

# GLOBAL JOURNAL

OF SCIENCE FRONTIER RESEARCH: I

Interdisciplinary

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Discovering Thoughts, Inventing Future

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# The Epistemology of “Contemporary Art” Noumenon – Falsification and Critique of “Art Conspiracy and Deception Theory”

By Cheng Yuan

*Jimei University*

**Abstract-** “Contemporary art” is universal, but in international commonality, Chinese contemporary art has its specific problems that it faces: this includes scientific falsification and critique of artistic conspiracy and deception, highlighting the contemporary nature of contemporary art’s cognitive function, and connecting relationship with theory and practice, history and logic between contemporary art and artistic phenomenology, such as “world 2,” “practice-spirit” and behavior, installation, etc., thus welcoming the world identity of “cognitive experience” and “spiritual practice.” From the above three parts, the article identifies, “contemporary art” is a view of problem consciousness, concept, and human beings’ independent personality and dignity. On the historical approach and value orientation, she is not only a historical uplift to the function of art cognition but also a historic approach and representation of the era of “cultural experience” and “civilized practice.”

**Keywords:** *contemporary art, conspiracy theory, world 2, cognitive experience, spiritual practice, the way of grasping the world.*

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THE EPISTEMOLOGY OF CONTEMPORARY ART NOUMENON FALSIFICATION AND CRITIQUE OF ART CONSPIRACY AND DECEPTION THEORY

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# The Epistemology of “Contemporary Art” Noumenon — Falsification and Critique of “Art Conspiracy and Deception Theory”

Cheng Yuan

**Abstract-** “Contemporary art” is universal, but in international commonality, Chinese contemporary art has its specific problems that it faces: this includes scientific falsification and critique of artistic conspiracy and deception, highlighting the contemporary nature of contemporary art’s cognitive function, and connecting relationship with theory and practice, history and logic between contemporary art and artistic phenomenology, such as “world 2,” “practice-spirit” and behavior, installation, etc., thus welcoming the world identity of “cognitive experience” and “spiritual practice.” From the above three parts, the article identifies, “contemporary art” is a view of problem consciousness, concept, and human beings’ independent personality and dignity. On the historical approach and value orientation, she is not only a historical uplift to the function of art cognition but also a historic approach and representation of the era of “cultural experience” and “civilized practice.”

**Keywords:** contemporary art, conspiracy theory, world 2, cognitive experience, spiritual practice, the way of grasping the world.

## I. INTRODUCTION

After reading Ms. Wang’s *Responding to “the Confusion of Contemporary Art”*<sup>[1]</sup>, the author could not help reading a series of texts about “conspiracy” and “deception” of contemporary art and feel deeply “folding” of the local scene context. Everyone knows it’s a complicated and serious problem. The so-called complexity, that is, “field,” is the problem that is cultural, scientific and logical. On the vertical and horizontal axis, it includes all times in all over the world and also involves the “art” inside and outside the current boundary, or the social relations and soil on which all people and things in the community of destiny to live. The so-called grimness is because the high court hangs indistinctly a sword of the state where Ms. Wang has stepped. That makes the originally difficult problem more difficult. More than this, professor Heqing, the man who comes up with theory of “scheme” (the combination of “conspiracy” and “deception”), perhaps thinks that he has treasures, so he is very intoxicated and bands together with the flag conceitedly, like the first person to carry the flag<sup>[2]</sup>. In many articles, he calls Ruiyun, Zhu Qi, Peng De, Wanwan and all potential debaters “them,” regardless of

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age and gender. And his attitude is swollen with arrogance, tease, and abuse what makes people feel like that those scholars have met the soldiers. Facing the posture of “Guardian King Kong” and “Dhrita-rastra” is so inevitable that the observers couldn’t help discussing issues nowadays to have mutual encouragement with the ladies and gentlemen.

## II. THE FALSE THEORY AND PARADOX OF “SCHEME THEORY”

Here let me come straight to the point to indicate three points of view on the logical aspect and base point of Heqing and his subordination’s refutation of “contemporary art”:

Firstly, the “conspiracy theory” or “deception theory” based on Heqing to contradict contemporary art is not proven.

Secondly, the arguments such as “evolution theory” and “pluralism” by which the evidence is based are biased and inconsistent with the facts.

Thirdly, in combination, the whole also can be summarized to the six words that apply to the above two aspects, namely, “pseudo proposition,” “paradox theory,” and “anti-mainstream.” Let’s talk about these two logical aspects.

### a) First level

First of all, “conspiracy theory” is a pseudo proposition of dreadful paradox and unclear logic. We know that judging contemporary art is an international “conspiracy” of the countries, which takes United States as the main axis, mainly because Heqing “found” that the American “system,” represented by the CIA, supported and created the New York School or abstract expressionism by policy and finances during his further education in France. To this point, to avoid unnecessary details of the most basic qualitative judgments, the author mentions neither the “abstract expressionism” that Kandinsky came up during his trip in France or the basis of oriental etymology provided by french “Art Informel” and “Tachisme”<sup>[3]</sup>, nor France’s counter-measures to screen and clean foreign languages for “pure” culture. Here is only a question of reverse thinking: Is Hanban, the Confucius Institute considered to be China’s “institution”? Confucius Institute

International Chinese Education, is it a Chinese country "conspiracy"? As for the "funds," here is a look at the *Confucius Institute Annual Development Report* published online by the Confucius Institute Headquarters in 2016. The report shows that 513 Confucius Institutes and 1,073 Confucius Classrooms, which have been fostered and promoted throughout the world, have been not only distributed in 140 countries, but also published in the "National Social Science Fund" project numbered 16BZZ001—The stage results of the "Research on Political Communication and the Construction of the National Image Rhetoric Case Library under the New Media Conditions" show that the national funds for the Confucius Institutes around the world, "the total funding for 2016 is US\$314116,000, and compared with US\$31,0854,000 in 2015, there is only an increase of US\$3262000." In addition to this, the study co-ordinates the current Confucius Institute "being more and more constrained by the socio cultural structure of the target country," and the domestic economic development has entered an "L-shaped development period" and two other subjective and objective issues, based on the Chinese program and proposition of human "destiny community construction," quoting the vision and concept of "global governance" in Western politics, focusing on the two major aspects of the "re-establishment of goals" and "re-setting of strategies" in the international Chinese education of Confucius Institutes, putting forward seven aspects of the "development strategy"<sup>[4]</sup>, such as "reschedule of tasks," "repositioning of the image," "redesigning the image of the institution," "redefined the teacher's identity," "re-discipline of the subject type," "re-planning of the school level" and "re-adjustment of the spatial distribution." Also, as for the *Ministry of Culture "One Belt and One Road" Cultural Development Action Plan (2016-2020)*<sup>[5]</sup>, which was promulgated in recent years, approved by the Central Propaganda Department, supported by the Ministry of Finance, sponsored by the Ministry of Culture, and organized by the National Academy of Fine Arts in China. "The National Painting Institute's 'One Belt, One Road' international art project," and its funds to "Asia, Europe, Africa, and the world," and constantly create the "One Belt, One Road International Art Alliance" institutions and fund input at home and abroad<sup>[6]</sup>. There is no need to say more here.

The above examples have three meanings: Firstly, common historical sense tells us that "language" is not the only culture, but also politics, it is an ideology, and is directly related to the economy. Moreover, in terms of the functionalities politics, the language of words is far more effective and directer than the art language. Secondly, common social sense tells us that at least at the present stage of human civilization, where cooperation and game coexist, any normal country has its international policies and cultural strategies, and it is as same as "an open door" on academic study. Thirdly,

common logical sense still tells us that if these international cultural policy and strategy normal countries have were called "conspiracy" and "deception," then for this serious paradox of both history and logic, if there were no double standards, first of all, China would not agree! The Chinese, even the Chinese art circles, including the China Artists Association, would not agree!

Secondly, the "deception theory" is Heqing trying to hide the shortage of his own "conspiracy theory" but exposing more, and is an amendment to the "clickbait" that hardly justifies himself. To be precise, it is "Tongbian" ("adaptation") and disguise of its pseudo proposition. The author doesn't know whether Ruiyun, Zhu Qi, and Wanwan notice or not that Heqing has already realized "pseudo" of his proposition. There are three points of behaviors: Firstly, the *Artistic Conspiracy* is renamed *Contemporary Art: Century Deception*, who published in just seven years. It's not only because he wants to "correct" his academic deficiencies, but also cover up the urgency of success and the essence of desire to favor, and use the name of "academic" to whitewash his inconspicuous conspiracy theory. And that is "amendments" of these three eclectic personal logics. Secondly, Heqing has spared no effort in defending his conspiracy theory of *Artistic Conspiracy* in many other articles such as *Responding to Ms. Wang - The Missed Blank Shots* and *Reanswer Dr. Zhu*. But there are three horrible arguments: (1) The so-called "preface" of the book has an explanation early, "The 'artistic conspiracy' is based on the title of an article by the French philosopher Baudrillard." (2) Confessing the United States to promote American style's "contemporary art," which is "under the sun. Just that the Chinese people...have almost no knowledge. It's called 'conspiracy' that is also appropriate.... I have already stated that 'contemporary art is an open stratagem.'" (3) His "wardrobe malfunctions" even disgraces himself, and he said, "In *Artistic Conspiracy*, there are a few hundred words in the conclusion describing 'artistic conspiracy.' In 300,000 words, the description of 'artistic conspiracy' has only these two places" (the other is the "preface"). Thirdly, after defending these three points in his hundreds of thousands of words, he still covers up his errors dishonestly. In the end, he blamed the "conspiracy theory" on that others are sentimentally "taking the words too literally."

So for the three arguments, although the reason is magical, every point is untenable. Firstly, the article *The Conspiracy of Art* by Baudrillard (connected to the trip of the United States) was dealt by Heqing technologically. Baudrillard mainly focused on his specific academic vision and issues. That is, in the "consumer society," those "empty," "challenging meaning," "no more critical judgments," even the art of "advertising" that good at manufacturing consumption,

and its "systemic production of symbols" mechanism not only acts as conspiracy but also becomes a "perfect crime" [7]. It is certain that in the commercialized society because real original works of art are always rare. This kind of phenomenon has spread around the world, and China is even more serious, but it's none of the CIA's business. Secondly, the confession of Heqing is equivalent to saying: If you don't know what Asia, Africa, Latin America, and the world are doing, you can "exactly" regard the world or everyone as the existence of "conspiracy" --a second thought incurs profound fear. For the ordinary people, or the human's limited cognition of the universe, it is tantamount to confusing the world by fabricating the boundless conspiracy. His "words of wardrobe malfunctions" are even more absurd: in this "300,000 words" of "conspiracy theory," he claimed that there are "only" "two places" in its preface and conclusion. Use only the "several hundred words" to discuss conspiracy-- others don't say that is the root cause of his change of title for his guilty conscience, and want to ask, what "conspiracy theory" talks about if it doesn't talk about "conspiracy"? If it doesn't talk or talk less, it can only be a "clickbait"! In other words, on this issue, Heqing's behavior is not only irrational and irregular but also precisely the extreme overdraft of its own "surgery," which makes another feel that he has ulterior motives and other attempts. As for his almost confusing justification, in the end, we "wan wan" inevitably need to ask: The title of "conspiracy" or "deception" is the result of professor yourself's putting Zhang's hat on Li's head, grafting "hybrid," why say others "take the words too literally"? And why say others are "bogus academic study"[8]?

#### b) Second level

To cover up the emptiness and embarrassment of his own "surgery," Heqing blames for the development of "contemporary art" for two reasons. One is the people's superstition to the Western "evolutionism" of "evolution = progress" that he set. One is farcically using the help of "art," "diversity," other "hybrid" words, and the power of evolution to frame the contemporary art's "odd, puissance, turmoil and deity" of "theory of progress." But unfortunately, his connotations and opinions are not valid. Let's outline the historical facts. First of all, from the "Yi-Dao" organic nature concept's outcome *Er Ya* "animal articles" in China to the *Animal* of Aristotle, the concept of China and foreign evolution has a long history and is not exclusive to the West<sup>[9]</sup>. Secondly, from the "evolutionary view" to the "evolutionary theory" that formed in the "modern times," its contents are rich, there are not only the theory of biological evolution (1859), that Darwin inherits Lamarck's "gradient theory" (1809), but also the psychological evolution theory of H. Spencer (1850-1880), the cultural evolution theory of E. B. Tylor (1871), the social evolution theory of L. H. Morgan

(1877), and the cytology and conservation of energy in the 1930s and 1940s, the ecology of the 1950s and 1960s, the Heat Death Theory, and the classical genetics established by "gene separation, free combination, linkage and interchange" [10], the dialectical practice development view (1884) with the universal connection between the 1970s and 1980s and the plant mutation "catastrophe theory" (1901) [11] at the turn of modern times--all these things, what is to be said is that in the modern classical evolutionist school, the limitations of history, of course, make certain doctrines have some linear thinking and ladder concepts. But in "pre-modern" that "contemporary art" is far from the "modern," here is neither mention that Lamarck's "Law of Use and Disuse" (variation=adaptation) genetic theory has been around for 210 years, and Darwin's "undirected random variation" for more than a century and a half<sup>[12]</sup>, nor mention that the "Poincare Conjecture" formed an important advancement to the "topology" nonlinear complex science (1847; 1895), the "theory of relativity" (1905-1915) has brought time and space curvature, and "photography" has already had a major impact on the art approach<sup>[13]</sup>, overall modern evolution theory has researched micro, macro, qualitative and quantitative aspects or by the opposite direction in various fields such as "phenotype" and "molecular," "environment" and "structure," "evolution" and "degeneration." Its exploration and reconsideration is neither what Heqing can imagine nor as simple as its chosen, even more, the "Genetics" of the new Lamarck-New Darwinism that grew up with "modern art" (1870; 1917)<sup>[14]</sup>, the occurrence of "quantum mechanics" and "ecosystem" ideas(1895~1935)<sup>[15]</sup>, "Comprehensive Evolution" constituted by multidisciplinary knowledge like biomolecules, chromosomes, population inheritance, and biogeography (1937; 1960)<sup>[16]</sup>, especially the "degeneration theory" brought about by the reduction of gene entropy in the 1940s (1944) [17], and the more open "traversal science" inspired by the "SCI" three theories<sup>[18]</sup>, "cultural ecology and multi-line evolution" formed in the 1950s<sup>[19]</sup>, moreover, human thinking has undergone major changes. Furthermore, in the period of late modernism and even post-modern art, science and culture are even more varied, such as "neutral theory and intermittent balance theory"<sup>[20]</sup> that emphasizes the "random drift" of genes, dissipative structure theory of cross-interaction between organic and inorganic circles, catastrophe theory, generalization of synergy theory and other "DSC" new three theories<sup>[21]</sup>, and fuzzy theory, string theory, and super-circulation theory (1965-1971)<sup>[22]</sup>, Chaos Theory (1963) inspired by the former theories and constantly developed, Fractal Theory (1975)<sup>[23]</sup>, M-theory (1994) and other contemporary "complex system theory" and "extents" are even more "unreducible complexity"<sup>[24]</sup>, making science and culture explore the "butterfly effect" and "coupling," or "high-dimensional" flexibly see the

world<sup>[25]</sup>. In the continuous transcendence of the binary oppositional thinking and the law of causality, the inter-subjectivity and interdisciplinary interaction have been expanded unprecedentedly, and the "knowledge evolution theory" (1972)<sup>[26]</sup> of scientific falsification has been further opened, the "evolution epistemology" of consciousness psychology, the "co-evolution theory" of behavioral interaction (1973-1990), etc.<sup>[27]</sup> Of course, in the broader historical picture, this does not include the genealogical release of "cultural diversity" in academic thoughts such as modern sociology, ethnology, linguistics, communication, semiotics, and new cultural history<sup>[28]</sup>. It does not include the advancement of the "decentration" idea of the cultural evolution schools and also does not include the subversion of "tool rationality" and the promotion of "liberal rationality" by the doctrine in the history such as the Nietzsche action philosophy, Freudian psychoanalysis, the Frankfurt school social critique, and the Birmingham school culture study-- it may be said that the "self-organizing" mechanism<sup>[29]</sup> based on the nonlinear multiplication of things themselves, constantly breaking the existing knowledge framework and scope, as the common direction and characteristics of modern and contemporary chemistry theory, has already constructed the historical background and context of contemporary art.

It can be seen from the above that Heqing criticizes the world's admiration of "contemporary art" because the so-called "evolution theory = progress theory," and the blind worship of "progress" is nonsense and inconsistent with historical facts. It is better to leave the aforementioned historical background and knowledge pedigree to the readers for their thoughts. Here is a brief description from several aspects: First, in terms of the source of Chinese and foreign evolutionary theory, whether it is Darwin's *The Origin of Species*, or the "anti-evolution" 's first user Yan Fu, and Huxley who is Yan Fu's translation *Tian Yan Lun(1898)* 's author. They don't define the direction of "evolution," and they all think that natural adaptation include "forward" and "back"<sup>[30]</sup>, so there is no need to mention history to constantly tell people that "there is no direction in nature" or "*Evolution*" (*multi-directional, and Non-unidirectional*) rather than "*Evolution*" and other common sense<sup>[31]</sup>. Secondly, from the etymological point of view, the English "evolution" is also non-directional. People with a little common sense also know that like "art" and "diversity," the word "evolution" is also a Japanese import word<sup>[32]</sup>. Now some dictionaries use "evolution" to correspond to "evolution," which is just the grafting and solidification of modern Japanese concepts. As for Heqing's transformation of "evolution" into "progress," it is just relying on foreign forces to raise himself. He was influenced by the earlier Japanese prejudice but pretended not to know. Third, perhaps Heqing will ask: People and artists at home and abroad are not all evolutionary scholars. How do you know that "evolution"

(multi-directional and Non-unidirectional) is neither "evolution" nor "progress"? The "literati painting" in Confucianism and Taoism, and the "Renaissance" in humanism, no one can deny the relationship between impressionism and photography, Chirico and Nietzsche's philosophy, Duchamp and Oriental Zen, surrealism and psychoanalysis, pop and commercial consumption, experimental aesthetics and neuroscience. Life is universally connected, and the world is related to each other, not only with the butterfly effect but also with "1+1>2" Synergy Effects. Fourth, even if one step back, saying "evolution" is equivalent to "progress," in the words of ordinary people, its legitimacy is much better than "before returning to liberation overnight." Moreover, the historical theme of our country is to constantly innovate, develop, and progress. Because in the human community where cooperation and game coexist, from the individual to the country, from the national destiny to the fate, the path of evolution's "change" is absolute, "not change" is relative, and "no progress simply means regression" is also certain. Fifth, the unavoidable fact is that all modern sciences and contemporary civilization are in a broad sense of evolution in their self-consistency. The so-called "evolution theory" is nothing more than a part of the "mosaic" maps embedded in the human science culture. It is a dynamic puzzle and picture that cannot exist in isolation and is constantly extended. In other words, the rigid eyesight and the horizon are naturally unable (or unwilling) to understand the world picture of this organic connection, and thus it is difficult to transcend the "national center theory" and fall into the mud of cultural relativism. Sixth, the more paradox is that Heqing used scheme instead of academics, and used political correctness in a covert way. He exaggeratedly pulled up the national banner of the "Chinese Communist Party" to put pressure on people to shut up. At the same time, with a scornful attitude, attacking the development of China's "contemporary art." The source is precisely the ignorance of this country and nation, from the Artists Association, the Academy of Painting, the university, to the government departments and ignorance of the people. His logic is no different than saying that Chinese people have no thinking and discernment, and China is backward.

