



Review Article

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From Theory to Application: Harnessing Unified Field Theory for Artificial Field Scanning

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Abstract

Unified Field Theory (UFT) proposes a novel framework to unify the fundamental forces of nature-gravity, electromagnetism, and nuclear forces-into a single, dynamic system. This theory reimagines space and time as a continuously evolving entity influenced by mass and energy. Building on UFT, Artificial Field Scanning (AFS) technology leverages electromagnetic field variations to induce gravitational effects, opening up revolutionary applications across multiple fields. Potential uses of AFS include enabling light-speed travel in aerospace, non-invasive medical treatments, wireless power transmission, and advanced manufacturing techniques like cold welding. Although AFS is in its early stages and faces challenges in precise field control, early experiments have shown promising results. This paper explores the theoretical foundations of UFT and AFS, discussing their transformative potential and the ongoing research required to bring these technologies to fruition.

Keywords: Unified Field Theory; Artificial Field Scanning; Electromagnetic Fields; Space-Time Modulation; Gravitational Manipulation

Introduction

Unified Field Theory (UFT), first envisioned by Albert Einstein, represents one of the most ambitious attempts to explain the fundamental forces of nature under a single, coherent framework [1]. Despite decades of effort, the integration of gravitational, electromagnetic, and nuclear forces into a single mathematical description remains elusive. However, recent developments have reignited interest in UFT, particularly through the contributions of Zhang Xiangqian, whose work proposes a novel interpretation of space, time, and force dynamics that challenges conventional scientific paradigms [2-14]. In this manuscript, we explore the theoretical foundations of UFT, focusing on its implications for the emerging technology of artificial field scanning. At the core of UFT lies a revolutionary understanding of space and time, positing

that space itself is in constant motion, driven by the interaction of mass and the surrounding environment. Unlike traditional models that treat time and space as independent entities, UFT suggests a unified, dynamic relationship between these dimensions, underpinned by the movement of space at the speed of light (Figure 1). This framework provides a fresh perspective on the interaction between gravity, electromagnetism, and nuclear forces, offering a path toward their unification in a single mathematical equation.

In parallel with these theoretical advancements, artificial field scanning technology emerges as a practical application of UFT. Artificial field scanning leverages the dynamic relationship between gravitational and electromagnetic fields, allowing for the manipulation of space-time properties in ways previously thought

to be the realm of science fiction. By utilizing controlled variations in electromagnetic fields, artificial field scanning can generate both gravitational and anti-gravitational effects, which can be harnessed for a wide range of applications—from advanced propulsion systems to novel medical treatments. This paper outlines the theoretical foundations of artificial field scanning technology, derived from UFT, and explores its transformative potential across diverse fields. Despite being in the early stages of development, with challenges in experimentation and funding, the technology promises

groundbreaking applications—from enabling light-speed travel in aerospace to offering non-invasive medical treatments targeting diseases at the molecular level. The manuscript first presents UFT's novel insights into space, time, and force, then details the operational principles of artificial field scanning, highlighting its potential in various scientific and industrial applications. Finally, it discusses the challenges and opportunities in realizing this technology's full potential.

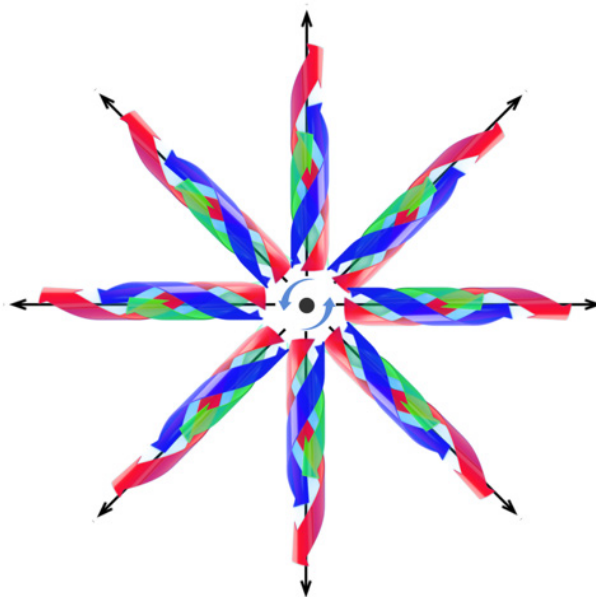


Figure 1: Model of Space Motion: Cylindrical Spiral Motion of Space Surrounding an Object.

