

Neo-Cybernetics Manifesto

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Feedback and Contributions are welcome.

Preamble

In a rapidly evolving world where complexity and interconnectedness are the norm, the need for a holistic discipline to navigate and shape this intricate tapestry becomes paramount. Amidst an age marked by escalating conflicts, deepening inequalities and existential crises, the cry for a framework that fosters understanding and promotes harmony is louder than ever.

Neo-cybernetics emerges at this critical time, proposing a paradigm that understands the intricacies and flows of systems, whether natural, technological, or sociocultural.

This manifesto, then, serves as a foundational guide and beacon for our endeavors, outlining our understanding, intentions, and vision for neo-cybernetics.

Yet, it is not set in stone. Recognizing that the very essence of Cybernetics involves feedback and adaptation, we embrace the idea that our understanding, and thus this document, will change and evolve.

Both internal reflections from our community and external insights from the broader world will inform its iterations.

We invite engagement, constructive critique, and collaboration, acknowledging that the path of neo-cybernetics will be shaped by many minds and voices from multiple disciplines, backgrounds and industries.

Our journey is one of collective wisdom and continuous learning, always striving for a more integrated, accessible, ethical, and sustainable future.

Definition

Neo-cybernetics is the science of communication, interaction and governance in networks and complex adaptive systems.

The term "cybernetics" originates from the Greek word 'kybernētēs', which means steersman, governor, pilot, or one who guides. Established primarily in the 1940s and 1950s by pioneers such as Norbert Wiener, cybernetics was conceived as a transdisciplinary study of systems, controls, and feedback mechanisms in natural and artificial systems.

By the 1970s and 1980s, a second order of cybernetics arose. Thinkers like Heinz von Foerster and Humberto Maturana shifted the focus towards recursion, circularity, and the role of the observer, emphasizing the reflexive, autopoietic nature of living systems.

In the second decade of the 2020s, neo-cybernetics places itself in the third wave of cybernetics, extending beyond the foundational principles of its predecessors to address the intricacies of communication, interaction and governance in today's complex and interconnected world. This includes, but is not limited to, digital networks, human-machine interfaces, social systems, and natural ecosystems.

The prefix "neo-" in neo-cybernetics signifies a contemporary or renewed perspective, suggesting that our approach is not just a continuation of the older discipline, but an evolution that accounts for modern breakthroughs and challenges.

Description

Neo-cybernetics emerges as an embodiment of the third wave of cybernetics, adjusting and redefining old paradigms to offer a more holistic and contemporary framework, which is tailored for the challenges of the modern world. It integrates advanced interdisciplinary knowledge, emphasizing non-linear behaviors, emergent properties, causal loops, human-machine symbiosis, ethical and ecological considerations, human-centered design, and futures studies.

At its core, neo-cybernetics adopts a multi-dimensional perspective on systems and networks. It isn't merely about studying the systems as wholes but understanding their individual components, the ecosystems they are part of, and the expansive networks of communications and interactions they are built upon. This depth of study unravels the complexity of resource exchanges, dependencies, and feedback loops, sharpening our insights into both natural and synthetic realms.

Historically, a truly holistic approach to understanding complex systems and networks was constrained by the limitations of our analytical tools and the vast, often insurmountable, knowledge silos. Each domain of expertise operated largely within its own boundaries, making interdisciplinary comprehension a nearly impossible task. However, with the advent of advanced systems and the transformative capabilities of generative AI, we are witnessing a revolutionary shift.

With state-of-the-art generative AI, we can seamlessly "translate" between disparate domains. It's now possible to bridge the conceptual chasms between biology and macro-economic theories or interpret patterns in neural networks in the context of sociological dynamics. These tools not only break down old barriers but enable a synthesis of diverse knowledge spheres, enabling the aspirations of our movement.

With the profound impact of technological advancements in the fields of artificial intelligence, quantum computing, renewable energy, biotechnology, materials science and neuroscience, neo-cybernetics places significant emphasis on the interrelations among individuals, groups, technology, and ecosystems. This emphasis seeks to unravel the complexity of interactions that define our modern world, analyzing the delicate balance and causal loops between human endeavors, technological innovations, collective behaviors, and the broader ecosystems in which they reside.