To pierce the bubble of "conspiracy theory," it has to clarify the words "one-dimension," "multi-dimension," and "diversiform" of Heqing's unclear culture. This is also a general education issue. In short, the author believes that the most rigorous expression is *Convention on Cultural Diversity* passed in 2005, the 33rd UNESCO (the full name is the *Convention on the Protection and Promotion of the Diversity of Cultural Expressions*). As a worldwide convention, it is no accident that the culture "diversity" is used instead of "pluralism"<sup>[33]</sup>. In life, even in some academic terms, similar to the words of "culture" and "civilization," the

common reason for the mixed-use of the two is that the meaning of the words themselves overlaps, and the second is because the complexity and interrelationship of the problem itself, the third is that in different disciplines, the use of concepts usually has its meaning and definition<sup>[34]</sup>. However, in the meta-science and empirical, overall and reduction, and in the study of the cultural classification, this situation is not only unreliable but also brings significant ambiguity and fallacy. As far as Chinese is concerned, "yuan"(元) and "yang"(祥) are two meanings belong to different levels. In the annotation of Chinese characters, the primary meaning of "yuan" is two: one is "primary, initial, universal," the second is "basic," and in simple terms is "primary" and "fundamental." Then corresponding to an academic point of view, the "yuan" belongs to the ontological category of the "first-order" of philosophy rather than the technical morphology problem of the "yang" word that can be transformed into quantifier. In other words, if human beings are relatives from "civilization" to "culture," and "everything can be correct," it is equal to having multiple suns in the sky, and that is not just fake pluralism. It is the separation of small self-personality and the dispersion of human nature. The fragmentation of Marx's so-called "human own kind's essence" can only be caused by humane bankruptcy and great disasters. The "Yi shooting nine suns" is the best warning to the most basic way of human survival. Because, at least on our existing planet, the so-called "yuan" rather than "yang" belongs only to those lifebloods and primitives that are irreplaceable, just like the relationship between flowers (diversity) and the ground (one-dimension), everything (diversity) and the sun (one-dimension), The so-called "one is the child of the divine law. After one comes two, after two comes three, and after three come to all things," and "yuan" only belongs to the basic law that conceives everything, is indispensable and indispensable. In other words, the truth about the sun (Spennosha) is the unity of human relations, humanity, human nature, that is, the so-called "generic nature" of Marx. This not only determines cultural attitudes and grammar but also provides for the identification and falsification of everything that wants to override it. Therefore, the "yuan" (philosophical) here is not the same as the "yuan" (morphological), and the "one-dimension" is compared with the "multi-dimension." It is not scientific grammar, and it is confusing right and wrong, bringing the negative consequences of civilization and ethical disorder. If the principle is unknown, there is no right or wrong. In this sense, the principle of "cultural diversity" rather than "cultural pluralism" in the World Cultural Convention is that "culture" is diverse, just as "civilization" is one-dimension, and the diversity of flowers is rooted in the radiance of "sunshine is the truth." The true "contemporary art" is precisely to pursue the sunshine

as its duty, to resist the "Calling White Black" of relativism and absolutism, which not only opens the way for the mutual development of Tao and Qi. It has become a magic flower of contemporary civilization in the literary garden. As far as Phylogenetics is concerned, it reflects: what people lack is what they need; people create because of their needs. As Marx saw: no need, there is no production-- everything does not transfer with any "scheme."

### III. THE CONTEMPORARY NATURE OF THE "CONTEMPORARY ART"'S COGNITIVE FUNCTION

In the past 40 years exploration and recognition to the art of the author, first of all, the author wants to say to all the friends who are confused about contemporary art, "contemporary art" not only pursues beauty, aesthetics, but also has new features and new connotations that different from previous art. As far as the author is concerned, cognizing the aesthetic cognitive logic of contemporary art, at least based on five interrelated nodes, what is the beauty or where is beauty from, depending on the vision or perception, serving culture or civilization, pursuing creation or experience, is skill or life.

As far as what is the beauty or where is beauty from, not to mention the sternness of Chinese bronze art, Zhu Da's (Qing dynasty's painter) vagueness that his ink droplets are less than tears, the most convenient analogy is the collision of the "modern" and "pre-modern" artistic dissidents in common sense. Most people know that modern art, which is acceptable to many people today, including Heqing, was initially ridiculed and depreciated. In the age of accustomed to the academic "pretense" and classicism "beautiful paintings," people felt "vulgar," "barbaric" or even "ugly" of impressionism's straightforwardness and Courbet's sincerity (so-called "Let art face contemporary life"), the beast of the Fauvism, etc. In their eyes, this modern art, which makes them confused and eye-catching, may be worse than today's "contemporary art," and even worse than "garbage." Also, from "The Burghers of Calais" to "Omier," Rodin's most beautiful and valuable works have also been criticized for being "so ugly"-- and so on, because of historical iterations, or the congregate right and wrong, the dialectical and artistic transformation questions of the beauty and ugliness have always been revived. But on the other hand, this not only reflects the "frame"<sup>[35]</sup> that was built in modern times and shaped people's aesthetic , cognitive psychological set-up and "framework." It also shows that people have been reconstructing art significance, returning to the multidimensionality of the art's original nature, and the efforts to break through the "beaux-arts"<sup>[36]</sup> form that has been solidified since the 18th century have never stopped for nearly a hundred years

because of changes in the times. There are several important points and justifications for this: first, the beaux-arts is not a meta-concept. Both prehistoric art and global art history show that "art" does not occur because of "beauty" and "beauty" is not born for art, either. There is no necessary homogeneity between the two. Second, the "beaux-arts" is due to the theory of "beauty," but the theory and connotation of "beauty" are changing from object to category, from objectivity to subjectivity, to subject-object relationship and inter-sex, and its rise and fall, also completed in modern times. Third, in terms of beauty, aesthetics, or aesthetic composition, the "truth, goodness and beauty" corresponding to "cognition, will, mood & emotion" is inter-conditional and mutually exclusive in history, and there is no fixed paradigm and pattern (the decline of formalistic aesthetics is directly related to its inherent petrification). In other words, from Baumgarten, Kant to Hegel, the origin of the subject of "Aesthetics" and the original meaning of the German word meaning "aesthetics" (Ästhetik) is the knowledge of sensibly grasping the world's truth. That's also determines that "beauty is not beautiful" (Wu Guanzhong), not limited to "blooming flowers and full moon" (whitewashing would make it ugly). Genuine knowledge and truth are great beauty, real beauty in the confusing place that full of demons and monsters, inverting Hegel's view of history, or using Marx's aesthetics, in the practice of human history seeking truth and self-liberation, those "sublime" and "tragedy" are more magnificent and beautiful. So that "old-fashioned" artists like Rodin can understand, "there is no ugliness in real art unless it lacks the external or inner true quality." "Art expresses truth, advocating truth, even ugly reality"<sup>[37]</sup>. Fourthly, the internal synergy of "cognition, will, mood & emotion," and the mutual transformation of "truth, goodness and beauty" is one of the typical characteristics of art, especially "contemporary art," both internal and external, and the subject-guest isomorphism. It was also Marx as early as 1857, in the *Introduction to the Critique of Political Economy*, it is an important way for human beings to "grasp the world" that has been affirmed. If combined with his *Economic and Philosophical Manuscripts (1844)*, "the beauty is the objectification of the essential power of man," and the "all essential power" of man--"all abilities" and physical "activity" to create an understanding of the views, then, this way is not simply physiological, but an intuitive way of including social cognition and cultural judgment, which has a rational character and can more deeply and accurately judge things. Fifth, global scholars based on the new requirements of historical development, such as Maslow, added: "the need for knowledge"<sup>[38]</sup> to his "demand hierarchy" as a supplement to the advanced needs of people's "beauty" and "self-realization." Peng Jixiang, a professor at Peking University, in his *Introduction to Art*, evolved the primary function of art into "aesthetic

cognition," thus highlighted the value of "cognition" in aesthetic realization and distinguished the traditional view between "aesthetic" and "cognitive."

So is art dependent on vision or perception? The answer here is, "contemporary art" certainly depends on vision, but it is by no means limited to vision. In other words, not only because common sense is that vision is the basic tool of human activity, but more importantly, anatomically, optesthesia may be the retina that covers a large area of eyeball and first is the only externally visible organ of the brain, which is the "part of the brain that can be directly observed"<sup>[39]</sup> and thus it's number one's social organ of human beings. Second, as a kind of thinking activity, from the "vision" to the "visual perception" of Arnheim's meaning, in the words of modern neuroscience, it is a complex process from the "biological mechanism" of visual cells to the deepening of mind and body. Third, whether in brain science or cultural science, "look" and "see" are not a concept. In this regard, the American neuroscientist and Nobel Prize winner Kander recently revealed from the perspective of art that the "biological mechanism" is completely different from the camera imaging principle: Visual information reception and processing is a progressive process consisting of "deconstruction-reorganization-interpretation." The so-called "deconstruction," that is, when the eye focuses on the object, the most basic visual cells can recognize scattered information, such as lines, contours, relative positions, and colors of specific wavelengths, temporarily forming a rough two-dimensional image on the retina. The so-called "reorganization" means that intermediate ganglia integrating these relatively local and fragmented information, and then take shape a rough rudiment. "Interpretation" is the advanced upload processing; the brain vision center first chooses the relevant shape and filters out the unnecessary fragments. To extract the characteristics of things, and then call the existing knowledge, memory and imagination, and finally create and "see" a complete image of intention--this kind of internal and external, passive and active, biological and social quiet progress and integration, inevitably have two consequences: vision itself is a kind of creative thinking<sup>[40]</sup> that is isomorphic by illusion, misunderstanding, and trade-off. For things that have a cognitive boundary beyond the viewer, they will be "turned a blind eye." Fourthly, in this regard, C. G. Mueller, a consultant to the American Vision Research Council and a professor of neuroscience and psychology, said, "Vision is not only a means of survival but also a tool for thinking and enriching life."<sup>[41]</sup> In this way, it is not difficult to understand that, on the one hand, the so-called "art serves the mind rather than the vision" - this Duchamp's famous quote spread by the *Marcel Duchamp* has its internal logic, on the other hand, as far as the guidance of Marx objectification theory is concerned, the visual perception or visual thinking as the result of historical

practice does not only make this special thinking quality more in-depth objectification in its contemporary art practice, but also requires people to continuously develop and enhance this thinking quality and cognitive ability in various aesthetic activities. Fifth, closely related to it, there has always been such imbalance or non-synchronization between art and social development. This problem is not abstract, but specifically refers to the changes in science and technology, cultural climate, and social appeals, which will not only trigger the adjustment of the relationship between art autonomy and other governance dynamics, at the same time, it will bring different emphasis or change to the art category, language form, and subject matter. For example, the Wei and Jin Dynasties statues were initiated in Buddhism and Taoism, capitalist vices promoted the development of critical realities, photography led to the synthesis of film and television, and contemporary technology fostered high-dimensional and holographic art. In other words, the so-called historical imbalance also includes the multi-layered nature of time, for example, some people live in the past, some live in the present, some live in the future, and some people continue to travel in and out. Therefore, this naturally includes people's changes in the world, the development of the times, and the desynchronization of appropriateness and discomfort in the psychological dimension. In reality, it may be said that the poverty of thought, the need for truth, and the curiosity of the unknown world make the service of understanding, satisfying the genuine knowledge and "visualizing the thinking"<sup>[42]</sup> of "contemporary art," it has become a new historical focus and needs.

Furthermore, does art serve culture or civilization, system, or meaning? This difference is a complex issue with different contexts and different word formations. Firstly, the pre-concepts of Spengler and the local academic circles on this issue are excluded. According to the principle of subjectivity, "culture" is understood as a locality and transactional perceptual lifestyle, and the term "civilization," borrowed from Marx, as the level of "human's generic nature" that exists in these lifestyles; or, the culture is summarized as the "sense of presence" of life, and the civilization is defined as the "sense of belonging" of value judgment. Then, from a macro perspective, from ancient times to modern times, Chinese and foreign art first meet the "cultural" needs, and then pursue a higher level of "civilization." If in a long historical period, the so-called "all the lands in the world belong to the King," which makes the alias of "politics, education, and ethics," that is, culture is an ideology, lifestyle is political order, and in turn, social regulation is culture. Life ethic is a system, and there is an identity between inside and outside. Moreover, since the Renaissance, the concept of the purist "beautiful art" without the interest in Kant was debuted. In the 600

years of the mid-20th century, this kind of "self-discipline art" by Bertin called "true art history." It is also quickly hired by the capitalist "material abundance society" of "daily life aestheticism," through the arts and crafts movement, the new art and decorative arts movement, and the "popular modernism" such as the Bauhaus movement expand the fields and boundaries of artistic culture and cultural consumerization, so that the so-called "interpretation of truth"<sup>[43]</sup>, the "pure art" that supports "freedom," and the service life, depending on the use of things, paying attention to the "practical art" of formal aesthetics, together, it has moved toward a road of "cultural industry"<sup>[44]</sup> that has the same appearances but different spirits and is isomeric. It is a production of craft decorations that have lost tension in social reality. This situation can be described as a long-time habit which becomes a routine, making Dilthey early sensitive to pretentious, and even the concept of "dead beauty" has been pushed to the throne of art theory for too long<sup>[45]</sup>, so that today, it has arrived in "beauty abuse" degree that Danto called. Of course, on the other hand, this also has its historical and human reasons. As far as ancient Greek art is concerned, the combination of rationalism and natural realism is not for individuality, nor for supporting "imitation," but for practical needs: the consensus and thought of the era, the truth of the community Complete "packaging" with faith, as well as emotions and imagination, in a materialized and intuitive way, fully delivered to people who have neither educational background nor writing skills<sup>[46]</sup>. In other words, the mythical (religious) engraving of anthropomorphic and pleasing, as a complete world that integrates both the subjective and the objective, must firstly follow the daily visual experience of the human being, and then introduce it into the realm of the physical and mental linkage and receive the "truth." This tropism is a natural, human-oriented, timeless, and universal road. However, this model of "beaux-arts"<sup>[47]</sup>, which was once hailed by Hegel as a form of content to achieve "complete unity," was also "disintegrated" ("passive") in the prejudgment of his history of ideas. The reason is that, in terms of the objectivity of its objective idealistic historical view, the prosperity of the capitalist market economy has holistically cultivated a "civil society"<sup>[48]</sup> that Cicero regarded as a "civilized society." This society is composed of people who have culture, can reflect, and have free will and independent personality. They are not limited to passively "receiving" the world in the traditional way of nature, but tend to be more aware of reality, past and future, with an autonomous, higher-integration, higher-intelligence introspection, to make cognitive judgments and thoughts. In other words, the advent of the civil society era, especially after two great wars and various nominal turmoil, people are not satisfied with passively accepting the "overall" of "interpretation of truth"; artists, disdain to the pastor

repeating what the book says during sermon; and the audience, as the completer of the work, is more inclined to what Theodor W. Adorno said "over the overall trend towards fragmentation" to independently exercise themselves to discover problems and watch power and fun of the truth. In short, aesthetic activities are no longer a matter of accepting the gimmicks that have been chewed by the elders as children - so that artistic transformation is a refutation of feudal narrative and purist aesthetics, letting art approach thought, Philosophy, nature, life, reality, truth, the unknown and infinity constantly. Or to say that, in this, people want to have sharp eyes, to distinguish the monster in the various "cultural beauty" fog. Therefore, the identification of right and wrong is not only the need to judge the beauty and ugliness and meaning. At the same time, it also reconstructs a tension relationship between art and life that two opposing or mutually dependent things are mutually exclusive and mutually reinforcing. According to the "new history" terminology, this makes "contemporary art" from the traditional, closed "mantle" to the "attic" that is open-minded and internal and external, so that its meaning is not limited to the inside of the work, nor is it limited to the history of art autonomy. It is itself, but openly generated in the "civilized illumination" of life (the public) and its text, and the cultural judgment and choice under the illumination of the candle; the so-called art history, also historically becomes a kind of construction history of "cognizing" and "reshaping" civilization of the times. Finally, it must be noted here that the "the horizontal nature of history" brought by civilization makes the development of culture not simply a kind of anteroposterior substitution relationship. Under the illumination of civilization, generally outstanding culture that has the "generic nature" of human beings, thus giving people "sense of belonging" will always be transformed from a diachronic sequence into a synchronic coexistence. Just as we like Weibo, but it does not hinder the enjoyment of Tang poetry and Song poetry; respecting ancient Greek carvings does not affect the appreciation of behavioral devices. As the benefit of civilization, the change of history is actually only the uniqueness of a certain way and the absoluteness of certain contents on the dining-table. Therefore, the dining-table of civilization becomes sources of diverse contents and rich nutrition. In this sense, tradition has never been an urgent thing. The active qualities of self-owned illumination or "illustrating illustrious virtue" can not only naturally pass through time and space, but also is possible to make new traditions by real distillation and creation. So in a certain sense, tradition is not used for inheritance, but for creation. On the other hand, we must also see that art development is like wheel rolling, although the spokes such as art, music, films and television, literature are all stressed, or the ancient, modern and contemporary art are playing roles, but history also tells us that different

eras and different fields will have different needs and focuses on their own different contradictions. For example, in contemporary China, the main problem is the middle link between human and nature. In the international contemporary, there are more issues facing the relationship between human and nature and the future. From the overall perspective of the historical relationship between "human-culture and society-nature," if people and society had experienced "imitation" of nature and "the Dao Emulates Nature," then today, whether as a symbol of freedom or spiritual Civilization, art would make life and mind become demonstration and illumination of "nature itself," thus constantly seeking the disintegration of the obstacles and the division of time and space by using active mechanisms ,such as its own structural openness, the inter-relationship, the random and abiogenesis of the process. It may be said that in the self-consistency between history and logic, there is no "front-rear" and "left-right" in reality, but only problems and struggles of "uphill" and "downhill." To put it bluntly, the so-called art is the viewing of truth. Actually, it is the observation of the problem consciousness, the observation of why human is human, the independent personality, thought and dignity, the observation of the values and cognitive understanding of how to be a person and how to live as a person- and this is exactly why "contemporary art" has become the reason of the most powerful spokes on the wheel of history.