Theoretical Foundation of Unified Field Theory

UFT seeks to bridge the gap between the four fundamental forces of nature—gravitational, electromagnetic, weak nuclear, and strong nuclear forces—into a single coherent framework. Rooted in the work of Albert Einstein, the theory traditionally aimed to unite gravity with electromagnetism. However, the inclusion of nuclear forces and the full integration of space-time dynamics into this framework remains a challenge. This section explores the core principles of UFT, with a particular focus on how they relate to space, time, mass, and energy, and how they underpin the potential application of artificial field scanning technology.

Core Principles of UFT: Space, Time, Mass, and Energy

At the heart of Unified Field Theory is the redefinition of the relationship between space, time, and energy. Traditional physics has treated these dimensions as separate entities, with space and time considered as fixed and independent components of the universe. However, UFT proposes that space and time are

inextricably linked, forming a dynamic continuum that can be influenced by the objects and forces within it. The fundamental assumption of UFT is that space itself is not a passive, inert backdrop but an active, moving entity. According to this theory, space is constantly in motion, and this motion is fundamentally tied to the energy and mass of the objects it contains. This movement is described as a “cylindrical spiral motion,” where space propagates outward at the speed of light, creating a dynamic and ever-changing environment. The relationship between space and time in UFT is rooted in the concept of “time as a product of space motion.” Time is not an independent dimension but a manifestation of the motion of space relative to an observer. This challenges the traditional view of time as a separate entity that ticks uniformly, regardless of external conditions. In this new framework, the measurement of time is intrinsically linked to the rate at which space itself moves.

Mass and energy are also treated differently within UFT. Mass is not a fixed quantity but a property that is directly related to the movement and density of space. As space moves and distorts, it alters the distribution of mass. Similarly, energy is not merely the

capacity to perform work but a measure of the degree of motion within space. In UFT, energy, mass, and space-time are deeply interrelated, forming a unified structure that allows for new ways of understanding the forces that govern the universe.

Key Equations and Theoretical Models Underpinning Artificial Field Scanning Technology

One of the most profound implications of UFT is its ability to predict and manipulate fields, such as gravitational and electromagnetic fields, in new and unconventional ways. At the core of artificial field scanning technology is the idea that electromagnetic fields can be dynamically altered to produce gravitational effects—an insight that leads to a new understanding of field interaction. The key theoretical model that underpins artificial field scanning technology is based on the relationship between changing electromagnetic fields and gravitational fields. In traditional physics, these fields are treated as distinct entities: electromagnetic fields are described by Maxwell's equations, while gravitational fields are modelled by Einstein's field equations in the general theory of relativity. UFT, however, unifies these fields by proposing that variations in the electromagnetic field can induce distortions in the surrounding space, which in turn generate gravitational effects.

The central equation that encapsulates this theory is the “Gravitational Field Equation” derived from UFT. This equation postulates that the curvature of space (which manifests as gravitational fields) is directly influenced by the rate of change of the electromagnetic field. The equation can be expressed as: $g_{\mu\nu} = F_{\mu\nu} \cdot \partial_{\alpha E}$. Where: $\partial_{\alpha E}$ represents the metric tensor describing the curvature of space-time (gravitational field), $F_{\mu\nu}$ is the electromagnetic field tensor, $g_{\mu\nu}$ is the derivative of the electromagnetic field, indicating its rate of change. This equation indicates that fluctuations or variations in the electromagnetic field can induce distortions in the fabric of space-time, leading to the generation of gravitational fields. The connection between these fields opens the door for the manipulation of gravity and other space-time properties through controlled electromagnetic disturbances.