As the horizon heralds the fifth industrial revolution, which is bound to fundamentally impact societal and economic structures, neo-cybernetics finds itself at the forefront. Our ambition transcends mere adaptation; we aim to navigate and 'steer' this transformation. By crafting models that bring harmony to the myriad facets of our existence, we envision a future where technology is universally accessible and customisable to amplify personal goals and simultaneously uplift the collective conscience and well-being.

To this end, neo-cybernetics is committed to supporting governments, enterprises, and communities in their transition towards becoming societies 5.0; where harmony between technological potential and humanistic values defines our shared future.

Characteristics

Neo-cybernetics is characterized by its holistic understanding of complex systems, a multi-level approach to emergent behaviors, and an integrative perspective that spans across multiple fields. Below, is a summary of the foundational approaches and driving principles of the discipline.

Convergence of Cybernetic orders

Neo-cybernetics combines insights from first-order Cybernetics (feedback, control, mechanistic couplings), second-order (observer, recursion), and third-order cybernetics (human-machine-environment co-evolution). Tracing its roots to foundational concepts from the 1940s, it encapsulates the evolutions of thought across orders.

However, it moves beyond viewing these as strictly progressive, recognizing limitations in earlier orders.

Liberated from militaristic and behaviorist associations, neo-cybernetics integrates human, machine, and environmental systems. It is ethically attuned through emphasizing symbiosis and co-constructed environments. This holistic approach ensures comprehensive understanding of cognitive systems within broader socio-cultural contexts. With expanded boundaries, neo-cybernetics aims for a more ethically grounded and ecologically sustainable integration.

Advanced Interdisciplinary Integration

Neo-cybernetics champions the fusion of insights from modern fields, including technology ethics, biotechnology, machine learning and deep learning, quantum computing, neurosciences, ecology, futures studies, and systems theory. This synthesis aims to offer a comprehensive, multi-faceted perspective, ensuring that the discipline remains at the forefront of understanding and navigating complex adaptive systems in an ever-evolving landscape.

This version provides a bit more context on why such integration is essential and positions neo-cybernetics as a forward-looking discipline.

Complex Adaptive Systems Focus

This approach concentrates on recognizing and understanding non-linear dynamics and emergent behaviors in systems that continuously adapt and evolve. Such a perspective becomes increasingly crucial in the face of rapidly changing societal and technological landscapes, where simple cause-and-effect relationships often give way to intricate interactions and unforeseen outcomes.

Futures Studies Integration

Placing a significant emphasis on exploring possible futures, incorporating foresight methodologies, advanced simulations, and principles of futurism. This proactive approach aids in anticipating system evolutions, facilitating strategic planning, and preparing for diverse eventualities in an increasingly uncertain, complex and interconnected world.

Ethical and Sustainability Lens

Drawing inspiration from both cybernetics and ecology, neo-cybernetics critically examines systems with a heightened focus on ecosystems and their intricate interrelations. It emphasizes the ethical implications of systems, especially concerning technology, the environment, and societal impacts. By intertwining ecological understanding with systems thinking, it champions a holistic approach to sustainable decision-making and strategies. The goal is not just to ensure that systems function optimally but also to ensure that they do so in a manner that is harmonious with the environment, ethically sound, and beneficial for society at large.

Human-AI Collaboration

Delving deep into the synergistic relationship between humans and AI systems, this focus area examines the potential for mutual evolution, collaboration, and co-regulation.

It seeks to understand how these two distinct entities can harmoniously interact, learn from one another, and jointly shape the future. Recognizing the unique strengths and limitations of both, the aim is to craft an integrated framework where human intuition and creativity seamlessly merge with AI's computational prowess and data-driven insights.

Network Theory Integration

Probing the intricate, interconnected lattice of networks, this domain seeks to understand their decentralized character, unfolding behaviors, and emergent properties.

It emphasizes the significance of nodes and links, exploring how individual components interact within the larger network structure. In doing so, it unravels patterns, cascading effects, and vulnerabilities. As our world becomes increasingly interconnected — from social networks to technological infrastructures — harnessing insights from network theory becomes paramount to predict, manage, and optimize these complex systems.

Holistic Analysis Tools

Leveraging cutting-edge analytical and computational methodologies, this focus area champions a comprehensive approach to understanding and modeling systems.