As for whether contemporary art pursues creation or experience, and whether it pursues art or meaning, they are overlapped internally, so it is advisable to talk them together. First of all, from the perspective of art media history, from prehistoric times to today, natural minerals (pigments), clay (clay sculpture), stone (sculpture), artificial metals (bronze, etc.), painting materials, photographic equipment, silica gel, electronic media, as well as human beings with the dual nature and society, all of them co-structure the history of art. But is art for creation? Among them, especially in the past of modern art, although in the sense of Platonic Hegel, as the perceptual carrier and tool of the idea of presentation, the creation of works is indeed an indispensable and important appeal. However, investigate its root, art creation, still belongs to tame the means of the thoughts and feelings, rather than the final goal, this is the first. Second, since modern arts and crafts and art design took over the creation mission of life aesthetics, history has naturally strengthened the division of art again. From the readymade apparatus of dadaism, the "Gesamtkunstwerk" and social sculpture of the language media by Joseph Beuys, the "feeling" and "punctum" of Diane Arbus images, Tunick, Marina Abramović and others' behavior context and performance beyond the body, the interaction and flow between Antony Gormley and others, Christo's package

of islands and oceans, and the Ichigo-Tsumori earth art by Fram Kitagawa. At the same time, it includes Pop Art, Happening Art, Fluxus Art, Conceptualism Art, and even Poor Art and Situationist International, etc. These so-called "anti-art history" or "post-historical art," as the two sides of a coin, have a common trend of value, which is to find and create the expression way of post-modernism, and to launch a systematic refutation against modern and even pre-modern art, on the other hand, according to the post-industrial spiritualization and mentalization, the existence of industrialization materialization is carefully questioned and reflected. Therefore, postmodern or contemporary art itself has also acquired the characteristics of different art in the past combine into one. Third, what is different from the past is that it unifies the extreme contradiction between extreme abstraction (ideal) and concrete (sensual), extreme daily and abnormality, extreme experience and super-experience. It is transformed into a psychophysical phenomenology that is as difficult to define as life and the universe. Therefore, from the surface, these "contemporary art," which are different in appearance and grotesque, seem to return to "life" and serve life in connection with everyday life. But their essence is to establish a parallel relationship with life that is close to the parallel world. Fourth, this relationship makes art in life but not mingle with life. Thus, existence and consciousness have acquired intersubjective; Art and life also maintain interaction and distance. Thus, they have reached a spiritual practice relationship with both tension and zen. Fifth, objectively speaking, this relationship as a new historical phenomenon in the new era makes artistic creations, including the ancient Greek idealism and parody, the formal aesthetics and media-centrism of the German-Austrian vein, and those based on fixed media and the established technical system of art. All of them began to lose glory in the 1960s. Although Lycett, Kiefer, and others did creatively support and develop the charm of art on the easel, this is no longer an absolute or unique thing at the civilized table. Sixth, it is also the most important aspect of history and logic, that is, the continuous, ups and downs, and random life itself, which has become the highest object of the continuous cognitive experience of artistic life in it. What is "art"? This problem compels Gombrich and many other important art historians to face this human proposition brought about by man-made things, and can't help but give this answer: there is no such thing as art, in reality, only artists<sup>[49]</sup>. Finally, in general, at least in the concept of "temporary art" that is not temporal, the art of life itself, which is "spirit for the spirit of the object," is neither creation nor skill. In other words, contemporary art is intellectualized, not intended to be reused and conserved. It faces the unknown and opens the window to a known world that has been articulated. It is a huge difference from the traditional art that pays attention to

practice, and pays attention to repeated use and keeps craftsmanship. Also, although the skill also contains the mind, the skill of traditional art is specific, and its object is quite fixed. In other words, contemporary art also talks about technique, but the object of its technique is always changing and uncertain. Therefore, in contemporary art, the so-called technique means discovery and new experience. Its value can only be explained when it is itself as a cognitive occurrence and an experience of meaning. It may be said that, as a free and self-explanatory spiritual expression of life itself, or work as art-- art as artist, and artist as an artistic living ontology that breaking-making as a unit, construction as deconstruction. Making the purpose of contemporary art is fundamentally the creation and experience of life's meaning, and the self-examination and return to the trueness of experience as cognition and performance. Although different contexts and different fields have different specific ways to face them, this generally constitutes the core values and issues of "contemporary art."

#### IV. WELCOME THE RETURN OF THE "COGNITIVE EXPERIENCE" 'S "SPIRITUAL PRACTICE" WORLD ONTOLOGY

In this controversy caused by the "confusion of contemporary art"<sup>[50]</sup>, there are anti-contemporary and anti-evolutionists. The author hopes that Ms. Ruiyun will read the books of Popper, Toynbee, and others<sup>[51]</sup>. As a background, the preceding and related notes in this article have been slightly involved and suggested. However, the author doubts whether inspiring people have a systematic view on the theory of their scholars. Because, according to the author, in terms of the integrity of the ideological system, the recommended doctrine, and historical conception, on the contrary, constitute a rebellion and critique of Heqing's "conspiracy" and "deception" thinking. Toynbee takes the interaction of human civilization as a vision, and breaks the historical limitations of the purpose of specific ethnic groups and countries; needless to say his insights on "imitating ancestors" and "advocating creation" as the fundamental demarcation between "primitive society" and "civilized society"; not to mention the possibility of another "center" in his "anti-Eurocentrism"<sup>[52]</sup>. Here, in terms of understanding the legitimacy of "contemporary art," Popper's doctrine is peculiarly realistic. For example: First, Popper happens to be an "evolutionist" disdain of Heqing and Lin Mu. Second, the most important scientific philosophy falsifier of the 20th century is a firm critical rationalist. Third, about the author's related thinking, and is closely related to this question, this dual scholar of "evolutionary theory of knowledge" and "evolutionary epistemology." In his doctrine of the "cognitive" world, he provided early on the logical way and key to understand how

"contemporary art" generally develops, although this is not its academic thrust, it has not been specifically developed. Then, understanding *The Poverty of Historicism (1957)* recommended by Lin Mu cannot be isolated. It must be combined with *The Open Society and its Enemies*, *The Open Universe*, *Unended Quest*, and *Emancipation Though knowledge* and other works to grasp the overall. Of course, the main basis for saying that Popper's doctrine is unique to the recognition of contemporary art and its genesis is his masterpiece *Objective Knowledge: An Evolutionary Approach*, which was published in 1972 and translated into China in the 1980s. In other words, this reflects the thought theory of "three worlds," and the contemporary theory of intersubjectivity, particularly with completely negative by Heqing that is close to the "art of behavior, device" theory of knowledge, although the theory has wide influence in the intellectual community, but unfortunately, by the domestic art as a "technical subject" cognitive limitations, since both in aesthetics or on art theory and practice, has not been due value. Here are some points.

As far as the author is concerned, Popper's "three worlds" theory composed of intellectual ontology is closely related to art, especially "contemporary art." To a certain extent, it can be described as "art cognitive experience theory." This problem includes at least two dimensions of ontology and its relational cognition, as well as value theory and cognitive construction.

The first is ontology and its relation cognition. It is generally known to scholars that there are many theoretical expressions of Popper's thought of "three worlds," but they mainly focus on two books, one is the previously mentioned *Objective Knowledge: An Evolutionary Approach* and the other is *The Self and Its Brain*, which he co-wrote with John Carew Eccles, an Australian neurophysiologist and Nobel laureate. Combining the two, the so-called "three worlds," in Popper's order, is "First, the world of physical object or state of matter. Second, the world of conscious states or mental states, or of behavioral intentions about activities. Third, the world of the objective contents of thought, especially the world of scientific thought, the world of poetry, and the world of works of art."<sup>[53]</sup> Generally speaking, "world 1" refers to "physical world," "world 2" refers to "spiritual world," and "world 3" refers to the textualized "objective knowledge world." Of course, to further understand its connotation, the expression of *The Self and Its Brain* can also be cited to expand the content and relationship of "all Existence and whole experience," which includes these three world definitions. In this way, the so-called "contents," such as the physical world 1, include "the inorganic world (containing the matter and energy of the universe), the biological world (containing the structure of all living phenomena and the human brain), and the artifacts (containing the material matrix of human creativity, the

material matrix of a machine, the material base of a book, the substance of a work of art)." Mental world 2, including "subjective knowledge, perceptual experience, thinking experience, emotional experience, quality intention experience, memory experience, dream experience, creative imagination experience." The artificial and objectified world 3, text overrun, includes "cultural traditions encoded as material substrates (philosophy, theology, scientific history, literature, art, craft, theoretical systems)" and "critical arguments for scientific problems"<sup>[54]</sup>. By "relationship," then, these three worlds are, at the same time, interdependent, interacting, and connected as a whole.

It is worth noting that the people of hermeneutics, reception aesthetics and ever or communications information decoding theory, the influence of the focusing more on intention can be separated from the author "world 3" (objective) of the existence of the autonomy of attention, here special remind and stressed, is only "world 2" unique, irreplaceable importance. Its importance, the author thinks mainly has the following five points:

- 1) In the post-modern era, which increasingly focuses on physical and mental participation, interaction, and contemporary sexual experience, the so-called world 2 is itself a life with "behavioral intention" and "presence" awareness of the meaning of its life "activity." This world, like the true knowledge of "love" and "birth," only exists in the experience of love and childbirth. It is not only real (philosophically called "entity"), but also irreplaceable (having unique). Otherwise, "literature" can cover "music," and "theory" can substitute for "practice." It can be said that in reality, especially in the myth of cultural dogmatism and the impact on officialization, "world 2," which is as old as human history, can be described as an increasingly changing "world 3" often obscured by the world. Regardless of the historical dialectic level or the reality, the return and emergence of world 2 can also be described as a new world that is often forgotten, but always highlights the "conscious state or mental state" of people and society. Therefore, it not only corresponds to the situation of "contemporary art" such as Fluxus, Happening Art, Human Art, Performance Art, Installation Art, etc. but also it can be said that "contemporary art" is also a direct feeling and realizing and biopsy of the true meaning of life in world 2.
- 2) As the spiritual, behavioral world or the practical spiritual world, world 2, while taking world 1 and world 3 as the materials and objects of people's spiritual culture and spiritual production, highlights the initiative of people's spiritual activities, the experience of cognitive behavior and other humanity characteristics. Here again please note: in terms of Popper's English definition of "world 2" and

his detailed list of eight aspects of "experience," such as perception, thinking, emotion and creative imagination, the English word "experience" is also synonymous with "go through" and "sophisticate." In the transitivity of its verbs, it is the pronoun of "personally participating," "personally experiencing," and even "feeling," "discovering" and so on. Just as poetry, painting, or tasting music are always inseparable from the direct participation of "reading," "seeing" and "listening" as the existence and appearance of spiritual will. World 2 also always highlights the behavior of spiritual activity, the embodied cognition (experience) of subject-guest interaction, as well as the daily nature that can act on world 1, world 3.

- 3) World 2 is more connected with the way of classical Marx's "practice-spirit" in mastering the world in terms of behavior and existence. The so-called "practice-spirit" is one of the two major ways of grasping the world that Marx proposed and discussed in his *Introduction to Critique of Political Economy*.<sup>[55]</sup> In academic circles, the theory of Marx's "master the ways of the world" the understanding of the connotation is different, but the basic consensus is that "practice - spirit," not just "practical," also is not the same as "the theory of" speculative, but integrating practice and theory of a "special," "art" to master. The so-called "mastery" in German means the "acquisition" or "possession" of the mind, that is, the "abandonment of the opposition to the object" in spirit, and "this content becomes mine."<sup>[56]</sup> Dialectically, the reason why Marx used "mastery" instead of the synonym "cognition" or "reflection" is to emphasize the practicality of cognitive mastery, to make "practice-spirit," that is, "spirit-practice," in the subjectivity and initiative of practice. Historically, this spiritual practice, driven by thought intention and thought discovery, is becoming a primary universal existence, thus corresponding to the "contemporary art" of representing and propagating the practical spirit and spiritual behavior of world 2.
- 4) World 2, in essence, is a living world of advanced, apperceptive intuitive thinking and free will, a anthropology's world in which, in Marx's words, "the sense becomes directly a theory through its practice."<sup>[57]</sup> In terms of its eight experiences, whether it was perception, emotion, quality intention, memory, dream, creative imagination, and other hunches, intuitions and guesses. On the one hand, it allows us to immediately see in our minds a lot of Chinese and foreign works and "pictures," such as: from the familiar "Fountain," "Seven Thousand Oak Tree," "Brillo Box" and even Carl Andre's "Equivalent," to the Christian Boltanski's fascinating of "The Lessons From The Dark" series

device and "Heart" (one of the world audio file "heart"), had been done in China Asia land Antony Gormley soul "Aperture" and "Quantum Cloud," and Lin Mu said to be a strange woman, Marina Abramovic's "look at each other" of the behavior and performance, and Xu Bing's "ghost book," Zhang Xiaogang's "Amnesia and memory loss," Yue Minjun's "Smirking man," Cai Guoqiang's "the ladder of heaven," and even Fu Xinmin's "The Construction of The System," which connects three of the world's nine major series, etc. On the other hand, it must be acknowledged that these thinkers who think in the way of art or vision, either through their own "social sculpture," or through the use of images and symbols of the "history laboratory," not only provide the world with reality but also reveal more possibilities for society. For this reason, they can be called philosophers and anthropologists among artists, as well as sociologists and historians in the field of vision.



Figure 1: Antony Gormley the Quantum Cloud series

- 5) It is not difficult to find that the world 2 is also a dynamic world that connects, drives, and penetrates the world 1 and 3. This world, constantly searching for the true meaning of the world and pursuing the ideal existence of people who are, connects world 1 where nature is the main body and world 3 where the objectified and objectified "emotionally placing before people's psychology" product<sup>[58]</sup>, and no longer controlled by the subjective will of the theory, concept, symbol and other constructors. And the connection becomes a living and developing whole. In the meantime, people can use Michael's so-called Warhol's "mindful drama." On the one hand, it can find the potential of corpus and pragmatics in the world 1 and 3, and on the other hand, borrowing the meaning of the language material and the attribute through a certain "summon structure" to inspire reality and shape the world. Just as the language media is discovered, the medium is the idea, that is, the connection of three worlds. But this is by no means a purely personal emotional shift. In

the identifiable and interpretable nature of word formation and meaning, the artist must make the self "become him" and change others into "he and me." Taking "glass" as an example, in addition to its daily light, rain, etc., there are also "transparent" and "simple" indicators. Of course, in terms of language, it can also be another name for "brittle" and "fragile"; even, it can delay the semantics of "sharp" and "dangerous." The same language media has both the tension between feelings and concepts and the multi-faceted nature of tension. At the same time, the linguistic, symbolic, and inter-directed images also constitute the "non-identity" form and "riddle traits"<sup>[59]</sup> of contemporary art. It can be said that the common sense and experience of concrete, "different from itself" and difficult to discipline and solidify that explored hiding in the media, meaning and people's stereotypes, makes it possible to connect with others and become a semantic community that can communicate with each other. To be precise, from contemporary art to the development of science and technology, it is this kind of active mechanism and logic that makes human civilization in sustainable development show vitality, multidimensionality, and openness, which are different from before.

In summary, Heqing and some of his art "amateurs" apparently did not think of Popper's world 2 when they turned contemporary art into "garbage," and Lin Mu may not find that the evolutionists he questioned have such profound meanings and essentials. Of course, Popper would not have expected that his thoughts and stereotypes were so paradoxical among those who elected him, either.



Figure 2: Fu Xinmin Weaving No. 6 Diameter 300 cm  
Steel Pipe Wire Part of wood 2003

Secondly, on the level of value theory and cognitive construction, the world 2 that "contemporary art" relies on can also be described as an ecological world of free exploration, mutual thinking, and mutual understanding, a cognition is practice, that is, experience, that is, a world that expresses "continuous

unity." Even in the contemporary nature of historical civilization, it can be described as a whole-person, generalized world. There are many reasons. In important ways, first of all, it is not just a thinker, but the thinking activity itself, that is, a practical existence that forms a tension with reality, nor is it limited to a "style of spiritual production" in the "spiritual (non-realistic) creation of the world in the spiritual realm<sup>[60]</sup>." More importantly, as a contradiction between existence and consciousness, new knowledge and old knowledge, on the one hand, it is a field that uses the human body (five senses, six senses, activities, etc.), the whole essence of the mind (emotion, will, thinking, love, etc.) to develop the field of life exploration and meaning experiment; on the other hand, this kind of practice, which is devoted to the whole body and mind, is not only "freedom and consciousness," but also on the objective consequences, it will continue to transform and extend the three worlds into human life itself<sup>[61]</sup>.

Not only that, the mechanism of the birth and transformation of "contemporary art" given by the world 2 has long been known by the Chinese ancestors. As *The Preface of Mao Poem* said, emotions are stirred in my heart, and I use poetic language to express it (eg : literature). I can't express it in words, so I continue to use the sound of sighing (eg : poem), and when I don't luxuriate when sighing, I open my throat and sing (eg: sing and vocal music), finally unknowingly danced when still feeling dissatisfied (eg : dance, body art behavior art, performance art and so on)--given this, it is not difficult to understand, let alone behavior and devices, only on the development of the form of artistic genre, such as from pantomimes, dramas, poems, operas, to operas, dramas, dance dramas, musicals, TV series, etc., it can be seen that "people are not only in thinking but also in the whole world in the object world," how to create his possible mental pattern and expression form by all the essential forces of "self-affirmation"<sup>[ 62 ]</sup>. In other words, the meaning of "contemporary art" is not limited to works, nor is it limited to form, "the image outside the image" exists in the breakthrough of the "prejudice" boundary and the cognitive experience of the "unknown" world, and thus revealing that from the artist to the audience of create art together, as a living life, as a person of consciousness, and even as the "highest essence" of existence, what is often dealt with is not "god is not a natural world," but the artificial restriction and harm of "only the human being can become the alien power of the ruler"<sup>[63]</sup> .

Furthermore, in a higher sense, as the intersubjectivity and life ecological field of spiritual-practical, two-way creation and recognition, world 2, together with the people themselves, is not only an object, but not an intermediary itself, at the same time, "self-confirmation as a conscious class of existence," intuitively its own highest purpose<sup>[ 64 ]</sup>, the ultimate

attribution of living culture to the realm of civilization, in the history of the return of "human-non-human-human," it is passing "a comprehensive way" as a "complete person," and "any kind of personal relationship - vision, hearing, smell, taste, thinking, intuition, feelings, desires, activities, love--in short, all the abilities of his individual," constantly discarding the alienation of "material" (material culture) and "human" (spiritual culture), and the constant "really" realizes the real possession and return<sup>[65]</sup> of "the whole essence of oneself," and even removes the distorted thinking style, and constantly explores new art styles and life images in degenerates "frame."



Figure 3: Fu Xinmin Frozen landscape No. 3  
850×200×500 cm Ginkgo Square steel 2004

Finally, as a summary summarize the characteristics of the times when contemporary art is facing civilization and highlighting life:

First of all, in the sense of constructivism, as the field that moral knowledge and practice are united of "cognitive experience" and "practical spirit," it is open. As a reasonable way of "cognitive experience" and "practical spirit," it is exploratory. As a life-activating manifestation of "cognitive experience" and "practical spirit," it can experience new circumstances. As a role of "cognitive experience" and "practical spirit" to face reality and create the "second reality,". To a certain extent, it also has transcendental for "foreseeing" the future (intuitive experiences like "foresight" and "premonitions").

Furthermore, at the level of value theory, as a comprehensive way of "cognitive experience" and "practical spirit," it has the comprehensive nature of the humanistic character and power. As the object relationship between "cognitive experience" and "practical spirit," it has the integration of "three worlds." As the overall artistic expression of "cognitive experience" and "practical spirit," it has more artistic and realistic realization of life. It may be said that "contemporary art" is a historical uplift of the function of art cognition, and the "world 2," which inherently

supports it, also provides academic resources and directions for the development of "art phenomenology."