The Discovery: Changing Electromagnetic Fields Generate Gravitational Fields

One of the most groundbreaking discoveries in UFT is the ability of changing electromagnetic fields to generate gravitational fields. Traditionally, gravity was understood to be a separate force, mediated by the curvature of space-time as described by Einstein's general relativity. Electromagnetic fields, governed by Maxwell's equations, were seen as entirely distinct from gravitational fields. However, UFT proposes that these two fields are interlinked through the dynamic motion of space. Specifically, the theory predicts that the changing flux of an electromagnetic field—whether it's the acceleration of charges or the variation in current—can create a ripple in the space-time continuum, resulting in gravitational effects. This insight has been experimentally supported by preliminary investigations, where variations in electromagnetic

fields were shown to cause minute but measurable gravitational distortions. These findings are still in the early stages, but they offer a path toward harnessing electromagnetic energy to directly control gravitational forces, a possibility that was once relegated to theoretical discussions of anti-gravity and exotic propulsion systems.

New Ways of Understanding and Manipulating Fields for Practical Applications

UFT's unified approach to the fundamental forces offers a completely new way of understanding and manipulating fields. The theory allows for the possibility of dynamically controlling not just electromagnetic fields, but gravitational fields as well, leading to a range of unprecedented applications.

One of the most exciting applications is the concept of artificial field scanning. Unlike traditional electromagnetic or gravitational devices that rely on physical contact or localized energy transfer, artificial field scanning operates by generating fields that propagate through space itself. By controlling the dynamics of electromagnetic fields, we can influence the space-time continuum, affecting mass, velocity, and even the passage of time within a localized region. Artificial field scanning holds the promise of: A. Non-contact energy transmission, where energy can be transferred across vast distances without the need for conductors or wires, enabling wireless power grids. B. Gravitational manipulation, allowing for propulsion systems that could achieve light-speed travel or control over gravitational effects, revolutionizing space exploration and transportation technologies. C. Time and space manipulation, potentially enabling time dilation effects or altering the flow of time in localized areas, which could have profound implications for fields like quantum computing or medical therapies. In conclusion, UFT not only unifies the fundamental forces of nature but also provides the theoretical foundation for a new generation of technologies that can manipulate space, time, and energy in ways previously unimaginable. Artificial field scanning, as a practical application of UFT, promises to redefine how we interact with the natural world, offering transformative possibilities for the future of science and technology.

Artificial Field Scanning Technology

Artificial Field Scanning (AFS) technology, based on the principles of UFT, represents a significant breakthrough in our ability to control and manipulate fundamental physical fields, specifically electromagnetic and gravitational fields. By leveraging the core principles of UFT, AFS opens the door to a wide range of transformative applications, including non-contact energy transmission, mass manipulation, and space-time modulation. This section introduces the concept of AFS, its technological components, key capabilities, and the theoretical model that supports its operation, alongside an overview of early experimental results.

Introduction to Artificial Field Scanning Technology

Artificial Field Scanning is an innovative technology that utilizes controlled variations in electromagnetic fields to induce

gravitational effects. This approach, rooted in UFT, challenges conventional physics, which treats electromagnetic and gravitational fields as distinct entities. UFT proposes that these fields are interrelated, and by manipulating electromagnetic fields, it is possible to generate both gravitational and anti-gravitational effects. AFS, therefore, enables the direct control of space-time properties, offering unprecedented possibilities in fields such as transportation, energy, and medicine.