Rather than being confined by the constraints of traditional techniques, these tools embrace the complexities and intricacies inherent in modern systems. By doing so, they offer a more integrative perspective, capturing the interdependencies, feedback loops, and non-linear dynamics that classical methods might overlook. In an era where challenges are multifaceted and interconnected, these holistic tools are crucial for accurate prediction, intervention, and innovation.

Metasystem Transition Theory

Diving into the transformative journey of systems, this area of focus deciphers how systems undergo evolutionary leaps to form more intricate structures.

By assimilating and organizing individual components and nested subsystems, a system can transition to a higher level of complexity, paving the way for novel functionalities and behaviors.

Recognizing these metamorphoses is pivotal in anticipating the next phases of systemic evolution and harnessing them effectively.

Emphasis on Meta-Learning

Beyond conventional learning paradigms, meta-learning, or "learning about learning," has emerged as a paramount domain. In the intricate dance of AI development and human cognitive evolution, understanding the mechanisms behind the learning process itself holds the key.

By exploring this recursive learning approach, we can tailor learning strategies, optimize AI training algorithms, and gain deeper insights into human cognition.

Cultural and Societal Dynamics

In an era marked by rapid flux, this focus area seeks to untangle the intricate web of global dynamics, spanning both cultural evolution and the sweeping tide of digital transformation.

Acknowledging that societies are not static, it explores how cultural values, norms, and practices mutate in the face of technological advancements. By doing so, it offers a lens to gauge the socio-cultural impacts of the digital age and to envision the trajectory of our interconnected global community.

Attention to Micro and Macro Scales

Prioritizing a balanced lens, our focus oscillates between the intricate details of micro-level behaviors—such as cellular dynamics or individual entities—and the expansive vistas of macro-level structures like global ecosystems or vast digital networks. However, our approach is discerning; we venture into these scales when appropriate, ensuring relevance and depth.

Significantly, as generative AI systems evolve, they enable a new era of research potential. With these advancements, we anticipate a progressive expansion in our capabilities, seamlessly integrating insights from diverse disciplines, and forging a holistic understanding that bridges the micro and the macro.

Adversarial Dynamics Analysis

Including the study of adversarial behaviors across various levels, from individual entities to vast systems to craft robust and resilient systems that can withstand and adapt to adversarial challenges. Recognizing that oppositional forces can shape and influence systems, this aspect dives deep into understanding conflict dynamics, competitive strategies, and the ensuing impacts on system equilibrium and evolution.

Incorporation of Bio-Cybernetics

Emphasizing the understanding of biological systems' regulatory mechanisms and exploring how they can inspire technological systems.

Incorporation of Neuro-Cybernetics

Emphasizing the confluence of psychology, neurology, and neuroscience, neo-cybernetics delves into the intricacies of brain functionality, neuronal dynamics, and subconscious processes, drawing parallels and insights to inform and enhance system understanding and design.

Feedback Evolution

Feedback loops, often the heartbeat of complex systems, are not static. Our focus in this area delves into the dynamic nature of these loops, exploring how feedback mechanisms themselves transform as systems mature and environments shift. Recognizing these evolutionary patterns is not just an academic pursuit; it's crucial for anticipating system responses and optimizing their performance over time.

Resilience and Robustness

In a world of uncertainty, designing systems that can weather storms is paramount. Our emphasis here is twofold.

Firstly, we explore resilience, ensuring systems can adapt and recover from disruptions. Secondly, we prioritize robustness, aiming to build systems that remain unwavering even in the face of unexpected challenges.

These twin pillars guide our approach, ensuring that systems are not only adaptable but also enduringly stable, striking a balance between flexibility and steadfastness.

Focus on Connectivity Over Hierarchy

As the digital age ushers in decentralized networks and systems, the lens through which we view these constructs must evolve.

In the neo-cybernetic paradigm, the emphasis shifts from traditional top-down hierarchical views to understanding the intricate web of connections that bind entities together.

By centering on connectivity, we seek to uncover the dynamics, interdependencies, and emergent properties that arise from these relations, offering a richer, more nuanced perspective of the system's behavior and potential. This approach resonates more aptly with the fluid and interconnected nature of contemporary systems, moving away from rigid structures to embrace the myriad ties that define them.

Challenges

As AI models inch closer to achieving General Artificial Intelligence (AGI), we stand at the cusp of augmented cognitive capabilities that have the potential to revolutionize decision-making processes and guide our societies towards solving some of the most pressing global challenges, including existential risks and wicked problems.