All of this not only makes this capitalized art life-like activation but also allows people to gain the extension of life-time transcendence and transcendental amplification in the ultimate in their individuality and diversity. Therefore, the "art" view, which simply regards "pretty" on the retina as standard, is not only self-disarming of the cognitive function of art but also dwarf of the art value. At the same time, because of its abandonment of civilized genes and morality, it has often become an accomplice of power capital and a feudal autocratic tool.

## V. CONCLUSION

Objectively speaking, times have changed, but the spirit that art care for reality has not changed; the art form has changed, but the authenticity of art has not changed. The understanding of art beauty has changed, but the true essence of beauty has not changed. In other words, art does not collapse or end but is a historical reset of functions and systems. Just like "λόγος (logos)" is widely used, "dialectics" has become a universal tool of thought. The so-called artistic art is nature-in-itself and nature-for-itself of life. Regardless of the microcosmic sense of "texture" and "abiogenesis" as creation, or macroscopically act as the historical dimension of life freedom, which is like natural, broad and diverse ecology, as long as it is shared by the sun which is the most fundamental of artistic beauty and aesthetics. Of course, in this new era of contending and blooming, it is inevitable that some people who come out of the cellar cave will have a "low altitude reaction" and think sunlight is harsh.

This world is no longer closed and fragmented, and the senses and cognition of human beings, together with the demands, have been pluralized and compounded as the sum of various relationships. Everything is attractive in its way, and different strokes for different folks. It doesn't matter whether it's suitable or not, you like it or not, but there is no need to play scheme by yourself. And the scheming is beyond the boundaries to be a man, and to learn; it is difficult to escape from suspicion of opportunism. From the principle of synergy, "existence" is like a flying bird, a dynamic system that is isomorphic with slow variables (body; tradition) and fast variables (wings; innovation). In the art world, "contemporary art" is a fast variable of this life system. Otherwise, the whole system is a "zombie," a zombie formalism. Moreover, if the color of the Gobi Tamarix were used to chant infertility of the land, or even to demonize other fertile lands, this anachronistic "multiple theory" and the historical view would be not only lamentable but also shameful and terrible.

Of course, everyone's path to "contemporary art" is different. There are academic roads and also winding of life. The author's experiences are in the intersection of the porcelain "ceramic symbols" 's signifier and signified – the endless sunflower field – when hundreds of millions of sunflower seeds that are specific, vivid, similar but not realistic are used as blossoming sunflowers to the sun, imagining the life of the sun. The simulation and hope of fully hold scattering in the sky let people feel how pitying it is, how helpless it is, and how anguish and even indignant it is.<sup>[66]</sup>

This "artistic salvation" and "critical aesthetics," which seem to be "anti-art," were uplifted by "Western Marxism" expert, Theodor W. Adorno, as the contemporary art surging during the 20th century. The "denial dialectics" (1969) founder<sup>[67]</sup> regarded "the motivation to save despair" as "the discussion's central goal"<sup>[68]</sup> of his art. In his *Aesthetic Theory* (1970), he explicitly pointed out: "negativity" means that "in the art works, nothing is an existing reality, until the vocabulary of the work is also the same." Therefore, "art is the display of happiness that has been squeezed out," "art is a negative understanding of the real world," and alienation, and it is also a sublation of the perfect perceptual appearance.<sup>[69]</sup> It even reveals that in a particular history, whether art is abandoned or adheres to its self-discipline, it will "comply" or "assimilate" to "established order" and thus "attempt and accomplish nothing in its designated position."<sup>[70]</sup> To this end, as a "social anti-thesis" that "cannot be directly derived from society," a heterogeneous, non-identical "critical" existence<sup>[71]</sup>, "art could only exist if it had the power to resist society."<sup>[72]</sup> And only in the tension with the "forced overall situation," "save out" the "lack of daily state," from "criticism of cognition and cognition of criticism"<sup>[73]</sup>, then its essence can be maintained and saved.



Figure 4: Cheng Yuan Otherwhere 188x110 cm (section) Combine Painting 2014

To this end, "contemporary art," in terms of the new concept of history or the sense of "image proof history," is "future prospective history" rather than "contemporary representative history." This situation is

not only because, in the intellectual age of intellectual-practical isomorphism, the life-praxis of freedom and self-consciousness, which is the highest activity of defining art but also the so-called art history is naturally a definition history that people to be people – this is the same as the former "heliocentric theory." New things and new cognitions are initially suspicious and dissident. But history often happens here.

In the final analysis, understanding the life, then you can understand the ancient people who lived and contributed - the "ghost" of social ideals and scientific conjectures were not only the most scarce resources of any era but also the most tradition and source of human history. In other words, Michelangelo's art, of course, "is not something that anyone can do," but Duchamp's mental load and historical risk are not just what anyone can do, either. Or, in terms of the value expansion of "intellectuality," if there was no "contemporary art," where were contemporary "art township buildings" moving towards villages from other directions? It can be said that it is unbearable to look back on avoiding living, alienate reality, regarding art as a wall-view in a temple or an assimilation tendency, low-level isomorphism. Borrowing the concept of Hauser, the pioneering "elite art" will eventually become "popular" and move toward "folk." Just like the Forbidden City and the Louvre, they have already become a mass culture space and a historical and cultural grand view garden. As for how far is "contemporary art" from us? It is very close - as long as you regard her like the wings of spiritual liberation. Moreover, in the foreseeable future, today's "contemporary art" will also pass through the so-called "art system" of Danto and Dickey just as it has already come out of Shire Barto's system.

If you understand Gombrich's *The Story of Art*, it is not difficult to understand why the whole book is about "seeing" and "knowing" things. And psychology tells us that if you paint like a child, you don't paint what you "know" rather than what you "see." Furthermore, if you understand the autonomy of Popper's "world 3 objects," you can easily understand that today's art has moved from "image expression" to "intuitive act," "signifier act." So in a certain sense, "seven sages of the bamboo grove" has "artistry" rather than "contemporary art" has "life,"--the artistic feeling of this life return is the artistry of contemporary art.

In particular, in the confusion and doubts about "contemporary art," some scholars mentioned this common sense and that common sense, but they forgot one of the simple common sense: if people are alive and developing, the art created by people will be dead and changeless? The truth, only from the pioneering events of the "Zen Painting" of the Tang Dynasty, towards the "Chinese painting"'s creation in the local "Literati Painting" pen and ink's sense, is evident.

Also, apart from the author's observations in many countries of Europe, recently, after communication

with friends from Université de Paris I (Panthéon-Sorbonne) art science doctoral school, three small tips are added here to dissolve the "scheme theory" may bring illusions and misunderstandings. Firstly, "almost all art schools in France have already been part of 'contemporary art.'" Secondly, since 2000, France had officially established the annual "Le Prix Marcel Duchamp" bonus at the initiative of the ADIAF (French International Federation of Contemporary Art Communication Commissioners), etc. to reward outstanding contemporary artists who work or live in France. Thirdly, like the "Fauvism" and "Poverty Art," for decades, although it is not a clear artistic genre, France does have a generalized typing parlance "junk art." Its spiritual origins can be traced back to the pioneers of post-structuralists such as Foucault, Derrida, and Baudrillard, known as one of the sources of postmodern thought, where is the French thinker Georges Bataille. The pandit, directly inspired "indefinite art" or "garbage art" by the interpretation<sup>[74]</sup> that the class of high-level art pass the overall and trend to a state of fragmentation like Adorno said, such as l'informel (French translation: informel), déclasser (disruption, downgrade), etc., in the 1929 documents journal. In other words, just as "Fauvism" may not have beasts, "poverty art" has nothing to do with poverty. From May 6, 1994, Chen Zhen's "wasteyard" exhibited at the Museum of Contemporary Art in New York (joint exhibition with Huang Yongping's "Chinese Manual Laundry"), to the "garbage art" that Heqing said was criticized by a critic in fact it may not be garbage. Relevant cognition can be understood by referring to Xu Bing's "Phoenix" installation works.

Finally, the author recommends two books to readers who are interested in deepening the "cognition" of contemporary art. One is called *The Art Of Being Human*<sup>[75]</sup>, different in approach to the same way as Lu Fengzi who believed that aesthetic education was "non-material education what returns human to themselves" in the early 20th century; the other is called *Art As Experience*<sup>[76]</sup>, and its cover is written-- "I want to make art from civilized beauty salon into civilization itself."

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## REFERENCES RÉFÉRENCES REFERENCIAS

1. Wang Ruiyun: Responding to "the Confusion of Contemporary Art", *Art Observation*, 2018, (5).
2. The word "scheme" is taken from the last word of Huang Heqing's 2005 edition of *The Artistic Conspiracy* and 2012 edition renamed *Contemporary Art: Century Deception*. In addition,

Heqing himself pulls up in 2017 On War "Chinese Communist Party" flag and considers himself a flag bearer.

3. "Abstract Expressionism" first refers to Kandinsky's paintings during the residence in France. In the 1930s, The French "informel" art initiated by the influence of Georges Bataille's philosophical ideas advocated degrading and breaking up the form; the French word "Tachisme" means spots, stains, so it is also known as pointlism. It's the French school of anti-cubism physical structure after the war, which directly controls the brush with emotional instincts and carries out unconscious actions such as dripping, splashing and occasional creation. Its formation is related to "informel" and modern Japanese abstract calligraphy.
4. Please refer to the Confucius Institute Headquarters for relevant data: Report of the Confucius Institute (2006-10-17). <http://www.hanban.edu.cn/report/>, September 26, 2018; Zhang Hongqian, Hu Fanchou. Chinese International Education and the Construction of Confucius Institutes In The Domain Of Global Governance: Problems, Causes and Countermeasures, *Social Science*, 2017, (10).
5. Ministry of Culture: Ministry of Culture "One Belt and One Road" Cultural Development Action Plan (2016-2020) (files sended [2016] No. 40). Website of the State Council Information Office, PRC: [www.scio.gov.cn](http://www.scio.gov.cn), January 9, 2017.
6. Hu Lihui: China National Academy of Painting "One Belt and One Road" International Fine Art Engineering Draft Final Review Conference Held in Beijing, *Arts News of China*, January 8, 2018.
7. According to the author's communication with Ms. Zhou Ziyue, a scholar of art and science doctor school at the Sorbonne University in Paris, Jean Baudrillard's essay that published in the French "Liberation" (May 20, 1996) was on the basis of Bower's *Transparency of Evil* (1993) and *Simulacra and Simulations* (1994) of "Fourth Sequence of Analogues" thought development period, and disclosed opinions about authenticity disillusionment of symbol consumption that postmodern virtual replaced reality and falsehood of exchange, *The Perfect Crime* (1996), *Impossible change* (1999), *Consumer Society* (1970) and other published works. *The Perfect Crime* was translated by the Commercial Press in 2000. *Consumer Society* was translated by Nanjing University Press in 2001.
8. "Bogus academic study", "rogue academic study" and "take words too literally" are used by Heqing in 2017 *Controversy* (appendix 2 replied Dr. Zhu again) of *Poems, Calligraphy and Paintings* that published in 2018.

9. Sun Guanlong: One Of The Most Advanced Ancient Perspective on Evolution in the World —Ancient China's Evolution Viewpoint, Public Daily, May 20, 2015.
10. Ecology has taken shape at the beginning of the 18th century and was defined by the German biophilosopher E.H.P.A. Haeckel in 1866. The Heat Death Theory is the universe evolution hypothesis, based on the principle of the increase of entropy. It means that in a closed system that has no energy exchange with the outside world, the entropy always increases until the system no longer changes, that is, the universe is dead. The theory was proposed by the British physicist L. Kelvin and the German thermodynamicist R. Clausius in 1862 and 1865; the classical genetics (Mendelian Genetics) was discovered first two of the three laws of genetics and laid the foundation by the Austrian biologist GJ Mendel. The other was discovered by American chromosomal geneticist T. Morgan in the late years of modern times. Please refer to Xie Ping: Design, operation and evolution of living systems from an ecological perspective, Science Press, 2014.
11. The view of practical development is marked by works such as Engels' Dialectics of Nature (1873-1886), Family, Private Ownership, and the Origin of the State (1884); "Catastrophe Theory" was put forward by Dutch geneticist Hugo Marie de Vrier in his two volumes of the 1901 and 1903 editions of The Theory of Catastrophe. Please refer to Zhang Chunmei: The Position of Llorendez-Friesian Catastrophe in Evolution Thought, Research on Dialectics of Nature, 1997,(8).
12. In 1809, the French biologist Jean-Baptiste Lamarck first put forward in his Animal Philosophy and was later called the "one-step adaptation" theory of acquired genetics. Current DNA scholars have confirmed the internalization accumulation of experience "memory"; Darwin's "mutation + selection = adaptation" is called "two-step adaptation" theory. Please refer to Xie Ping's Design, operation and evolution of living systems from an ecological perspective.
13. The term topology was proposed by German philosopher Leibniz, G. W. in 1679, and was first used by the German mathematician Listing, J. B. as geometria situs, a branch of modern mathematics in 1847. French astrophysicist Henri Poincaré established combinatorial topology in 1895-1904, and the conjecture proposed by him was generalized to high-dimensional space and confirmed in the early 21<sup>st</sup> century. Please refer to [GBR] Armstrong (M.A.M.A. Armstrong), translated by Sun Yifeng: Basic Topology, People's Posts and Telecommunications Press, 2010; "Photography" produced around 1830 was originally composed of the Greek word "light" and "painting and calligraphy", reflecting the tension between it and traditional paintings.
14. New-Lamarckims is a collective term for various theories of anti-Darwinism. Representative is American paleontologist E. Cope and his 30-year Bone Wars with counterparts; Neo-Darwinism is represented by German August Weissman, American T. H. Morgan and others. T. H. Morgan published the gene theory in 1917 that contributed significantly to the evolutionary mechanism of genetic variation. Please refer to Sun Yi: A variety of schools of evolution that are more prevalent in contemporary times, Journal of Xinyang Normal University (Second Edition), 1997, (3); [USA] T. Morgan, Gene Theory [M]. Science Press, 1959.
15. One of the foundations of Quantum Mechanics was established by the Austrian molecular biology pioneer E. Schrödinger's equation in 1926. The ecosystem, abbreviated as ECO, has been expressed in 1849 by New England writer H. Thoreau in Walden, and the idea laid the foundation for Danish J. Warming's 1895 edition of Plant Distribution Based on Plant Ecological Geography (English translation of Plant Ecology in 1909). The British ecologist A. Tansley made it clear. The doctrine went deeper into the two major aspects of macro-nature and micro-psychology. Liu Jie: About Bronfenbrenner's Developmental Psychology Ecosystem Theory, Chinese Journal of Health Psychology, 2009,(2); [USA] Rachel Carson, translated by Lu Ruilan, etc.: Silent Spring (1962), Shanghai Translation Press, 2007.
16. Modern synthesis is British and American modern Darwin literature school with many characters. It is generally marked by the publication of Russian-American biologist Dobzhansky, The Genetics and the Origin of Species in 1937, and Huxley, the author of Evolution and Ethics in the United Kingdom, first called it "Comprehensive Evolution" in 1942. Mutation is considered to be a common phenomenon and source of genetic variation. Please refer to Wang Fayou: Research on Comprehensive Evolution from the Perspective of Philosophy of Science, PhD dissertation, Southeast University, 2016.
17. In 1944, E. Schrödinger of Austria proposed the "degeneration theory" according to the gene entropy (Negentropie) in his what is Life. In recent years, scientists have referred to the "Walkers like apes" phenomenon in West Asia as "Yunier Dan Syndrome". [AUT] Schrödinger, translated by Luo Laiou, etc.: What is Life, Hunan Science and Technology Press, 2005; [USA] John St. Fold,

- translated by Liu Ying: *Degeneration Theory: The Mystery of Gene Entropy and the Genome*, Shandong Friendship Press, 2010.
18. The theory of communication was established by American mathematician C. Shannon in 1948. Cybernetics was founded by American applied mathematician N. Wiener in 1948. Systems theory was founded by the United States theoretical biologist L. V. Bertalanffy during the period 1932-1945. The cross science is interdisciplinary science. It is generally believed that the "new and old three theories" and contemporary complex science belong to this category. The intention here is to highlight the interdisciplinary and non-linear thinking methods that prevailed at the time. [USA] M. Burgin, translated by Wang Hengjun, etc.: *Information Theory: Essence, Diversity, Unity*, Intellectual Property Press, 2015; [USA] Wiener, N., translated by Hao Jiren: *Cybernetics*, Science Press, 1962; [USA] Ludwig Von Bertalanffy, translated by Lin Kangyi, etc.: *General System Theory*, Tsinghua University Press, 1987.
  19. The concept of cultural ecology originates from "ecology". In 1955, J.H. Stewart, a representative of the American New Culture Scholarship, first established in *Theory Of Culture Change: The Methodology Of Multilinear Evolution*. As a new interdisciplinary discipline that combines ecology and culture, it pays attention to the evolutionary significance of integration levels such as core and peripheral institutions, cultural types, and socio-cultural integration, and calls the special evolution theory it attaches importance to as "Multilinear Evolution" to distinguish it from the cultural evolution of L.A. White and L. Morgan. [USA] Jerry D. Moore, translated by Ouyang Min, etc.: *Anthropologists' Cultural Insights*, Commercial Art Museum, 2009, Chapter 14; J. Steward, Wang Qingren: *Cultural Ecology Concepts and Methods*, Ethnic Translation Series, 1988, (6); D. Kaplan, R. Manners: *Contemporary Evolution*, World Nation, 1983,(3).
  20. The neutral theory, first mentioned by Japanese geneticist M. Kimura and others in 1968, is also called random genetics drift of neutral mutations. Unlike Darwin, this theory holds that most of the evolution of organisms is the result of "gene drift" in natural populations. It has nothing to do with selection and interests, so it is "neutral mutation". S. J. Gould proposed punctuated equilibrium in his co-authored *Intermittent Balance: Gradualism In Place Of Germline* in 1972. Including "big and small evolution", "time-longitudinal, trait-horizontal", "convergence-parallel" and other patterns, and "line branching" and random orientation, etc., emphasize mutation. [JPN] Mimura Kimura, translated by Jianhua Chen, *The Neutral Doctrine of Molecular Evolution*, Chengdu University of Science and Technology Press, 1993. Please refer to Xie Ping's previous release.
  21. The new three theory, dissipative structure theory, was proposed by Belgian physicist Ilya Prigogine in 1969. Catastrophe theory inherited the concept of 1901 and was by founded French mathematicians R. Thom in 1972. Synergetics was founded in 1973 by German physicist Herman Haken. [BEL] Prigogine, Yi Stanger, translated by Zeng Qinghong, etc.: *From Chaos to Order*, Shanghai Translation Press, 1987; [GBR] P. T. Saunders ,translated by Ling Fuhua: *Introduction To Catastrophe Theory*, Shanghai Science and Technology Literature Press, 1983; [GER] Haken, H, translated by Ling Fuhua: *Synergy*, Shanghai Translation Press, 2001.
  22. The fuzzy theory was established by American professor L. A. zadeh in 1965. String theory was discovered by G. Veneziano in Italy in 1968, and was later developed into "superstring theory" by American physicist L. Susskind, M. B. Green and others. Hypercycle theory was published in 1971 by Nobel Prize winner M. Eigen *Self-organization of Matter and Evolution of Biological Macromolecules*. Please refer to Hu Baoqing: *The Basics of Fuzzy Theory*, Wuhan University Press, 2010; [GBR] Green M.B.: *Superstring Theory Volume 2*, World Book Publishing Company, 2008; [GER] M. Ai Gen, P. Schuster, *The Theory of Hypercycle*, Shanghai Translation Press, 1990.
  23. The chaos theory is a non-linear system theory proposed by American meteorologist and butterfly effect discoverer E. N. Lorenz in 1963. The study is about the complexity chaos phenomenon from small to large and has random and universal characteristics. The fractal theory was proposed by American mathematician B. Mandelbrot in 1975 to jump out of four-dimensional space-time and into the complexity. Please refer to [GBR] Ziauddin Sardar, translated by Sun Wenlong: *Chaos*, Anhui Literature and Art Press, 2007; [GER] Heinz Otto Petgen, etc. *Chaos and Fractals*, National Defense Industry Press, 2008.
  24. The M-theory was established by American Fields Prize winner E. Witten in 1994 following superstring theory, and he transformed space-time into 10 space dimensions plus 1 time dimension. System complexity thinking paradigm was first proposed by French contemporary thinker E. Morin in his *Lost Paradigm: A Study of Human Nature* in 1973 (translated by Peking University Press in 1999). On the scientific frontier of non-linear complex systems formed by "new-old three theory", its "complexity" principles and methods have become one of the

important criteria for contemporary international academic research and evaluation, and have contributed to the emergence of the theory of Complex Adaptive System (1994). Extenics was proposed by Chinese scholars in 1983. It refers to the interdisciplinary study of universality and continuity in the study of complex contradictions of things. Irreducible complexity, proposed by American biologist M. J. Behe in his Darwin's Black Box in 1996. Please refer to [USA] K. Becher: String Theory and M-Theory, World Book Publishing Company, 2011; [USA] Sunny Y. Auyang, translated by Tian Baoguo, Zhou Ya etc.: Foundation of Complex-Systems Theory, Shanghai Science and Technology Education Press, 2002; [USA] M. Waldrop, translated by Chen Ling, Complexity: The Emerging Science at the Edge of Order and Chaos, Sanlian Bookstore, 1997; Yang Chunyan, Cai Wen, Extenics, Science Press, 2014; [USA] Behe, M. J., translated by Xing Xifan: Darwin's Black Box: The Challenge of Biochemical Theory to Evolution, Central Compilation Press, 1998; [FRA] E. Moran, translated by Chen Yizhuang: Introduction to Complexity Thought, East China Normal University Press, 2008.