Key Capabilities of Artificial Field Scanning

AFS technology provides several novel capabilities, each with wide-ranging potential applications. These capabilities include:

- A. Non-Contact Energy Transmission:** One of the most transformative aspects of AFS technology is the ability to transmit energy without the need for physical conductors or wires. Traditional systems, such as power grids, rely on conductive materials to transfer electrical energy. AFS, however, allows for the transmission of energy via space itself, utilizing the dynamic properties of electromagnetic fields to propagate energy over large distances without direct contact. This capability could lead to the development of global wireless power grids and revolutionize energy distribution systems.
- B. Influencing Space-Time Properties:** AFS also allows for the manipulation of space-time, as predicted by UFT. The technology can control both gravitational fields and the passage of time within localized regions. This includes potential applications in time dilation, where the flow of time could be altered in specific zones, and spatial contraction, which could enable phenomena like “massless” movement. The ability to manipulate time and space could have far-reaching implications for fields such as quantum computing, space exploration, and advanced propulsion systems.
- C. Mass Manipulation:** A key feature of AFS is the potential to manipulate mass. UFT asserts that mass is not a fixed quantity but is influenced by the motion of space-time. By altering the electromagnetic field around an object, AFS can modify its mass, potentially reducing it to zero. When an object’s mass approaches zero, it could move at the speed of light, a concept central to light-speed propulsion systems and advanced aerospace technologies. Mass manipulation could also enable new forms of transportation, including efficient spacecraft propulsion and advanced materials manufacturing.

Components of Artificial Field Scanning Technology

The components of AFS technology work together to generate and control electromagnetic and gravitational fields, enabling the manipulation of space-time. The primary components include:

- A. Field Generators:** Field generators are the core hardware of AFS systems. These devices generate electromagnetic fields by manipulating electrical currents and voltages. The field generators are capable of producing a wide range of frequencies and intensities, which can be tuned to produce specific electromagnetic effects. The strength, frequency, and polarity of the generated fields can be adjusted in real-time, allowing precise control over their interaction with space-time.

- B. Field Scanners:** Field scanners direct and focus the electromagnetic fields produced by the field generators. These devices ensure that the generated fields are applied to specific regions of space-time with high precision. The field scanners can control the spatial distribution and intensity of the electromagnetic fields, ensuring that they produce the desired gravitational effects. In addition, field scanners include feedback mechanisms to monitor and adjust the fields dynamically, ensuring optimal performance.
- C. Control Systems and Software:** The control systems and software manage the entire operation of the AFS technology. They regulate the generation, modulation, and direction of the electromagnetic fields produced by the hardware components. The control systems are based on algorithms derived from UFT’s theoretical models, which ensure that the electromagnetic fields interact with space-time in the desired manner. Feedback loops from sensors integrated into the system allow the control software to make real-time adjustments to the fields, optimizing their effects.
- D. Feedback Mechanisms and Monitoring Systems:** Feedback mechanisms are crucial for ensuring the precise operation of AFS. These systems include sensors that measure the effects of the electromagnetic fields on space-time, such as changes in mass, velocity, and gravitational distortion. The data collected by these sensors are fed back into the control system, enabling continuous optimization of the system’s performance. Real-time monitoring ensures that the fields are producing the desired effects, while also providing insights into the underlying interactions between electromagnetic and gravitational fields.

Theoretical Model and Early Experiments

The theoretical model underlying AFS technology is based on the equations derived from UFT, which describe the relationship between changing electromagnetic fields and the generation of gravitational fields. UFT asserts that fluctuations in the electromagnetic field can induce distortions in space-time, creating gravitational effects. The key equation that governs this process is: $g_{\mu\nu} = F_{\mu\nu} \cdot \partial_{\alpha E}$. This equation implies that electromagnetic field variations—whether due to acceleration of charges or oscillating currents—can produce distortions in space-time that manifest as gravitational fields.