The centrality of data in this new age underscores the danger of concentrated authority over information and knowledge. Technological systems, if unchecked, risk being monopolized by a handful of dominant entities. Such centralization could create an environment where decisions affecting the entirety of the world are driven by narrow interests, overshadowing collective welfare, introducing biases, and neglecting the intricate nuances of local and regional ecosystems.

Neo-cybernetics acknowledges that technology's impact is inextricably linked with societal, cultural, economics and ecological dynamics, spanning both micro and macro scales. By harmonizing the study of singular entities with vast global ecosystems and networks, the discipline seeks a balanced, holistic understanding.

Emphasizing the need for foresight, neo-cybernetics promotes the study of impact, assessing the long-term ramifications of decisions and interventions. With a forward-looking approach, it integrates the study of historical data with horizon-scanning and the exploration of possible futures.

This isn't just about responding to crises but preemptively navigating and counteracting them. In this proactive stance, neo-cybernetics envisions a world where potential pitfalls, like unchecked existential risks, are averted, and emergent opportunities are fully realized.

The Neo-Cybernetics Triad

The neo-cybernetics Triad—Understand, Harmonize, Evolve—captures the essence of this discipline's approach to systems in our interconnected age. Beginning with a deep comprehension of systems, it emphasizes the ethical melding of knowledge and societal values, and champions continual adaptation. This triad serves as a beacon, guiding how we interact with, shape, and grow amidst the complexities of natural and artificial systems in an ever-changing world.

Intellegere, to Understand

Neo-cybernetics is rooted in the quest for profound comprehension. To navigate the interconnected web of modern systems, it is imperative to delve deep into their intricacies, understanding not only their interactions and the myriad flows that shape them, but also the broader impacts that influence their reach. This foundational principle recognizes that true mastery and effective interaction with any system—be it natural, abstract, or artificial—demand a nuanced and thorough grasp of its inner mechanisms and overarching context. Moreover, "understanding" in neo-cybernetics extends beyond individual insight. It champions the democratization of knowledge, emphasizing the importance of making research accessible and comprehensible. The discipline advocates for the dissemination of insights in ways that resonate with diverse audiences, ensuring that understanding becomes a shared journey, enriching communities and empowering individuals at all levels.

Conciliare, to Harmonize

Understanding alone is not enough. The insights drawn from systems must serve a greater purpose. Neo-cybernetics emphasizes the need for a unified, constructive and ethical synthesis of knowledge, technology, societal values and the ecological landscape. But "harmonizing" transcends mere integration. It also encompasses the act of connecting diverse entities and finding common ground. In doing so, the discipline seeks to foster environments where differences are not just welcome but celebrated, leading to shared solutions and visions. This approach champions

collective well-being, ensuring that advancements and systems of today and tomorrow are firmly rooted in respect, unity, and equilibrium.

Evolvere, to Evolve

The final pillar of this triad acknowledges the inherent dynamism of our world. Stasis, in this ever-shifting landscape, inevitably leads to obsolescence. Neo-cybernetics champions adaptability, resilience, and an unwavering commitment to forward progression. Within this context, it also emphasizes the study of emergent behaviors and the possible evolutions of complex systems. The discipline is not a passive observer, but rather actively seeks to provide insights to 'steer' the direction of systems, harnessing their potential and guiding them towards trajectories that best serve the collective interests of humanity. It's about proactive evolution, ensuring that as systems develop and change, they do so in alignment with the broader goals and well-being of all.

Key Concepts

Presented below are pivotal terms that are central to the discourse and exploration of neo-cybernetics as a discipline.

Adaptation

The capability of a system to adjust its internal structure or behavior to fit environmental challenges.

Agent

An autonomous entity that can make decisions based on their own perceptions, and act upon its environment to achieve specific goals or purposes. Agents can be individuals, groups, natural or synthetic entities, and their actions can be influenced by both internal components and external conditions.

Autopoiesis

A term primarily related to living systems, indicating the self-producing and self-maintaining nature of such systems.

Boundaries

Every system has boundaries that separate it from its environment. However, these boundaries can be permeable, allowing exchanges.

Circular Causality

This concept diverges from linear causality, where one event directly leads to another. In circular causality, feedback loops exist such that cause and effect may

be interchanged, leading to patterns where an effect can also influence its cause, creating cyclical patterns of behavior.