25. The Butterfly Effect is also called topological chain reaction. Coupling means the closer the coupling between blocks is, the stronger the coupling is. High-dimensional is the 11-dimensional world (High-Dimensional World). Please refer to "fuzzy Theory", "chaos Theory" and Liu Gangyi: Parallel Universe and High-Dimensional Space, China New Telecommunications, 2015, (16).
26. The theory of evolutionary knowledge was started by scientific philosopher K. R. Popper from 1972. Please refer to [GBR] Popper, translated and edited by Ji Shuli: Evolution of Scientific Knowledge, Sanlian Bookstore, 1987; Popper, translated by Shu Weiguang, etc.: Objective Knowledge: An Evolution Approach, Shanghai Translation Press, 1987.
27. Evolutionary epistemology was established in 1973 by German scholar G. Vollmer in Evolutionary Epistemology: Exploring the Structure of Innate Knowledge in the Framework of Biology, Psychology, Linguistics, Philosophy, and Science Theories. In the same period, Germany produced a number of works on the evolution of cognitive psychology. The concept of coevolution was first proposed by American ecologists Ehrhhaa & Rvaen in 1964. Futuyama and Statkiu published Co-evolution in 1983, and in 1990, ecological stratigrapher A. J. Boucot published Behavioral Evolutionary Biology and Co-evolution, and proposed the theory of "ecological domain" systemic evolution that is interactive. Please refer to [GER] Vollmer, Gehard, translated by Shu Yuanzhao:

Evolutionary Epistemology, Wuhan University Press, 1994; Zhang Shuyi: Cooperative Evolution (1): Theory of Interaction and Evolution, Biology Bulletin, 1996, (11); Zhou Chan, Study on the divergent adaptation characteristics and evolution mechanism of two ecotypes of *Leymus chinensis* in Northeast grassland(funded by the National Self-Government Fund),PhD dissertation, Institute of Grassland of Northeast Normal University, 2004, pp.12-14; [CAN] Charles. J. Ramsden, [USA] Edward. O. Wilson, translated by Liu Li: Gene, Mind and Culture: The Process of Co-evolution, Shanghai Science and Technology Education Press, 2016.

28. Three meanings: broadly referring to French sociologist Comte, ethnologist Durgan, linguistic philosopher Saussure and post-war yearbook school and cross-border thinkers Bourdieu, Moran, and German O.A.G. Spengler, W. Dilthey, British "New Spengler" A. J. Toynbee, G. Barraclough and other ideaistic doctrines. That also refers to the Western ideaistic community "Global view of history" to oppose self-reflection and criticism of "Europeanism" and "national supremacy", and the effect of historical philosophy and social evolution of nations and cultures. Please refer to [GBR] Geoffrey Barraclough, translated by Zhang Guangyong, etc.: Introduction to Contemporary History (1964), Shanghai Academy of Social Sciences Press, 1996; [GER] Spengler, translated by Wu Qiong: The Decline of the West (1918-1922), Shanghai Sanlian Bookstore, 2006; [GBR] Toynbee, translated by Guo Xiaoling, etc.: Historical Studies (1927-1961), Shanghai People's Press, 2010; [FRA] Edgar Moran, translated by Kang Zheng, etc. : Reflection on Europe (1987), Sanlian Bookstore, 2005; [FRA] Rene Etiemble, translated by Xu Jun, etc. : Europe of China (1988— 1989) ,Full translation, Guangxi Normal University Press, 2008.
29. The concept of self organization first appeared in Kant's Critique of Judgment in 1790. As a very common objective phenomenon in nature and society, it is now being developed and applied in all disciplines.
30. Li Xueyong: Parrots Says "Tian Yan", Reading, 1999, (11); [GBR] T. H. Huxley, translated by Yan Fu: Tian Yan Lun, Science Press, 1971.
31. Long Manyuan: "Evolution" (multi-directional, and Non-unidirectional) rather than "Evolution", China Book Review, 2010,(6); [USA] Jerry A. Coin, translated by Ye Sheng: Why Evolution is True, Science Press, 2009.
32. Xia Xiaoli, Research on Japanese Loan Words in Modern Chinese, Master's Degree Thesis, Graduate School of Liaoning Normal University, 2006.
33. The term "multiculturalism" began to appear in the United States in 1988. Domestic scholar Shen

- Zongmei first translated multiculturalism as "cultural pluralism" in his article Challenges to American Mainstream Culture, published in *American Studies*, 1992,(3). However, the word is called "various culturalisms" or "multiculturalisms" in the Collins dictionary and Oxford dictionary.
34. In his *The Decline of the West*, Spengler carefully distinguished "culture" from "civilization", thinking that the former is more spiritual and energetic, the latter is more material, more rigid, etc., but Hundred years later, since the new millennium in China, a group of scholars including Fudan's Ge Zhaoguang, Zhou Youguang, Peking University's Yin Baoyun, He Guimei, and East China Normal University's Chen Yun have combined national conditions and applied the method of cultural classification and layering, from the equality of "culture" to the universality of "civilization" has been further expanded, and the dialectical principles and values of both have been combed.
  35. The words "frame", "framework" are used by German contemporary art historian Hans Belting to express people's stereotyped and stereotyped stereotypes about the dynamic "art". [GER] Hans Belting, translated by Su Wei, *Art History after Modernism*, Jincheng Press, 2014, p. 8.
  36. "Beaux-arts" first appeared in the French "small art" esthetician Charles Batteux's *Art of Beauty Coming to a Single Principle* in 1746. But what really affected it was Kant's 1790 resolution of "What is a man?" Critique of Judgment among the three major critiques, and *Aesthetic Lectures*, a component of Hegel's historical philosophy, completed in 1817-1829. Translated and edited by Li Qiuling: *Kant's Letters*, Shanghai People's Publishing House, 2006, p. 199; [GER] Kant, translated by Deng Xiaomang: *Critical Judgment*, People's Press, 2004, p. 149; [GER] Hegel, translated by Zhu Guangqian: *Aesthetics* (Vol. 1), Commercial Press, 1979, p. 3.
  37. [USA] Eric R. Kandel. *The Age of Insight: The Quest to Understand the Unconscious in Art, Mind, and Brain, from Vienna 1900 to the Present*. Neue Galerie, N.Y. 2012 by Random House, Inc. pp.205—213.
  38. [USA] A. H. Maslow: *Motivation And Personality*, Deng Fuxing: *Introduction to Fine Arts*, Shanghai People's Fine Arts Press, 2009, p. 28.
  39. [USA] Thomas L. Bennett, translated by Dan Ming, *The World of Feelings*, Science Press, 1983, p. 51, 86, 88.
  40. [USA] Eric R. Kandel. *The Age of Insight: The Quest to Understand the Unconscious in Art, Mind, and Brain, from Vienna 1900 to the Present*. Neue Galerie, N. Y. 2012 by Random House, Inc. p 99—180.
  41. [USA] Müller: *Light and Vision*, Time Corporation, Science Press, 1981, p. 9.
  42. It was proposed by American educator Betty Edwards in the 1970s. Zhang Wenju: *Emotional Release and Expression*, Master's Degree Thesis, Tianjin Academy of Fine Arts, 2007, p. 12.
  43. Hegel's words, "the function of art is 'the interpretation of truth in the form of art's perceptual or material expression. Beauty is 'the emotional manifestation (or presentation) of ideas'". [USA] Vernon Hyde Minor, translated by Li Jianqun: *Art History's History*, Shanghai People's Press, 2007, p.123; "Employment", "dependent beauty" and "free beauty" are words of Kant.
  44. Some classics in modern art also maintain a strong distance from life, but they account for a small proportion in history, and the art of critical realism is even rarer.
  45. Edited by Jiang Kongyang, Li Xingchen: *Selected Works of Western Aesthetics in the Nineteenth Century • German Volume*, Fudan University Press, 1990, p. 512.
  46. As a tradition, ancient and foreign countries had "pictures depicting Buddhist scriptures or stories". Treating images as "for the illiterate" is not only for missionary needs, but also because of the convenience of perceptual communication, the tradition of "thinking by condensing specific images in paintings" has been continued. [USA] Minai: *Art History's History*, Shanghai People's Press, 2007, pp. 61-62.
  47. Hegel's words on classical art were "the content and the form fully adapted to the content achieve an independent and complete unification." Ling Jiyao: *A History of Western Aesthetics*, Peking University Press, 2004, p. 358.
  48. It is also called Civil Society. A social sphere and historical category between the state and the individual. It is a relatively autonomous field outside the power system. This social form did not exist in ancient East and Middle Europe. From ancient Greece to the present, mankind has experienced three major transformations, the "civilized society" of ethical and political community, referred by the ancient Roman Cicero, and "political society" as the under the rule of law and the peaceful political order, and the "civil society" outside the country. Marx critically inherited the term in Hegel's *Principles of Legal Philosophy*, and formed the "political state-civil society" dichotomy consisting of the two major elements of market mechanism and private property rights. It regards civil society as an area of social life guarantees that individuals can independently engage in economic activities and interest exchanges. In the 1930s, "Western Marxism" Gramsci put forward the idea of "cultural leadership"



and started a contemporary turn in the study of civil society from a sociocultural perspective. Afterwards, went through Parsons "social community", Habermas "public domain" and "life world", American "post-Marxist" Cohen and others, through reflection on the two social developments of "Capitalism and socialism" in the 20th century, proposed "reconstruction of civil society", advocated the social organization and the civil public domain as the main body, formed a "political society-economic society-civil society" social life model trisection and completed the contemporary transformation from civil society into the socio-cultural field.

49. [GBR] Gombrich. E. H., translated by Fan Jingzhong: *The Story of Art*, Tianjin People's Fine Arts Press, 2001, Introduction.
50. Qin Zhaokai: *Confusion of Contemporary Art*, Art Observation, 2018,(3).
51. It refers to Lin Mu's pointing to Ms. Ruiyun in her article *Reading Wang Ruiyun's Response to "Confusion in Contemporary Art"*. Please refer to *Art Observation* 2018, (9).
52. It is not easy to truly understand Arnold Joseph Toynbee's view of history. There are several problems: First, the *Historical Studies* has ten volumes, which lasted 26 years, and the three translations of the Shanghai People's Press that the author knows are only translations of the first six volumes. As mentioned in the preface of the non-volume edition of the agency in 2000, it can be seen that several translations are based on the Western-cut version. The second is based on his writings and his dialogues and new works with Ikeda in his later years. Toynbee confirmed that human development is the "challenging and confrontation" among various "regional civilizations", that is, the collision, contact and integration of time and space. It is impossible for a nation-state to explain its own history alone. And because humans don't just live in the direct present, they advocate "a fair and balanced global perspective", that is, "People must abandon their illusions, a particular country, civilization, and religion, because they belong to ourselves, then take it as the center and think that it was more superior than other civilizations. "Thirdly, Toynbee did consider Chinese civilization as the focus and hope of his concern in his later years, but at the same time he believed that human beings should avoid the narrowness of the nation-state and China must be conscious locally and consciously merging western thought and culture together can "probably provide a new cultural start for civilized humanity."To the extent that only by avoiding the nation-state's pursuit of its narrow nationalist national interests, can the world transition to a "world state" like what Xi Jinping calls a "community of human destiny". Fourth, in my opinion, Toynbee uses the meaning of "civilization", although it includes political, economic, and cultural aspects, its essence is closer to "cultural type", "cultural unit", or Wesler's "cultural model", wider than B. Benedictine, is the concept between "historical theory" and "historiography theory" as described by He Zhaowu and Peng Gang, not "civilization" in the sense of philosophy or history.
53. [GBR] Popper, translated by Shu Weiguang, etc.: *Objective Knowledge: An Evolutionary Approach*, Shanghai Translation Press, 1987, p. 114.
54. [GBR] Popper, [AUS] Ackles: *The self and its brain--an argument for interactionism*, Chapter 7. Quoted from Zhu Gaojian: "The Three Worlds" Theory: Popper's Ontology, *Journal of Yuzhou University (Social Science Edition)*, 2002, (3). The second chapter of the book, please refer to Ji Shuli's edition: *Evolution of Scientific Knowledge: Popper's Selected Philosophy of Science*, Sanlian Bookstore, 1987, World 1, 2, 3.
55. Marx's words, "the whole, when it appears in the mind as a whole thought, is the product of the thinking mind, this mind masters the world in its own proprietary way, which is different from the world Artistic, religious, practical-spiritual." Marx and Engels Lenin Stalin Compilation Bureau of the CPC Central Committee: *Selected Works of Marx and Engels Volume 2*, People's Press, 1972, p. 104. Zhu Guangqian and others based on the "dichotomy" of the former Soviet Union's Nido Greek, and understood it as "theoretical" and "practical-spiritual". They can also be divided into four ways according to the original meaning like theoretical, artistic, religious and practical-spiritual; according to the relevant discussions of Marx's *Economic Manuscript (1857-1858)*, Russian Kagan divided that into "material-practical, practical-spiritual, spiritual-theoretical" three layers. There are also ways in China to divide them into three layers, "scientific", "artistic" and "religious". Dong Yan: *Re-exploration of "Practice-spiritual" Mastering Method, Theory and Modernization*, 2006, (4).
56. [GER] Hegel, translated by Fan Yang, etc.: *Principles of Legal Philosophy (Introduction)*, Commercial Press, 1961, p. 12.
57. [GER] Marx, translated by Liu Kun, *Economic and Philosophical Manuscripts (1844)*, People's Press, 1979 (the same later), p. 78.
58. Marx: *Economic and Philosophical Manuscripts (1844)*, People's Press, 1979, p. 80.
59. [GER] Theodor Adorno, translated by Wang Keping: *Aesthetics Theory*, Sichuan People's Press, 1998, p.386.

60. Zhu Liyuan. Thinking and Exploring [M] .Press of the Academy of Social Sciences 1991, p169.
61. Marx: Economic and Philosophical Manuscripts (1844), People's Press, 1979, p. 49.
62. Marx: Economic and Philosophical Manuscripts (1844), People's Press, 1979, p. 79.
63. The translation of the 53rd edition of the Economic and Philosophical Manuscripts (1844) by the People's Press in 1979 is that "it is not god, nor is it the natural world, and only man can be the alien force that governs him."Here is the quote on page 60 of the third edition of 2000.
64. Marx: Economic and Philosophical Manuscripts (1844), People's Press, 1979, pp.50-51.
65. Marx: Economic and Philosophical Manuscripts (1844), People's Press, 1979, p.77.
66. Please refer to Weiwei Ai's large installation "100 Million Sunflower Seeds" at Tate Britain.
67. Wang Caiyong: A New Exploration of Modern Aesthetic Philosophy: Review of Frankfurt School Aesthetics, Renmin University of China Press, 1990, p. 54.
68. It refers to the German version of Adorno's 1969 book The Dialectics of Negation (Chongqing Press published a Chinese translation in 1983). The negative art view based on this has had a greater impact on European and American intellectuals and youth's "anti-cultural" movement.
69. From the German version of 1970, in order 35, 208, 122, 46, 197. Quoted from Yang Xiaolian: Art, Negation, Society: On Adorno's Aesthetic Thoughts, Journal of Sichuan Normal University (Social Science Edition), 2002,(1).
70. [GER] Theodor Adorno, translated by Wang Keping, Aesthetics Theory, Sichuan People's Press, 1998, p. 406.
71. [GER] Theodor Adorno: Works of Adorno, Volume 7, Main Frankfurt, 1970, p. 19.
72. [GER] Theodor Adorno, translated by Wang Keping, Aesthetics Theory, Sichuan People's Press, 1998, p.386.
73. [USA] Richard Walling, translated by Zhang Guoqing, The Concept of Cultural Criticism, Commercial Press, 2000, p. 121.
74. [GER] Theodor Adorno, translated by Wang Keping, Aesthetics Theory, Sichuan People's Press, p.265.
75. [USA] Janaro R., Te Arthur, translated by Shu Yu, etc.: The Art of Being Human, Peking University Press, 2007.
76. [USA] John Dewey, translated by Cheng Ying, Art as Experience, Jincheng Press, 2011. One of the most important works of empirical naturalist aesthetic theory in the 20th century. The main idea is to build a monistic aesthetic system based on "living creatures" and try to restore the continuity

between art and non-art. I believe that art materials should draw nutrition from all resources, no matter what. It is valuable for understanding the principles of contemporary art.



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# Design and Experiment of Remote Communication System Base on GPS/GPRS Technology

By Jiaping Lin & Linhua Cen

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**Abstract-** This article mainly describes Remote communication system Base on GPS/GPRS technology in construction machinery, and focus on introducing the technology of data transportation between machine ECU with GPS terminal and remote control machine via RS232 serial communication circuit. In this way it provides monitoring machine online and prevents GPS terminal from removed in Construction machinery. Currently many machinery suppliers have adopted finance lease to push selling in domestic market, In order to secure selling from financial risk and guarantee monitoring machine running information, GPS/GPRS technology integrated in Construction machinery becomes one of the essential marketing measures.