Early experiments have provided preliminary evidence supporting the theoretical predictions of UFT and AFS. Initial trials have focused on detecting the gravitational effects of varying electromagnetic fields. For example, one experiment involved subjecting a test mass to a fluctuating electromagnetic field and measuring its weight. The results showed a subtle but measurable reduction in the apparent mass, consistent with the theory that electromagnetic fields can induce gravitational distortions. In addition, experiments on space-time manipulation have begun to explore time dilation and spatial contraction. Early tests have demonstrated that localized electromagnetic fields can influence

the perceived passage of time within a controlled environment, aligning with the predictions of UFT. These initial experiments have laid the groundwork for further exploration, with future trials aimed at refining the technology and expanding its capabilities.

Applications and Future Perspectives

Artificial Field Scanning (AFS) technology, grounded in the principles of UFT, promises to bring profound changes across various industries. By manipulating electromagnetic and gravitational fields, AFS opens up a host of applications that could transform everything from space travel to medical treatments. In this section, we explore the potential applications of AFS, including its impact on aerospace, healthcare, energy, and manufacturing. Additionally, we provide visionary examples that showcase the groundbreaking potential of AFS, acknowledging the challenges that remain in bringing these concepts to fruition.

Potential Applications of Artificial Field Scanning

Aerospace: Light-Speed Flight and Advanced Propulsion Systems One of the most exciting potential applications of AFS is in the field of aerospace. Traditional propulsion technologies, reliant on chemical rockets or jet engines, are limited by the constraints of Newtonian physics, particularly the speed at which objects can travel through space. However, AFS enables the manipulation of gravitational fields and mass, potentially allowing for the creation of light-speed flight systems. By reducing the mass of a spacecraft through electromagnetic field manipulation, it may be possible to achieve massless states for spacecraft, causing them to move at relativistic speeds-potentially even reaching or exceeding the speed of light. This concept, often associated with theoretical “warp drives”, could drastically reduce travel times across vast distances, opening up possibilities for interstellar travel. Imagine traveling from Earth to Mars in a matter of hours, or reaching distant star systems in decades rather than millennia. In addition to light-speed travel, AFS could also enable advanced propulsion technologies like gravitational manipulation for efficient space travel, allowing spacecraft to navigate through space with minimal energy expenditure. This could mark a revolutionary shift in the way we explore and utilize space, potentially enabling human settlement on other planets and opening new frontiers in space exploration.

Healthcare: Non-Invasive Medical Treatments AFS technology could revolutionize the healthcare industry by offering non-invasive medical treatments that directly manipulate the body’s electromagnetic and gravitational fields. One of the most promising applications lies in the ability to precisely target and treat cancerous cells or other harmful tissues within the body, using controlled electromagnetic fields to induce targeted healing processes or destroy malignant cells without the need for traditional surgery or radiation. Further, AFS could offer advanced imaging and diagnostic capabilities by interacting with the body’s natural electromagnetic and gravitational fields, providing new methods for detecting diseases at the molecular level. The technology could also be employed for pain management, utilizing non-invasive methods to manipulate local gravitational and electromagnetic

fields to reduce inflammation, promote healing, or alleviate chronic pain. Perhaps most remarkably, AFS could make possible the direct scanning and manipulation of human consciousness. By using electromagnetic fields to influence brain activity, it may be possible to treat mental health conditions or even enable direct communication between the human brain and digital systems, paving the way for neurotechnology advancements.

Energy: Wireless Power Transmission Wireless energy transmission has long been a subject of research, with promising but limited practical implementations. AFS could revolutionize this field by enabling non-contact power transfer through space using dynamic electromagnetic fields. This capability could lead to the development of global wireless power grids, where energy is transmitted efficiently across vast distances without the need for wires or traditional infrastructure. In practical terms, AFS could eliminate the need for power lines and physical connections in urban, rural, and even remote areas, providing a global solution for clean, renewable energy distribution. Solar farms, wind energy installations, and other green energy sources could feed into this wireless network, creating a sustainable and universally accessible power system. Moreover, energy could be transmitted directly to devices, vehicles, and homes without the need for conventional outlets, fundamentally altering the way energy is consumed and distributed.