Co-Evolution

The simultaneous evolution of two or more entities that influence each other's development.

Complexity

The attribute of systems marked by intricate relationships, dependencies, and interactions between their components. Such systems often exhibit emergent properties and behaviors, which are challenging to anticipate or model based solely on an understanding of individual elements.

Communication

The act of transmitting, conveying, sharing or exchanging data, information, ideas, or feelings between entities.

Consensus

An agreement or unified understanding reached by a group, typically after discussions or negotiations, where members align on a particular decision or perspective.

Cybernetics

Originating from the Greek word "kubernētēs," meaning "steersman" or "governor," Cybernetics is the interdisciplinary study of systems' structures, constraints, and possibilities. It delves deep into the mechanisms of control, regulation, and communication within and between diverse systems, whether they are biological (like animals and human bodies), technological (like machines and computer networks), or socio-cultural (like organizations and communities). By analyzing feedback loops and emergent behaviors, Cybernetics seeks to understand how systems maintain stability, adapt to changes, and evolve over time. The discipline bridges the gap between the animate and inanimate, providing a unified framework for understanding the fundamental principles that govern dynamic systems in various domains.

Data

Unprocessed and uninterpreted facts, figures, symbols, or observations that can manifest in various forms, such as numerical, textual, audio, visual, or sensory. Lacking context or meaning on its own, data serves as the foundational layer upon which information and knowledge are built through analysis and interpretation.

Emergence

A phenomenon wherein the combined actions and interactions of individual components within a system give rise to collective behaviors or properties that cannot be easily deduced from studying each part in isolation. Emergent behavior often appears unexpected and can be more sophisticated than what the individual components suggest.

Energy

The capacity to do work or cause physical change; can exist in potential, kinetic, thermal, electrical, chemical, nuclear, or other forms.

Entropy

In thermodynamics, it relates to the degree of disorder or randomness in a system. In information theory, it deals with the uncertainty of information.

Equifinality

The principle that in open systems, a given end state can be reached from different initial conditions and in various ways.

Eigenbehaviors

This term denotes the characteristic patterns of behavior that a system will naturally gravitate towards over time. Eigenbehaviors are stable states or recurring patterns for a system.

Feedback Loops

Cyclic processes within systems that facilitate self-regulation by monitoring and adjusting based on specific outputs or results. Feedback can either be reinforcing, which amplifies deviations or changes, or balancing, which works to counteract and stabilize those deviations.

Flow

The movement or transfer of resources, information, energy, or matter from one part of a system to another or between two or more systems. Flows facilitate interaction, transformation, and exchange within and between systems and can be cyclical or linear, depending on the context.

Hierarchy

A structured arrangement of systems where entities can be part of larger wholes while also containing smaller components within. Each hierarchical level has its distinct set of characteristics and functions, operating at varying scales. The interactions between these levels often influence the behavior and properties of the overarching system.

Heterarchy

A system of organization where elements are unranked or possess the potential to be ranked in multiple ways.

Holacracy

A method of decentralized management and organizational governance, where decision-making is distributed throughout self-organizing teams rather than a top-down hierarchy.

Holonomy

A concept stemming from both philosophy and systems theory, holonomy underscores the importance of viewing a system or entity holistically. Rather than perceiving the whole as a mere aggregation of its parts, holonomy emphasizes that the whole's properties arise not only from the parts themselves but crucially from the interactions and relationships among these parts. The essence of holonomy is the belief that the entirety of a system is greater than the sum of its individual components.

Homeostasis

A self-regulating process by which a system actively adjusts its internal conditions to maintain stability or equilibrium, even when faced with external disturbances. This adaptive mechanism ensures consistency in the system's functions and performance over time, resisting disruptive changes from the environment.

Hypercycles

Hypercycles are a model to elucidate the self-organization and evolution of primitive life forms. Comprising various self-replicating units (like RNA/DNA strands) interconnected in a cyclical, autocatalytic network, each replicator aids in the replication of its successor. This self-sustaining cycle is more efficient than individual replication, allowing replicators to surpass the Eigen error threshold. Thus, hypercycles are a conjectured step in the molecular evolution leading to life.