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**GJSFR-I Classification:** *FOR Code: 100599*



*Strictly as per the compliance and regulations of:*



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Jiaping Lin <sup>α</sup> & Linhua Cen <sup>σ</sup>

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**Keywords:** GPS/GPRS technology; RS232 serial communication; Communication protocol; remote control.

## I. CURRENT APPLICATION OF GPS/GPRS TECHNOLOGY

Currently there are some questions of GPS/GPRS (Global Position System/General Pocket Radio Service) Technology application in construction machinery; one is less function, another is simple circuit for this system. So it can't provide the function of monitoring machine directly, and leads to the cases of machine stolen or lost often, it is a problem for suppliers to secure their machines safe with this tooling. Follow the developing situation of domestic construction machinery, it is one urgent requirement from supplier to apply GPS/GPRS technology on machine effectively.[1] This article mainly describes the technology of data transportation between machine ECU with GPS terminal and remote lock machine via RS232 serial communication circuit. Communication and shutdown circuit is shown as Figure 1.

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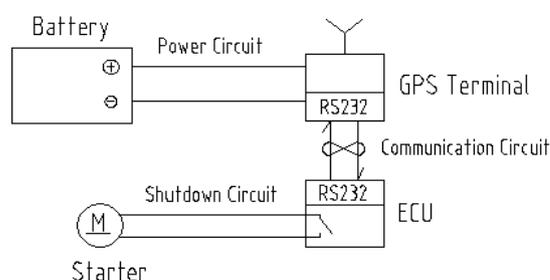


Figure 1: Communication and Shutdown Circuit

## II. SYSTEM THEOREM

The purpose of remote communication system is to realize the function of real-time monitoring and prevent GPS terminal from removed in machine. This system is primarily composite of ECU (Electric Control Unit), GPS terminal and RS232 serial communication circuit. And its working theorem is shown as below. At first it is to collect running parameters by ECU, such as engine cooling temperature, engine oil pressure, engine speed, diesel level, hydraulic pump pressure, hydraulic oil temperature and hydraulic oil level, etc. Then ECU is to forward these parameters to GPS terminal via RS232 serial communication circuit. Later on they are sent to base station of mobile telecom in a fixed interval by GPS terminal through SMS or GPRS. Next the monitoring website receives and translates them into the original value obey the rule of communication protocol base on mutual agreement. In the end supplier can read the real machine running information online. Meanwhile, supplier can shutdown machine remotely online also, the processing is shown as below. Firstly supplier sets shutdown order on monitoring interface, then website forwards it to GPS terminal through GSM network, after receives it GPS terminal sends this order to ECU, and ECU demands engine to stop when engine speed is idling, so as to shutdown machine remotely successfully. And its anti-demolition function is working with below way. When ECU can't detect shake-hand code for a while communicating with GPS terminal base on mutual agreement protocol, it will demand engine to stop immediately due to fail to communicating. That is the way to prevent GPS terminal from removed in machine. [2] Communication system diagram is shown as Figure 2.

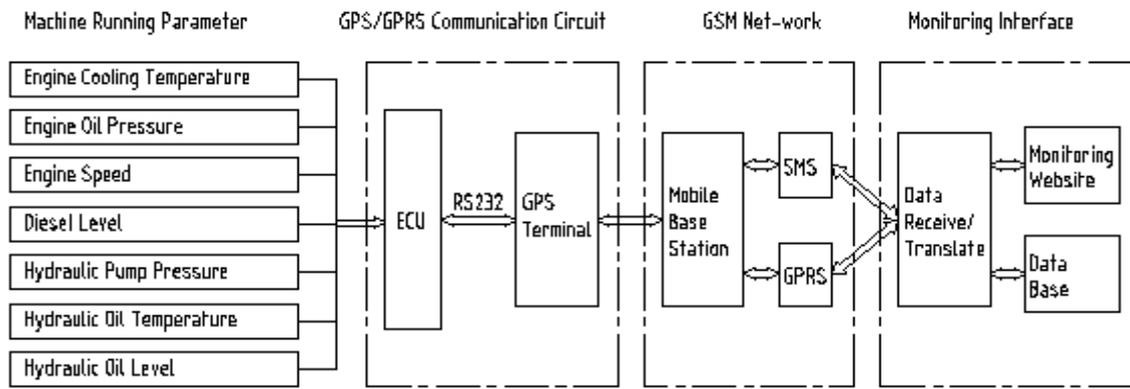


Figure 2: Communication System Diagram

### III. SYSTEM COMPONENT AND WORKING FLOW

module, GPRS module and GPS module, etc. Hardware frame is shown as Figure 3. Later on introduce these modules one by one in detail.

The hardware of this system includes power circuit, CPU (Central Process Unit), I/O module, RS232

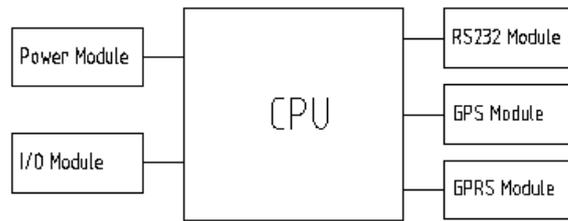


Figure 3: Hardware frame Diagram

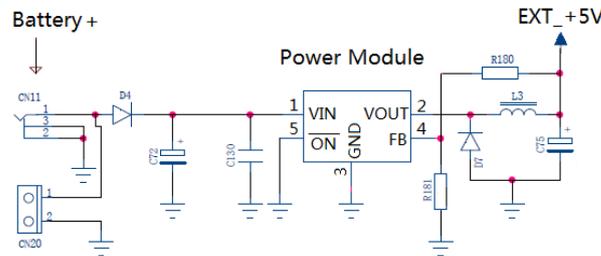


Figure 4: Power Module Circuit

#### a) Power Module

This module is the power of CPU and other modules, and its key specification is to support reliable voltage. There are 5 pins in this module, pin 1 is battery+ input, pin 2 is voltage output, pin 3 is ground signal, pin 4 is feedback signal and pin 5 is enable signal input with low side. The circuit is shown as Figure 4. In order to secure the output steadily, there is feedback signal in pin 4 of power module to adjust the pulse ratio of output, when feedback signal is high, it will reduce the pulse ratio to drag voltage down; verse wise, and it will push voltage up.

#### b) CPU

CPU is the core part of this system, and its function is to process data and control other parts working correspondingly. Working flow of CPU is shown as Figure 5.

#### c) I/O Module

I/O module is to collect the running information in machine, including digital signal, analogue signal and pulse signal.

#### d) Digital Signal Collection

The main question of digital signal collection is data fluctuation, in order to eliminate this disturbance we take the measure of delay sampling collection and times sampling collection in programming. For instance, we set to continue collecting signal in 30 seconds, the result is true if this signal is lasting with the same value, or it is false. And it is right this way to collect warning signal on real machine. Working flow is shown as Figure 6.

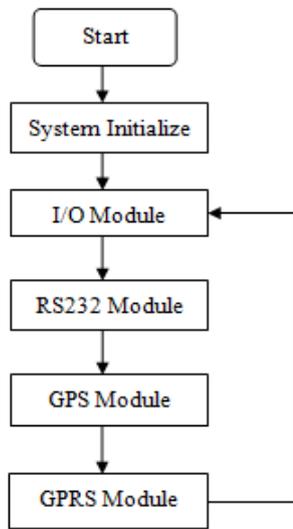


Figure 5: CPU Working Flow Chart

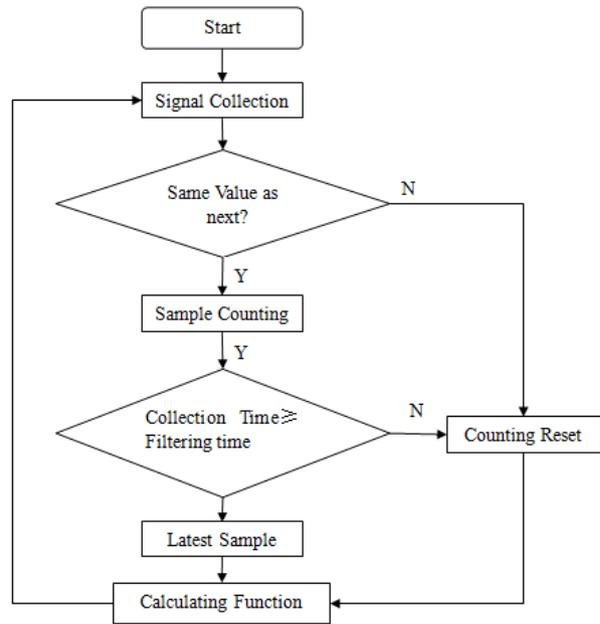


Figure 6: Digital Signal Collection Flow Chart

e) Analogue Signal Collection

There is disturbance phenomenon in analogue signal collection also, so we always set several methods to remove the noise in programming, such as arithmetic average filter, limit range filter, sliding average filter, median value filter, weighted valve filter, average value filter, etc. And sliding average filter and arithmetic average filter are the common smoothing ways, when the actual time of sample collection is more than the defined time, we will choose sliding average filter, or we will adopt arithmetic average filter. And it is the same way to collect signals of engine cooling temperature,

engine oil pressure, engine speed, diesel level, hydraulic pump pressure, hydraulic oil temperature and hydraulic oil level in real machine. Working flow of analogue signal is shown as Figure 7.

f) Pulse Signal Collection

The way of pulse signal collection is to count the sample value in an interval through timer capture function, and engine speed is one of the examples of pulse signal collection. Working flow of pulse signal collection is shown as Figure 8.

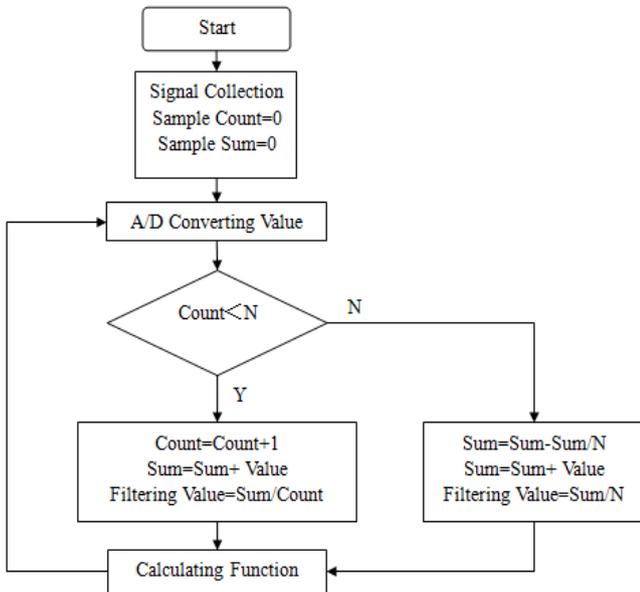


Figure 7: Analogue Signal Collection Flow Chart

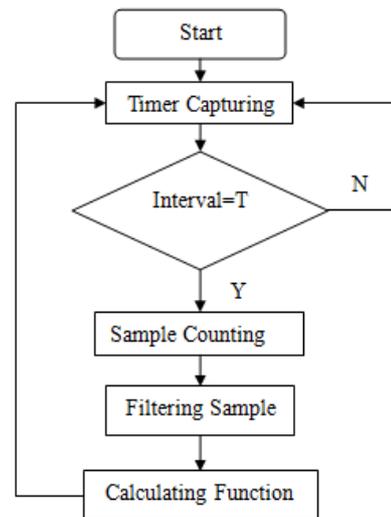


Figure 8: Plus Signal Collection Flow Chart

g) RS232 Module

This module provides connecting port for ECU and GPS terminal. And data transportation with RS232 serial port is basic on communication protocol of mutual agreement, so it is our first step to define communication protocol.

Obey the rule of data frame in RS232 asynchronous communication definition; each frame is composite of these data with 1 bit of start bit, 8 bits of data bit, 1 bit of check sum bit and 1 bit of end bit

including. Data frame is shown as Table 1. Moreover, baud rate is defined as 9600, then to define the rule of data delivery. Firstly these parameter data with 16 bits is packaging to 2 pieces of data frame with 8 bits, one is high frame, and the other is low frame. Then low frame is sent priority to high frame while data delivering, adding frame head code and data length code together. When opposite side receives frame head code of 0xFF, it will continues to accept the next message and check sum bit again, or it will reject this message. [3]

Table 1: Data Frame Format

Shake hand bit	Start bit	Data bit								Check sum bit	End bit
0xFF	0x01	Cooling Temp.	Eng. Oil press.	Eng. speed	Diesel lever	Pump press.	Hyd. Oil temp.	Hyd. Oil level	Warning value		0x0D

These data is sending and receiving bit by bit, when received the 8<sup>th</sup> bit of data, there is set to interrupt communication in programming and store these data.

Repeat this step to receive next message. Working flow of data receiving is shown as Figure 9. Working flow of sending data is shown as Figure 10.

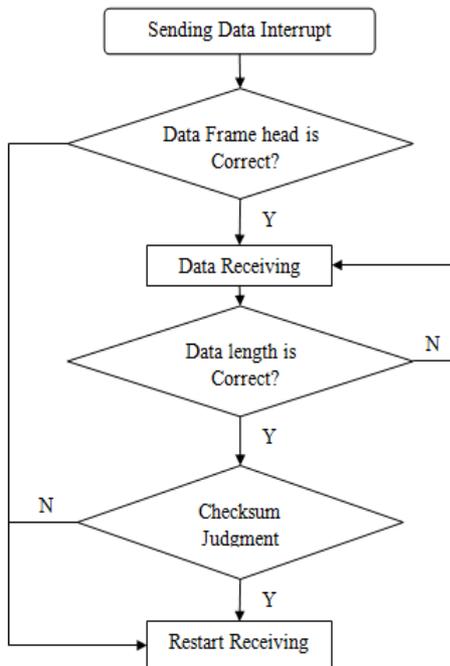


Figure 9: Receive Data Flow of Serial Port

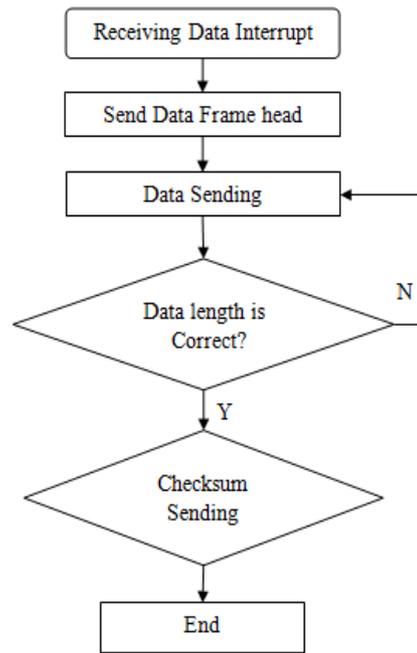


Figure 10: Sending Data Flow of Serial Port

h) GPS Module

GPS module receives data that is to obey the regulation of NMEA-0183 protocol, and it sends this information of location, time, longitude and latitude to ECU via RS232 serial communication circuit. The language statement of NMEA-0183 protocol is complicated, and it is common statement with \$GPGGA, \$GPGSA, \$GPGSV, \$GPRMC, \$GPVTG and \$GPGLL, etc. [4] GPS receiving data flow is shown as Figure 11.

to deliver data successfully from each side. Working flow is shown as Figure 12.

i) GPRS Module

GPRS module response to AT order from CPU, and it is the port to connect with GSM network, so remote communication is running with network online as

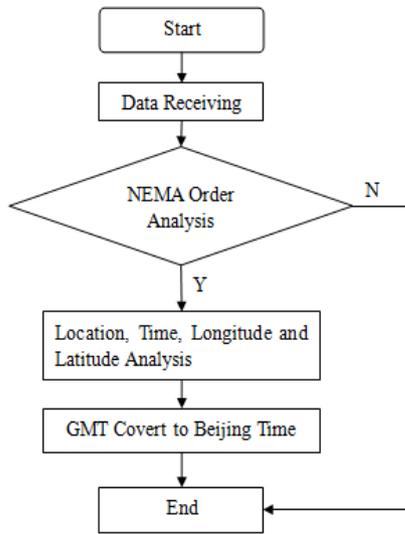


Figure 11: GPS Receiving Data Flow Chart

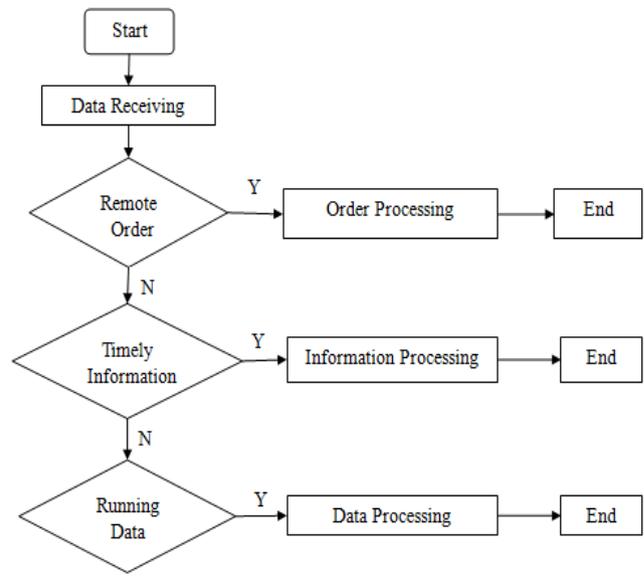


Figure 12: GPRS Data Processing Flow Chart

#### IV. SYSTEM TESTING IN MACHINE

##### a) Communication System Simulation

Set a simulating experiment to test communication system in lad, and engine speed signal is from one square-wave generator (3kHz,8V), the rest signals of Engine cooling temperature, engine oil pressure, diesel level, hydraulic pump pressure

hydraulic oil temperature and hydraulic oil level are connecting with respective analogue loader. Then to set the position of RXT and TXT is right reversed in each connection port between ECU and GPS. Only to connect correctly with each other, they can perform communication successfully. The simulation testing is shown as Figure 13.



Figure 13: Simulation testing In Lab

##### b) Data Validation

After registering the GPS terminal code and SIM code on monitoring screen together, we can see machine running information listing here. Next to comparison between real machine parameter and monitoring data, we check out whether they are totally correct and precise. In the end after removed GPS terminal in 3 minutes, there is shown the information of shutdown engine on monitoring screen. We always use serial port tooling to check out these data whether they meet the protocol. This tooling screen is shown as Figure 14.



Figure 14: Serial Port Tooling Screen

Below is the analysis for answer code:

- FF: Data frame head
- 02: Device address (GPS terminal)
- 01: Shutdown engine
- 0C: GPS cover is opening
- 01: Valid password input
- 01: Restore shutdown function
- 00: Backup
- 0F: Checksum
- 0D: End mark

#### c) Testing Review

After hours of testing, the data is sent and received regularly between ECU and GPS terminal without any data package lost. After sending shutdown order to GPS terminal, ECU responses immediately and demands engine to stop while engine speed is idling. Moreover, after removed GPS terminal from communication circuit, ECU forwards order to stop engine automatically in 3 minutes. Then we come to a conclusion as below:

- 1) This communication system works well with data correct completely. When one side receives data requesting from the other, each time it always answers with the rule of communication protocol.
- 2) After departed from each other between ECU and GPS terminal, ECU demands engine to stop immediately in 3 minutes. And it informs GPS

terminal to send this shutdown information back to monitoring website. So this result meets the requirement of communication protocol also.