Manufacturing: Cold Welding and Advanced Material Processing The manufacturing industry could also see significant advancements through AFS technology. Traditional welding processes rely on high heat to join materials, often resulting in energy waste and material degradation. However, AFS offers the potential for cold welding, a process that allows materials to be fused at the molecular level without the need for high temperatures. In cold welding, electromagnetic fields manipulate the atomic structures of materials, allowing them to bond without the heat-induced damage typically seen in conventional welding methods. This process could revolutionize industries that require high-precision manufacturing, such as aerospace, electronics, and medical device production. It would allow for faster, more energy-efficient manufacturing processes, improving product quality and reducing costs. Moreover, AFS could enable precise material manipulation at the atomic level, facilitating the development of advanced nanomaterials and supermaterials with unprecedented properties. This could lead to breakthroughs in a variety of fields, from electronics to structural engineering, making it possible to create materials with enhanced strength, conductivity, or even new, desirable properties that are currently unattainable.

Visionary Applications: Beyond the Horizon While the aforementioned applications represent the immediate potential of AFS, the technology also holds promise for more speculative, yet transformative, advancements. These visionary applications illustrate the profound impact that AFS could have on society, technology, and our understanding of the universe. **Global Motion Network: Instantaneous Travel and Communication.** Imagine a global motion network, where the manipulation of gravitational

fields enables instantaneous transportation of both people and goods across the planet. Using AFS technology, it may be possible to create systems where individuals or objects can be “teleported” from one location to another in a matter of seconds, regardless of the distance. This technology would eliminate the need for traditional transportation infrastructure, reducing travel time and environmental impact significantly. Such a system could also have profound implications for communication. Real-time, direct communication between distant locations—whether on Earth or in space—could become instantaneous, without the limitations of current satellite or fibre-optic systems. This could lead to the creation of a global, interconnected network of real-time information exchange, transforming industries ranging from telecommunications to emergency response.

Virtual Reality: Fully Immersive, Dynamic Environments

The integration of AFS with virtual reality (VR) could lead to the creation of fully immersive, dynamic environments that are indistinguishable from the real world. AFS technology could manipulate space-time within virtual environments, allowing for the creation of real-time, interactive simulations where the laws of physics can be altered at will. This could provide new applications for VR in education, entertainment, and professional training, where users experience not just visual and auditory input, but also haptic sensations, altered gravity, and controlled time flows.

Consciousness Storage and Mind Uploading One of the most speculative, yet fascinating, applications of AFS is the potential for consciousness storage and mind uploading. By scanning the electromagnetic and gravitational fields of the brain, it may eventually be possible to capture and store the essence of a person's consciousness. This data could then be transferred to a digital medium, allowing for the possibility of digital immortality or the relocation of consciousness into artificial bodies or systems. While such a concept is still far from realization, AFS may offer the technological means to explore these ideas, potentially reshaping the future of human existence. The ability to upload, store, and transfer consciousness could radically alter the concepts of identity, memory, and life itself.

Experimental Challenges and the Current State of Development

While the potential applications of AFS are groundbreaking, the technology is still in its early stages. The most significant challenges include the complexity of controlling and manipulating electromagnetic and gravitational fields with the required precision, as well as the need for rigorous experimental validation. Theoretical models have been established, but practical implementation is hampered by a lack of experimental data and sufficient funding for large-scale research. Additionally, AFS technology requires advancements in several areas of physics, including field theory, quantum mechanics, and materials science. Significant progress in understanding how these fields interact on both macroscopic and quantum scales is necessary to ensure that the technology can be scaled and applied in real-world scenarios. The experimental

challenges are further compounded by the need for advanced computational models and high-precision instrumentation to monitor and manipulate the effects of the fields in real-time. The computational demands of AFS are immense, requiring systems capable of processing vast amounts of data while simultaneously adjusting electromagnetic fields to achieve desired effects. Despite these challenges, early experiments have shown promising results, demonstrating the feasibility of generating small gravitational effects using electromagnetic fields. These early successes are paving the way for more ambitious experiments, though substantial investment in research and development is needed to overcome the current limitations.

