we get stronger results or will we end up diluting the overall effectiveness. Context Engineering is key but knowing when one context is sufficient is an essential part of the role of the Holotechnica designer.

Creating perceptual changes that allow us to design our own reality should be, by definition, empowering. However, giving us the chance to change our consciousness as easily as we change the channels on our TV, could change everything. The mission is to focus on the appropriate preparation and integration necessary for altered traits rather than the never-ending search for altered states.

In summary, this paper outlined the concept of Holotechnica; an approach that combines methods to enhance consciousness and create lasting changes through a series of experiences. By incorporating technologies, cyber enhancements and pharmaceutical methods, Holotechnica aims to establish guidelines for creating altered traits. Through the fusion of these components the study outlines strategies for merging approaches through careful contextual planning. Valuable insights were gathered from interviews with experts who showcased their techniques. Future work will concentrate on refining the measurement tools needed to accurately gauge the attainment of altered traits using novel protocols.

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