## V. CONCLUSION

Due to meet current marketing requirement of GPS/GPRS technology application, this article is to design and experiment on GPS/GPRS communication system with RS232 serial communication protocol in construction machinery. The design clue is to define communication protocol for RS232 serial communication circuit firstly, including data type and format definition. Then ECU sets up to communicate with GPS terminal regard to mutual agreement protocol, if it can't receive the message from GPS terminal in 3 minutes, it will demand engine to stop at once. In this way this system not only provides the function of remote monitoring and anti-demolition for supplier, but also improves the maintenance and service quality for construction machine. Last step is to set experiment and validate the function of this communication system on real machine, and testing conclusion approves that this design is feasible. Next continues to study the function of remote trouble-shoot and pilotless driving base on GPS/GPRS technology in construction machinery.

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## Modeling the Cases of Road Traffic Crashes: A Case of Exponential Smoothing Approach

By Eze, C. M., Asogwa, O. C., & Okonkwo, C. R.

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**Abstract-** This study was carried out using the monthly (January 2007 to December 2017 with a total of 108 data points) reported road traffic crashes along the roads connecting the main city of Enugu State Nigeria. In this work, we gave a general overview of the three basic aspects of exponential smoothing models proposed with their applications on the cases of road traffic crashes (accident). The relationship between autoregressive integrated moving average models and exponential smoothing models was also given. Using a grid search method for the estimation of smoothing parameters, the best exponential smoothing models for each of the cases was identified based on the Mean square error (MSE), Mean absolute error (MAE) and Mean absolute percentage error (MAPE). The Holt-Winter (Triple) exponential smoothing model expounded by Peter Winter (1960) yielded optimum value in each of the measures for each route since the series exhibit both trend and seasonality.

**Keywords:** road traffic crashes, exponential smoothing, ARIMA models.

**GJSFR-I Classification:** FOR Code: 150703



*Strictly as per the compliance and regulations of:*



# Modeling the Cases of Road Traffic Crashes: A Case of Exponential Smoothing Approach

Eze, C. M. <sup>α</sup>, Asogwa, O. C. <sup>σ</sup>, & Okonkwo, C. R. <sup>ρ</sup>

**Abstract-** This study was carried out using the monthly (January 2007 to December 2017 with a total of 108 data points) reported road traffic crashes along the roads connecting the main city of Enugu State Nigeria. In this work, we gave a general overview of the three basic aspects of exponential smoothing models proposed with their applications on the cases of road traffic crashes (accident). The relationship between autoregressive integrated moving average models and exponential smoothing models was also given. Using a grid search method for the estimation of smoothing parameters, the best exponential smoothing models for each of the cases was identified based on the Mean square error (MSE), Mean absolute error (MAE) and Mean absolute percentage error (MAPE). The Holt-Winter (Triple) exponential smoothing model expounded by Peter Winter (1960) yielded optimum value in each of the measures for each route since the series exhibit both trend and seasonality.

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## I. INTRODUCTION

Transportation plays a vital role in social and economic development of a nation, particularly in facilitating movement of people, goods and services from one point to another. In other words, the viability of an economy to an extent partially depends on the ease of moving people and goods from place to place. Eventhough modern means of transportation spurs the development pace of an economy, it has negative effects on the social life of the people. Sumaila (2013) succinctly posited that although transportation has liberated man and makes him more mobile, his increasing reliance on vehicular movement has conferred great fatalities on him and his activities. These great fatalities as pointed out above are the results of traffic crashes along the roads.

According to Salako et al (2014), the causes of road traffic crashes are multi-factorial and involve the interaction of a number of pre-crash factors. These factors can be divided broadly into driver factors, vehicle factors and road way factors. Accidents can be caused by a combination of these factors. Driver factors include driver's behavior, visibility, decision making ability and sensitivity to speed. Drug and alcohol use while driving is an obvious predictor of road traffic crash. Human

error (Driver factor) contributes 64% to 95% traffic crashes in developing countries (Atubi, 2012). Road accidents statistics in Nigeria reveal a serious and growing problem with absolute fatality rate and casualty figure rising rapidly. To curtail the rate of accident occurrence on the roads, viable programs have to be introduced by the Federal road safety commission and other personels whose operations are traffic centered. To come up with such a viable program, the knowledge of the future occurrence of road traffic crashes is essential. Thus, we adopt exponential smoothing model to study the accident phenomenon and come up with a reliable forecast into the future of accident cases along the major roads connecting to the city of Enugu state, Nigeria.

Exponential smoothing is a forecasting technique for smoothing time series data. This forecast technique systematically assigns weights to observations. By the procedure, the forecasts are continually revised in the light of more recent signals. One of the basic ideas of smoothing models is to construct forecasts of future values as weighted averages of past observations with the more recent observations carrying more weight in determining forecasts than observations in the more distant past. By forming forecasts based on weighted averages we are using a "smoothing" method (Fomby, 2008). The exponential smoothing (single exponential smoothing) procedure has a similar concept as moving averages. Whereas in Moving Averages the past observations are weighted equally, Exponential Smoothing assigns exponentially (rapidly) decreasing weights as the observation get older. That is, recent observations are assigned relatively more weight than the older observations in forecasting. In the case of moving averages, the weights assigned to the observations are the same and are equal to  $N^{-1}$ . However, in exponential smoothing, there are one or more parameters (smoothing parameters) to be determined (or estimated) and these parameters contribute in determining the weights to be assigned to the observations. Given a set of time dependent observations,  $z_t; t = 1, 2, \dots, T$ , the generation process of the series can generally be represented using an additive exponential smoothing model given as follows:

$$z_t = \mu_t + \beta_t + s_{t,m} + \varepsilon_t \quad (1)$$

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Where  $\mu_t$  is the time dependent mean (level) term,  $\beta_t$  is the time dependent slope also known as the trend term,  $s_{t,m}$  is the time dependent seasonal term for period  $m$  ( $m = 1, 2, \dots, M$ ) and  $\varepsilon_t$  is the error term. Assuming that the series have no trend ( $\beta_t = 0$ ) and no seasonal term ( $s_{t,m} = 0$ ), the model reduces to single exponential smoothing. As the series are being smoothed at each time  $t$ , the parameters ( $\mu_t, \beta_t, s_{t,m}$ ) are estimated. In other words, the estimates of these parameters vary based on time. Because the process is recursive, it is necessary to determine the initial estimates first.

a) *Single (Simple) Exponential Smoothing*

Single exponential Smoothing does not fair well in a series of data which has trend. This is so because it assumes that data fluctuates around a reasonable stable mean. By the assumption of the model, the series have only level and random component thus, the general model equation reduces to

$$z_t = \mu_t + \varepsilon_t \tag{2}$$

It is used for short range forecasting and this situation exposes the shortfalls of single exponential smoothing.

b) *Derivation of the Single Exponential Smoothing Formula*

Let the smoothing parameter for single exponential smoothing be denoted as  $\alpha$ . Also, let the smoothed level that estimates  $\mu_t$  in (2) be denoted as  $L_t$ . The weighted expression for  $L_t$  is

$$L_t = \alpha z_t + \alpha(1 - \alpha)z_{t-1} + \alpha(1 - \alpha)^2 z_{t-2} + \alpha(1 - \alpha)^3 z_{t-3} + \alpha(1 - \alpha)^4 z_{t-4} \tag{3}$$

It follows that,

$$L_{t-1} = \alpha z_{t-1} + \alpha(1 - \alpha)z_{t-2} + \alpha(1 - \alpha)^2 z_{t-3} + \alpha(1 - \alpha)^3 z_{t-4} \tag{4}$$

Multiplying (4) by  $(1 - \alpha)$ , we have

$$L_{t-1}(1 - \alpha) = \alpha(1 - \alpha)z_{t-1} + \alpha(1 - \alpha)(1 - \alpha)z_{t-2} + \alpha(1 - \alpha)(1 - \alpha)^2 z_{t-3} + \alpha(1 - \alpha)(1 - \alpha)^3 z_{t-4} \tag{5}$$

Subtracting equation (5) from equation (3), implies that

$$L_t = \alpha z_t + (1 - \alpha)L_{t-1} \tag{6}$$

For single (simple) exponential smoothing, (6) is used to smoothen the series and it is called the smoothing equation for (SES).

The h-step ahead prediction equation therefore becomes  $\hat{z}_{t+h} = L_{t-1+h}$ ;  $h = 1, 2, 3, \dots$ . This forecast model is restricted to short term forecasting, mostly one step ahead. With the use of the simple exponential smoothing procedure, each smoothed observation is expressed as a weighted average of present observation and previous smoothed value. The smoothing parameter  $\alpha$  can take any value between 0 and 1.

If  $\alpha = 0$ , the new smoothed value (forecast) is expressed as the immediate past smoothed value ( $L_{t-1}$ ). This implies that all the smoothed values will be constant and equal to the initial starting value. However, if  $\alpha = 1$ , the previous smoothed value is ignored and the new smoothed value becomes equivalent to the present (current) observation. Since when  $\alpha = 1$ ,  $L_t = Z_t$ , it is assumed that smoothing is silent since there is no parameter to weigh the observations. Values of the smoothing parameter ( $\alpha$ ) close to one have less of a smoothing effect and gives heavier weight to recent changes in the data, while values of  $\alpha$  closer to zero have a greater smoothing effect and are less responsive to recent changes. Generally, the large values of  $\alpha$  actually reduces the level of smoothing. The single exponential smoothing model has an equivalent Box-Jenkins ARIMA model given as ARIMA (0, 1, 1). That is  $(1 - B)z_t = (1 - \theta B)\varepsilon_t$ , where  $z_t$  is the series,  $B$  is a backward shift operator,  $\theta$  ( $\theta = 1 - \alpha$ ) is the parameter associated with the moving average part of the model, and  $\varepsilon_t$  is the white noise. This relationship will be established later in this work.

c) *Double Exponential Smoothing*

This procedure is specifically used for series assumed to have level, trend and noise but no seasonality. The general model equation is given as

$$z_t = \mu_t + \beta_t + \varepsilon_t \tag{7}$$

For the fact that it has two basic components: level and trend, the smoothing equation is split into two: one for the level and the other for the trend. Let  $L_t$  and  $T_t$  be the smoothed values that estimates the level and the trend respectively. Therefore,

$$L_t = \alpha z_t + (1 - \alpha)L_{t-1}$$

$$T_t = \tau(L_t - L_{t-1}) + (1 - \tau)T_{t-1}$$

Where  $\alpha$  and  $\tau$  (each lying between 0 and 1) are the smoothing parameters for the level and the trend respectively. After smoothing the level at time  $t$  and the trend at time  $t$  with the two smoothing equations above, respectively, the h-step ahead forecast can then be made using a prediction equation

$$\hat{z}_{t+h} = L_{t-1+h} + \left(\frac{\tau}{1-\alpha}\right)BL_{t+h} + \left(\frac{1-\tau}{1-\alpha}\right)T_{t-1+h}; h = 1, 2, 3 \dots$$

$B$  is a backward shift operator such that  $BL_t = L_t - L_{t-1}$ . Also, the double exponential smoothing model has ARIMA (0, 2, 2) model equivalence. This relationship will also be established later in this work.

d) *Holt-Winter (Triple) Exponential Smoothing*

This is third order exponential smoothing which is the recursive application of an exponential filters three times. The smoothing method is used when the series shows level, trend and seasonality. To handle seasonality, we have to add a third parameter  $\gamma$  and introduce a third equation to take care of seasonality

with seasonal length,  $m=12$  (since we are considering monthly series). The general model equation is given as

$$Z_t = \mu_t + \beta_t + S_{t,m} + \varepsilon_t. \tag{8}$$

Let  $m$  be the length of the season. The seasonal indices are defined such that they sum to zero. That is  $\sum_{t=1}^m S_t = 0$ .

The model has three smoothing equations which are defined as follows;

$$\begin{aligned} L_t &= \alpha(z_t - S_{t-m}) + (1 - \alpha)(L_{t-1} + T_{t-1}) \\ T_t &= \tau(L_t - L_{t-1}) + (1 - \tau)T_{t-1} \\ S_t &= \gamma(z_t - L_t) + (1 - \gamma)S_{t-m} \end{aligned}$$

The  $h$ -step prediction equation is  $\hat{z}_{t+h} = \left(\frac{\tau-\gamma}{1-\alpha-\gamma}\right)L_{t+h} + \left(\frac{1-\alpha-\tau}{1-\alpha-\gamma}\right)L_{t-1+h} + \left(\frac{2-\alpha-\tau}{1-\alpha-\gamma}\right)T_{t-1+h} - \left(\frac{\alpha+\gamma+1}{1-\alpha-\gamma}\right)S_{t-m+h}$ ,  $h=1,2,\dots$  that is forecasting  $z$   $h$ -steps ahead by using the last available estimated level state and incrementing it by  $h$  times using the last available trend while at the same time adding the last available smoothed seasonal factor,  $S_{t-m+h}$  that matches the month of the forecast horizon.

e) *Determination or Choosing of Initial/ Starting Values*

In order to implement these methods mentioned above, the user must provide starting values for the level  $L_t$ , trend  $T_t$  and seasonal indices  $S_t$  at the beginning of the series in order to initiate the updating procedure. There are many different ways of choosing these initial values.

For simple exponential smoothing, the initial value can be determined by taking the average of observations in the first year or simply setting  $L_0 = z_1$  (the first observation).

In double exponential smoothing, we set  $L_0 = z_1$  and  $T_0 = z_2 - z_1$

For Holt-Winter, we set  $L_0$  equal to the average observation in the first year. That is

$$L_0 = \frac{1}{m} \sum_{i=1}^m z_i$$

Where  $m$  is the number of seasons in the year. The starting value for the trend

$$T_0 = \frac{1}{m} \sum_{i=1}^m (z_{m+i} - z_i)$$

Finally, the seasonal index starting value ( $S_0$ ) can be calculated as follows

$$\begin{aligned} S_0 &= Z_m - l_0, \\ S_{-1} &= Z_{m-1} - l_0, \dots, S_{-m+1} = Z_1 - l_0 \end{aligned}$$

f) *Choosing the Best Value for the Smoothing Constant*

The accuracy of the forecasting depends on the smoothing constant. The user must also provide values

for the three smoothing parameters ( $\alpha, \tau, \beta$ ). There are two general ways of selecting the parameters. The first is to estimate them by minimizing sum function of the forecast errors of the historical data. The second is simply guesstimate (an estimate that combines reasoning with guessing). Selecting a smoothing constant is basically a matter of judgment or trial and error, using forecast errors to guide the decision. The goal is to select a smoothing constant that balances the benefits of smoothing random variations with the benefits of responding to real changes if and when they occur. The smoothing constant serves as the weighting factor. When  $\alpha$  is close to 1, the new forecast will include a substantial adjustment for any error that occurred in the preceding forecast. When  $\alpha$  is close to 0, the new forecast is very similar to the old forecast. The smoothing constant is not an arbitrary choice. Low values of  $\alpha$  gives less weight to recent data while higher values of  $\alpha$  permit the more recent data to have a greater influence on the predictions. In practice, the smoothing constant is chosen by a grid search within the parameter space. That is, different solutions for  $\alpha$  are tried starting, for example, with  $\alpha = 0.1$  to  $\alpha = 0.9$ , with increment of 0.1. The value of  $\alpha$  with the smallest MAE, MSE or MAPE is chosen for use in producing the future forecasts.

g) *Discussions on the Results of the Exponential Smoothing Models*

In previous section, we established that there is seasonality in the series of each of the routes. This informs the use of Holt-Winter (Triple) exponential smoothing model which will inculcate the seasonality that is visible in the series. Here, the analysis was run using the non-adaptive technique for additive triple exponential smoothing model. The non-adaptive technique uses the data set to build the model and establish smoothing factors. Since it is non-adaptive, once the optimum smoothing factors  $\alpha, \tau$  and  $\gamma$  are established, they are not modified again. In this research work, a grid search was adopted to identify the optimum smoothing factors (that is the smoothing factors that gives minimum MAE, MSE, SSE and MAPE). However, we still considered single and double exponential smoothing models assuming that there is no seasonality. The essence of doing this is to know whether the model (single or double) will perform better if seasonal component is ignored. We are applying the models on the cases of road traffic crashes along three routes: Enugu-Abakeliki (ENU-ABK), Nsukka-9<sup>th</sup> miles (NSK-9MILE) and Enugu-Onitsha (ENU-ONITSHA), connecting Enugu State, Nigeria. The results are given in the table below:

Table 1: Single Exponential Smoothing Model for the Routes

Routes	Smoothing Factors		Performance Measures			
	$\alpha$		MAE	MSE	SSE	MAPE
ENU-ABK	0.3		2.9189	16.3905	1770.17	$\infty$
NSK-9MILE	0.4		2.7829	15.3718	1660.16	$\infty$
ENU-ONITSHA	0.2		3.2404	19.3095	2085.43	47.4046

Table 2: Double Exponential Smoothing Model for the Routes

Routes	Smoothing Factors		Performance Measures			
	$\alpha$	T	MAE	MSE	SSE	MAPE
ENU-ABK	0.3	0.1	2.9531	17.2853	1866.81	$\infty$
NSK-9MILE	0.4	0.1	2.8496	16.4398	1775.50	$\infty$
ENU-ONITSHA	0.2	0.1	3.3121	20.9090	2258.17	45.2986

Table 3: Holt-Winter (Triple) Exponential Smoothing Model For The Routes

Routes	Smoothing Factors			Performance Measures			
	$\alpha$	T	$\gamma$	MAE	MSE	SSE	MAPE
ENU-ABK	0.3	0.1	0.1	2.8879	14.9525	1614.87	$\infty$
NSK-9MILE	0.5	0.1	0.1	2.5364	12.5325	1353.51	$\infty$
ENU-ONITSHA	0.2	0.1	0.1	3.0174	14.8241	1601.00	42.5465

The results of the exponential smoothing models put in the table above shows that the Holt-winter exponential smoothing model forecasts each of the series better as it yields minimum values of the model performance measures considered in the work. As stated earlier, H-W exponential smoothing model acknowledges the presence of seasonal effects in the series. Therefore, it gives better results since we have been able to establish in previous section that the rate of accident occurrence is generally, seasonal.

h) Establishment of the Relationships between ARIMA and Exponential Smoothing Models

Exponential smoothing and ARIMA models are the two most widely used approaches to time series forecasting. They provide complementary approaches to a problem. While exponential smoothing models were based on a description of trend and seasonality in the data, ARIMA models aim to describe the autocorrelations in the data. ARIMA model has been pioneered by Box and Jenkins (1976). These models are intended for the forecasting of traffic flow data and have since been successfully used.