Industry 5.0

The fifth phase in the evolution of industrial development, following the fourth industrial revolution (or Industry 4.0). Industry 5.0 emphasizes the integration of human creativity and craftsmanship with advanced robotics and AI technologies. Unlike Industry 4.0, which largely focused on full automation, Industry 5.0 seeks to achieve a harmonious collaboration between humans and machines. This progressive era aims to bridge the gap between large-scale mass production and bespoke individual customization, leveraging advanced technologies such as Big Data, artificial intelligence, and virtual reality to enable a society that is human-centric, sustainable and resilient.

Information

Derived from raw data, information is processed and organized in a manner that adds meaning, relevance, and context. It serves as the foundation for acquiring knowledge, enabling informed decision-making, and providing deeper insights into various phenomena.

Matter

Physical substance which occupies space and possesses mass, distinct from energy.

Negentropy

In thermodynamics, it refers to the degree of order or organization in a system. In information theory, it describes the measure of orderliness or predictability of a set of data.

Network

A system of interconnected nodes and links, often studied using graph theory, a branch of mathematics that delves into the relationships between connected entities. In the context of neo-cybernetics, a network could refer to technological infrastructures, social connections, neural pathways, or any other system where entities (nodes) are connected in various ways (links). Networks emphasize the importance of relationships and the flow of information, resources, or influence. Modern interpretations and analyses of networks can leverage graph databases, which are specifically designed to handle complex network structures efficiently.

Non-linearity

A characteristic of systems where the relationship between inputs and outputs isn't strictly proportional, often resulting in outcomes that aren't immediately intuitive. Non-linear systems can exhibit dramatic changes from small perturbations or display resilience against large disturbances, making their behavior challenging to predict solely from initial conditions.

Observer

Central to systems theory and second order Cybernetics, the observer is the entity that discerns, decodes, and engages with a system. The perspective and inherent biases of the observer can shape the interpretation and understanding of the system, highlighting the significance of subjectivity in system analysis and response. This concept underscores the idea that observations are not purely objective; they are influenced by the observer's context, knowledge, and predispositions.

Society 5.0

Society 5.0 represents the vision for the next stage of human societal evolution following the Information Society (Society 4.0). In Society 5.0, advanced

technologies, particularly from the realms of AI, big data, IoT, and robotics, are seamlessly integrated into every facet of human life. The primary aim is to create a human-centric society that balances economic advancement with the resolution of pressing societal issues such as aging populations, urbanization, and environmental challenges. Through the fusion of the cyber and physical spaces, Society 5.0 endeavors to enhance the quality of life for all, promoting a more inclusive, sustainable, and resilient future.

Swarm Intelligence

A collective behavior exhibited by decentralized, self-organized systems, typically consisting of a population of simple agents interacting with one another and their environment. Such systems can achieve complex tasks without centralized control or explicit instructions, drawing from the interconnected knowledge and adaptability of individual agents.

Teleology

Teleology, derived from the Greek words "telos" meaning "end" or "purpose" and "logos" meaning "study of," refers to the philosophical study of purpose, direction, or goals in nature. It posits that entities, behaviors, or processes exist or occur due to a predetermined objective or purpose. In the context of neo-cybernetics, teleology might be invoked to explore the inherent or designed purposes of complex systems, questioning if and how technological and biological systems pursue goals, adapt to achieve certain ends, or can be directed towards beneficial outcomes for society at large. This contrasts with purely mechanistic or deterministic viewpoints, emphasizing instead the role of objectives and intent in shaping system behaviors and trajectories.

Wicked Problems

In the context of social policy planning, "wicked problems" describe complex challenges that defy straightforward solutions due to their interdependencies, multifaceted nature, and the evolving criteria for success. These problems often resist definition, and solutions to them can lead to further complications. Unlike "tame" or "benign" problems, wicked problems lack clear stopping rules, meaning there's no definite solution. Attempts to address a wicked problem can change the understanding of the problem itself. Examples include climate change, poverty, and geopolitical conflicts. Addressing wicked problems usually requires interdisciplinary approaches, iterative processes, and adaptive strategies.

Principles

At the heart of neo-cybernetics lies a set of guiding beliefs that shape its approach and methodology. These principles form the moral and philosophical bedrock of the discipline, ensuring that it remains true to its foundational ideals even as it evolves and adapts to an ever-changing world.

Integrity

To uphold the highest standards of honesty, transparency, and ethical behavior in all endeavors.

Inclusivity

To embrace diverse viewpoints and nurture global collaboration for richer, deeper insights.