Conclusion

UFT marks a paradigm shift in our understanding of the universe, offering a comprehensive framework that unifies the fundamental forces—gravitational, electromagnetic, weak nuclear, and strong nuclear forces—into a single, coherent description. At its core, UFT redefines our perception of space, time, and energy, proposing that space is not an inert backdrop but an active, dynamic entity that interacts with mass and energy. Time, instead of being an independent dimension, is seen as a result of the motion of space itself. This reimagining of space-time, along with the interrelationship between different forces, lays the theoretical foundation for AFS technology. Through UFT, the previously distinct realms of electromagnetic and gravitational fields are brought into alignment. The theoretical framework demonstrates that variations in electromagnetic fields can induce gravitational effects, a concept that challenges conventional physics. By controlling the dynamics of these fields, AFS technology can manipulate space-time properties, such as mass, velocity, and even the passage of time. The key theoretical models, particularly the equations linking the variation of electromagnetic fields to the curvature of space-time, are critical in enabling AFS technology to function as a practical tool for manipulating physical properties in real-time.

The long-term potential of AFS technology extends far beyond its foundational theoretical aspects. Across numerous domains, AFS promises to revolutionize our capabilities and redefine the boundaries of human achievement. In aerospace, it could enable light-speed travel and efficient propulsion systems, paving the way for interstellar exploration. In healthcare, AFS has the potential to deliver non-invasive treatments that can target and manipulate biological tissues with high precision, leading to new frontiers in medical care. In energy, it could enable wireless power transmission on a global scale, creating a sustainable and efficient energy distribution network that transcends the limitations of current infrastructure. Moreover, in manufacturing, the precision control of mass and material properties could lead to innovative production techniques such as cold welding, drastically improving efficiency and material integrity.

However, realizing these potential applications requires overcoming significant experimental and funding challenges.

Although the theoretical underpinnings of AFS are robust, the practical application of this technology is still in its infancy. The complexity of manipulating electromagnetic and gravitational fields with the precision necessary for meaningful applications requires significant advancements in both experimental techniques and computational modelling. Furthermore, the experimental verification of UFT's predictions, particularly in generating and controlling gravitational fields through electromagnetic interactions, remains a significant hurdle. To bring these ideas closer to reality, it is imperative that continued research, collaboration, and investment be directed toward developing the necessary infrastructure, equipment, and experimental protocols. Interdisciplinary collaboration between physicists, engineers, and technologists will be essential to refine the models and conduct the experiments required to validate UFT's predictions and further the development of AFS. Given the ambitious scope of this technology, the involvement of academic institutions, government agencies, and private industry will be crucial in securing the necessary funding and resources to advance this research.

In conclusion, Artificial Field Scanning Technology, grounded in the revolutionary principles of Unified Field Theory, represents a transformative leap in our understanding of the universe and our ability to manipulate it. With its vast potential to change the landscape of aerospace, healthcare, energy, and manufacturing, AFS could usher in a new era of technological progress. While the road to fully realizing these applications is still fraught with challenges, the theoretical foundation and early experimental successes provide a compelling case for continued exploration. As research in this field progresses, we stand on the precipice of a future where the manipulation of space-time and the control of fundamental forces are no longer the realm of science fiction but a tangible reality that could reshape the world as we know it.

Authors' Contributions

X.Z. conceptualized the study, developed the methodology, and wrote the original draft. P.Z. supervised the project and reviewed and edited the manuscript. All authors reviewed the manuscript.

Declaration of competing interest

The authors unequivocally declare the absence of any competing interests or conflicts of interest.

Data Availability

The datasets used and/or analysed during the current study available from the corresponding author on reasonable request.

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