Education

To disseminate knowledge and ensure that the principles of neo-cybernetics are accessible to all.

Collaboration

To work hand-in-hand with other disciplines, understanding that unity yields richer insights.

Innovation

To continuously seek novel solutions and push the boundaries of what's possible.

Responsibility

To act as stewards of the planet, ensuring that technological advancements are in harmony with the global and local needs of society and with nature.

Commitments

While principles provide the foundational beliefs of neo-cybernetics, commitments represent the tangible promises our community makes to the world. They are actionable pledges, ensuring that the tenets of neo-cybernetics translate into real-world impact and positive change.

Universal Tech Access

Ensure that technology, in all its myriad forms, is accessible universally, transcending barriers of geography, economics, or culture.

Information Equity

Commit to making high-quality, accurate information universally available, democratizing knowledge and empowering communities everywhere.

Global-Local Nexus

Recognize and honor both the narratives of global movements and the nuances of local realities, striking a harmonious balance in our endeavors.

Cultural Confluence

Champion the confluence of diverse cultures, believing that embracing varied perspectives fosters richer insights and more holistic solutions.

Interdisciplinary Unity

Actively converge multiple disciplines, recognizing that the most profound insights and solutions often emerge from interdisciplinary collaboration.

Unyielding Resilience

Architect systems that stand resilient in the face of adversities, possessing the robustness to recover and thrive amidst challenges and failures.

Ethical Advocacy

Spread and champion awareness of the ethical dimensions inherent in our actions. Strive, always, for solutions that are both ethically sound and ecologically sustainable.

Human-Centered Synthetics

Design synthetic systems and consumables with a human-centric approach, ensuring that they enhance and respect human well-being and experience.

Join the Neo-Cybernetic Community

In an age where the complexities of our world challenge traditional paradigms, neo-cybernetics provides a guiding light.

But the discipline thrives on collective effort.

Engage, contribute, and shape the future with us.

Embrace the interconnectedness, cultivate understanding, harmonize our shared visions, and evolve together.

Be a part of this journey, for in understanding, unity, and progress we propel humanity forward.

Neo-Cybernetics Expression of Interest Form

Literature

Aheleroff, Shohin; Huang, Huiyue; Xu, Xun; & Zhong, Ray. (2022). Toward sustainability and resilience with Industry 4.0 and Industry 5.0. Frontiers in Manufacturing Technology, 2. DOI: 10.3389/fmtec.2022.951643.

Ashby, W. R. (1956). An introduction to cybernetics. John Wiley and Sons. https://doi.org/10.5962/bhl.title.5851

Bateson, G. (1972). Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology. Chicago, IL: University of Chicago Press.

Beer, S. (1979). The heart of enterprise. John Wiley & Sons.

Conway, J. M., & Siegelman, J. (2005). Dark hero of the information age: In search of Norbert Wiener, the father of cybernetics. Basic Books.

Eigen, M., Schuster, P (1979). The Hypercycle. A Principle of Natural Self Organization. Springer.

Foerster, H. von. (1981). Observing systems. Intersystems Publications.

Gleick, J. (1987). Chaos: Making a new science. Penguin.

Grishchenko, V., Patrakeev, M., & Locke III, S. Q. (2021). Swarm consensus. arXiv preprint arXiv:2112.07065.

Luhmann, N. (1995). Social systems. Stanford University Press.

Maturana, H. R., & Varela, F. J. (1980). Autopoiesis and Cognition: The Realization of the Living. D. Reidel Publishing Company. https://doi.org/10.1007/978-94-009-8947-4

Meinhardt, H. (2012) Biological Pattern Formation Models: Turing's Theory and the Later Discovery of the Role of Local Self-Reinforcement and Long-Range Inhibition. Computer Science Spectrum 35, 287–294. https://doi.org/10.1007/s00287-012-0625-4

Pask, G. (1976). Conversation theory. Applications in Education and Epistemology.

Prigogine, I., & Stengers, I. (2018). Order out of chaos: Man's new dialogue with nature. Verso Books.

Shannon, C. E., & Weaver, W. (1949). The mathematical theory of communication. University of Illinois Press.

Tononi G, et al. (2016), Integrated information theory: from consciousness to its physical substrate, Nature Reviews Neuroscience.

Wiener, N. (2019). Cybernetics or Control and Communication in the Animal and the Machine. MIT press.