As stated earlier, the simple/single exponential smoothing is optimal for an ARIMA (0,1,1) model while double exponential smoothing(two parameter model) model is optimal for an ARIMA (0,2,2) model. The 3-parameter Holt-Winters method with additive seasonality is so complicated that it would never be identified in practice (Chatfield and Mohammad, 1988). The multiplicative Holt-Winter does not have an ARIMA equivalent at all. These relationships (that is ARIMA equivalence to exponential smoothing) can be proved using their innovation state space model. Each model consists of a measurement equation that describes the observed data and some transition equations that

describe how the unobserved components or states (level, trend, seasonal) change over time.

i. For simple exponential smoothing, we have that

The ARIMA model equivalence to simple exponential smoothing is ARIMA (0, 1, 1) written as  $(1 - B)Z_t = (1 - \theta B)\epsilon_t$ , where  $\theta = 1 - \alpha$ .

Here we try to prove the relationship using the innovation state space model and the transition equation.

$z_t = \mu_{t-1} + \epsilon_t$  This is the innovation state space model  
 $(1-B)\mu_t = \alpha\epsilon_t$  (Transition equation)

Apply the difference operator (1-B) to both sides of innovation state space model

$$(1-B)z_t = (1 - B)\mu_{t-1} + (1 - B)\epsilon_t$$

$$(1-B)z_t = \alpha\epsilon_{t-1} + \epsilon_t - \epsilon_{t-1}$$

$$(1-B)z_t = \alpha\epsilon_{t-1} - \epsilon_{t-1} + \epsilon_t = \epsilon_t - (1 - \alpha)\epsilon_{t-1}$$

Let  $(1 - \alpha) = \theta$

$$(1-B)z_t = \epsilon_t - \theta\epsilon_{t-1}$$

$$(1-B)z_t = (1-\theta B)\epsilon_t$$

ii. For double exponential smoothing

The ARIMA equivalence to double exponential smoothing is the ARIMA (0, 2, 2) model written as  $(1-B)^2Z_t = (1-\theta B)^2\epsilon_t$ , where  $\theta = 1 - \alpha$

$z_t = \mu_{t-1} + \beta_{t-1} + \epsilon_t$  innovation state space model for double exponential smoothing

$$(1-B)\mu_t = \beta_{t-1} + \alpha\epsilon_t$$

$$(1-B)\beta_t = \tau\epsilon_t$$

To create the relationship, multiply both sides of ISSM by  $(1 - B)^2$  and apply the transition equations appropriately.

$$(1 - B)^2 z_t = (1 - B)^2 \mu_{t-1} + (1 - B)^2 \beta_{t-1} + (1 - B)^2 \varepsilon_t$$

If  $(1-B)\mu_t = \beta_{t-1} + \alpha\varepsilon_t$  then  $(1-B)\mu_{t-1} = \beta_{t-2} + \alpha\varepsilon_{t-1}$

$$(1 - B)^2 \mu_{t-1} = (1 - B) \beta_{t-2} + \alpha(1 - B) \varepsilon_{t-1}$$

For  $(1 - B)^2 \beta_{t-1}$ , we know that  $(1-B)\beta_t = \tau\varepsilon_t$

Therefore  $(1-B)\beta_{t-1} = \tau\varepsilon_{t-1} \Rightarrow (1 - B)^2 \beta_{t-1} = \tau(1 - B)\varepsilon_{t-1}$

$$(1 - B)^2 z_t = (1 - B)\beta_{t-2} + \alpha(1 - B)\varepsilon_{t-1} + \tau(1 - B)\varepsilon_{t-1} + \varepsilon_t - 2\varepsilon_{t-1} + \varepsilon_{t-2}$$

Since  $(1-B)\beta_t = \tau\varepsilon_t$

$$(1 - B)\beta_{t-2} = \tau\varepsilon_{t-2}$$

$$(1 - B)^2 z_t = \tau\varepsilon_{t-2} + \alpha(\varepsilon_{t-1} - \varepsilon_{t-2}) + \tau(\varepsilon_{t-1} - \varepsilon_{t-2}) + \varepsilon_t - 2\varepsilon_{t-1} + \varepsilon_{t-2}$$

$$= \tau\varepsilon_{t-2} + \alpha\varepsilon_{t-1} - \alpha\varepsilon_{t-2} + \tau\varepsilon_{t-1} - \tau\varepsilon_{t-2} + \varepsilon_t - 2\varepsilon_{t-1} + \varepsilon_{t-2}$$

$$= \varepsilon_t + (\alpha + \tau - 2)\varepsilon_{t-1} + (\tau - \alpha - \tau + 1)\varepsilon_{t-2}$$

$$= \varepsilon_t - (2 - \alpha - \tau)\varepsilon_{t-1} + (1 - \alpha)\varepsilon_{t-2}$$

$$= \varepsilon_t - (2 - \alpha - \tau)\varepsilon_{t-1} - (\alpha - 1)\varepsilon_{t-2}$$

if  $\theta_1 = 2 - \alpha - \tau, \theta_2 = \alpha - 1$

Therefore  $(1 - B)^2 z_t = \varepsilon_t - \theta_1 \varepsilon_{t-1} - \theta_2 \varepsilon_{t-2} \Rightarrow (1 - \theta_1 B - \theta_2 B^2) \varepsilon_t$

iii. For Holt-Winter exponential smoothing

The 3-parameter Holt-Winters method with additive seasonality is so complicated that it would never be identified in practice (Chatfield and Mohammad, 1988). The multiplicative Holt-Winter does not have an ARIMA equivalent at all.

All exponential smoothing methods need some estimation of smoothing parameters which is either  $\alpha, \beta,$

$\tau$ . The minimization of the mean square error is the common method of estimating these parameters and this is normally done through the grid search method.

Emperically, the relationship established above can be pictured in the performance measures of the two models (Exponential smoothing and ARIMA model)

Table 4: Comparison table for single Exponential Smoothing Model and ARIMA (0, 1, 1)

Routes	Exponential Smoothing Model			Arima Model		
	MAE	RMSE	MAPE	MAE	RMSE	MAPE
ENU-ABK	2.9189	4.048	$\infty$	2.87	4.107	64.143
NSK-9MILE	2.7829	3.9206	$\infty$	2.839	3.916	67.966
ENU-ONITSHA	3.2404	4.3943	47.4046	3.274	4.515	47.172

Table 5: Comparison table for Double Exponential Smoothing Model and ARIMA (0, 2, 2)

Route	Exponential Smoothing Model			Arima Model		
	MAE	RMSE	MAPE	MAE	RMSE	MAPE
ENU-ABK	2.9531	4.158	$\infty$	3.177	4.555	63.378
NSK-9MILE	2.8496	4.055	$\infty$	2.945	4.322	66.611
ENU-ONITSHA	3.3121	4.573	45.298	3.577	5.377	46.163

## II. SUMMARY

Holt-Winter (Triple) exponential smoothing model expounded by Peter Winter (1960) is also used when the series under study exhibit both trend and seasonality. These informed the use of the two approaches, in addition to the other two forms of exponential smoothing models to study cases of Road traffic crashes (RTC) in some selected routes in Enugu state, Nigeria.

On the other hand, the series were smoothed (remove irregularities from the series) using three different exponential smoothing methods. The first one (single exponential smoothing method) assumed that the series has no trend, the second one (double exponential smoothing method) assumed that the series has trend while the third one (Holt-winter (Triple) exponential smoothing method) has the assumption that the series has both trend and seasonality. From the result of the exponential smoothing modeling, the

acknowledgment of the presence of seasonality improves the performance of the model. This is obvious in the result of the Holt- Winters exponential smoothing model.

Even as the smoothing models are reliable for forecasting, it has some inherent shortfalls. As a modeling technique, exponential smoothing methods have a significant shortfall emanating from not having an objective statistical identification and diagnostic checking system for evaluating the “goodness” of competing exponential smoothing models. Because of these shortfalls, exponential smoothing models are statistically regarded as ad hoc models.

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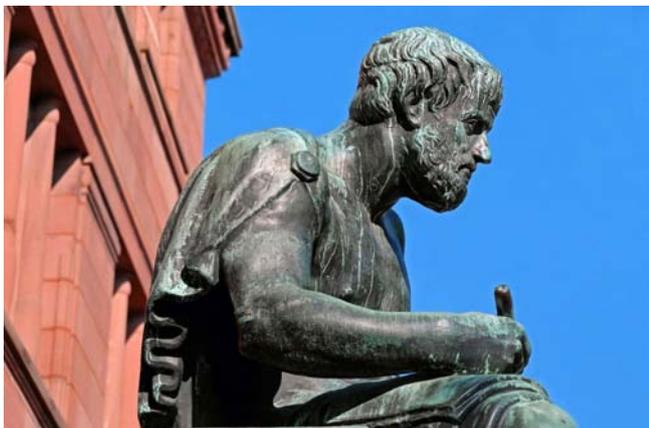
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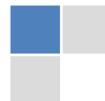
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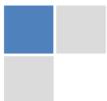
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Plagiarized content will not be considered for publication. We reserve the right to inform authors' institutions about plagiarism detected either before or after publication. If plagiarism is identified, we will follow COPE guidelines:

Authors are solely responsible for all the plagiarism that is found. The author must not fabricate, falsify or plagiarize existing research data. The following, if copied, will be considered plagiarism:

- Words (language)
- Ideas
- Findings
- Writings
- Diagrams
- Graphs
- Illustrations
- Lectures



- Printed material
- Graphic representations
- Computer programs
- Electronic material
- Any other original work

## AUTHORSHIP POLICIES

Global Journals follows the definition of authorship set up by the Open Association of Research Society, USA. According to its guidelines, authorship criteria must be based on:

1. Substantial contributions to the conception and acquisition of data, analysis, and interpretation of findings.
2. Drafting the paper and revising it critically regarding important academic content.
3. Final approval of the version of the paper to be published.

### Changes in Authorship

The corresponding author should mention the name and complete details of all co-authors during submission and in manuscript. We support addition, rearrangement, manipulation, and deletions in authors list till the early view publication of the journal. We expect that corresponding author will notify all co-authors of submission. We follow COPE guidelines for changes in authorship.

### Copyright

During submission of the manuscript, the author is confirming an exclusive license agreement with Global Journals which gives Global Journals the authority to reproduce, reuse, and republish authors' research. We also believe in flexible copyright terms where copyright may remain with authors/employers/institutions as well. Contact your editor after acceptance to choose your copyright policy. You may follow this form for copyright transfers.

### Appealing Decisions

Unless specified in the notification, the Editorial Board's decision on publication of the paper is final and cannot be appealed before making the major change in the manuscript.

### Acknowledgments

Contributors to the research other than authors credited should be mentioned in Acknowledgments. The source of funding for the research can be included. Suppliers of resources may be mentioned along with their addresses.

### Declaration of funding sources

Global Journals is in partnership with various universities, laboratories, and other institutions worldwide in the research domain. Authors are requested to disclose their source of funding during every stage of their research, such as making analysis, performing laboratory operations, computing data, and using institutional resources, from writing an article to its submission. This will also help authors to get reimbursements by requesting an open access publication letter from Global Journals and submitting to the respective funding source.

## PREPARING YOUR MANUSCRIPT

Authors can submit papers and articles in an acceptable file format: MS Word (doc, docx), LaTeX (.tex, .zip or .rar including all of your files), Adobe PDF (.pdf), rich text format (.rtf), simple text document (.txt), Open Document Text (.odt), and Apple Pages (.pages). Our professional layout editors will format the entire paper according to our official guidelines. This is one of the highlights of publishing with Global Journals—authors should not be concerned about the formatting of their paper. Global Journals accepts articles and manuscripts in every major language, be it Spanish, Chinese, Japanese, Portuguese, Russian, French, German, Dutch, Italian, Greek, or any other national language, but the title, subtitle, and abstract should be in English. This will facilitate indexing and the pre-peer review process.

The following is the official style and template developed for publication of a research paper. Authors are not required to follow this style during the submission of the paper. It is just for reference purposes.



### ***Manuscript Style Instruction (Optional)***

- Microsoft Word Document Setting Instructions.
- Font type of all text should be Swis721 Lt BT.
- Page size: 8.27" x 11", left margin: 0.65, right margin: 0.65, bottom margin: 0.75.
- Paper title should be in one column of font size 24.
- Author name in font size of 11 in one column.
- Abstract: font size 9 with the word "Abstract" in bold italics.
- Main text: font size 10 with two justified columns.
- Two columns with equal column width of 3.38 and spacing of 0.2.
- First character must be three lines drop-capped.
- The paragraph before spacing of 1 pt and after of 0 pt.
- Line spacing of 1 pt.
- Large images must be in one column.
- The names of first main headings (Heading 1) must be in Roman font, capital letters, and font size of 10.
- The names of second main headings (Heading 2) must not include numbers and must be in italics with a font size of 10.

### ***Structure and Format of Manuscript***

The recommended size of an original research paper is under 15,000 words and review papers under 7,000 words. Research articles should be less than 10,000 words. Research papers are usually longer than review papers. Review papers are reports of significant research (typically less than 7,000 words, including tables, figures, and references)

A research paper must include:

- a) A title which should be relevant to the theme of the paper.
- b) A summary, known as an abstract (less than 150 words), containing the major results and conclusions.
- c) Up to 10 keywords that precisely identify the paper's subject, purpose, and focus.
- d) An introduction, giving fundamental background objectives.
- e) Resources and techniques with sufficient complete experimental details (wherever possible by reference) to permit repetition, sources of information must be given, and numerical methods must be specified by reference.
- f) Results which should be presented concisely by well-designed tables and figures.
- g) Suitable statistical data should also be given.
- h) All data must have been gathered with attention to numerical detail in the planning stage.

Design has been recognized to be essential to experiments for a considerable time, and the editor has decided that any paper that appears not to have adequate numerical treatments of the data will be returned unrefereed.

- i) Discussion should cover implications and consequences and not just recapitulate the results; conclusions should also be summarized.
- j) There should be brief acknowledgments.
- k) There ought to be references in the conventional format. Global Journals recommends APA format.

Authors should carefully consider the preparation of papers to ensure that they communicate effectively. Papers are much more likely to be accepted if they are carefully designed and laid out, contain few or no errors, are summarizing, and follow instructions. They will also be published with much fewer delays than those that require much technical and editorial correction.

The Editorial Board reserves the right to make literary corrections and suggestions to improve brevity.



## FORMAT STRUCTURE

***It is necessary that authors take care in submitting a manuscript that is written in simple language and adheres to published guidelines.***

All manuscripts submitted to Global Journals should include:

### **Title**

The title page must carry an informative title that reflects the content, a running title (less than 45 characters together with spaces), names of the authors and co-authors, and the place(s) where the work was carried out.

### **Author details**

The full postal address of any related author(s) must be specified.

### **Abstract**

The abstract is the foundation of the research paper. It should be clear and concise and must contain the objective of the paper and inferences drawn. It is advised to not include big mathematical equations or complicated jargon.

Many researchers searching for information online will use search engines such as Google, Yahoo or others. By optimizing your paper for search engines, you will amplify the chance of someone finding it. In turn, this will make it more likely to be viewed and cited in further works. Global Journals has compiled these guidelines to facilitate you to maximize the web-friendliness of the most public part of your paper.

### **Keywords**

A major lynchpin of research work for the writing of research papers is the keyword search, which one will employ to find both library and internet resources. Up to eleven keywords or very brief phrases have to be given to help data retrieval, mining, and indexing.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy: planning of a list of possible keywords and phrases to try.

Choice of the main keywords is the first tool of writing a research paper. Research paper writing is an art. Keyword search should be as strategic as possible.

One should start brainstorming lists of potential keywords before even beginning searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in a research paper?" Then consider synonyms for the important words.

It may take the discovery of only one important paper to steer in the right keyword direction because, in most databases, the keywords under which a research paper is abstracted are listed with the paper.

### **Numerical Methods**

Numerical methods used should be transparent and, where appropriate, supported by references.

### **Abbreviations**

Authors must list all the abbreviations used in the paper at the end of the paper or in a separate table before using them.

### **Formulas and equations**

Authors are advised to submit any mathematical equation using either MathJax, KaTeX, or LaTeX, or in a very high-quality image.

### **Tables, Figures, and Figure Legends**

Tables: Tables should be cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g., Table 4, a self-explanatory caption, and be on a separate sheet. Authors must submit tables in an editable format and not as images. References to these tables (if any) must be mentioned accurately.



## Figures

Figures are supposed to be submitted as separate files. Always include a citation in the text for each figure using Arabic numbers, e.g., Fig. 4. Artwork must be submitted online in vector electronic form or by emailing it.

## PREPARATION OF ELETRONIC FIGURES FOR PUBLICATION

Although low-quality images are sufficient for review purposes, print publication requires high-quality images to prevent the final product being blurred or fuzzy. Submit (possibly by e-mail) EPS (line art) or TIFF (halftone/ photographs) files only. MS PowerPoint and Word Graphics are unsuitable for printed pictures. Avoid using pixel-oriented software. Scans (TIFF only) should have a resolution of at least 350 dpi (halftone) or 700 to 1100 dpi (line drawings). Please give the data for figures in black and white or submit a Color Work Agreement form. EPS files must be saved with fonts embedded (and with a TIFF preview, if possible).

For scanned images, the scanning resolution at final image size ought to be as follows to ensure good reproduction: line art: >650 dpi; halftones (including gel photographs): >350 dpi; figures containing both halftone and line images: >650 dpi.

Color charges: Authors are advised to pay the full cost for the reproduction of their color artwork. Hence, please note that if there is color artwork in your manuscript when it is accepted for publication, we would require you to complete and return a Color Work Agreement form before your paper can be published. Also, you can email your editor to remove the color fee after acceptance of the paper.

## TIPS FOR WRITING A GOOD QUALITY SCIENCE FRONTIER RESEARCH PAPER

Techniques for writing a good quality Science Frontier Research paper:

**1. Choosing the topic:** In most cases, the topic is selected by the interests of the author, but it can also be suggested by the guides. You can have several topics, and then judge which you are most comfortable with. This may be done by asking several questions of yourself, like "Will I be able to carry out a search in this area? Will I find all necessary resources to accomplish the search? Will I be able to find all information in this field area?" If the answer to this type of question is "yes," then you ought to choose that topic. In most cases, you may have to conduct surveys and visit several places. Also, you might have to do a lot of work to find all the rises and falls of the various data on that subject. Sometimes, detailed information plays a vital role, instead of short information. Evaluators are human: The first thing to remember is that evaluators are also human beings. They are not only meant for rejecting a paper. They are here to evaluate your paper. So present your best aspect.

**2. Think like evaluators:** If you are in confusion or getting demotivated because your paper may not be accepted by the evaluators, then think, and try to evaluate your paper like an evaluator. Try to understand what an evaluator wants in your research paper, and you will automatically have your answer. Make blueprints of paper: The outline is the plan or framework that will help you to arrange your thoughts. It will make your paper logical. But remember that all points of your outline must be related to the topic you have chosen.

**3. Ask your guides:** If you are having any difficulty with your research, then do not hesitate to share your difficulty with your guide (if you have one). They will surely help you out and resolve your doubts. If you can't clarify what exactly you require for your work, then ask your supervisor to help you with an alternative. He or she might also provide you with a list of essential readings.

**4. Use of computer is recommended:** As you are doing research in the field of science frontier then this point is quite obvious. Use right software: Always use good quality software packages. If you are not capable of judging good software, then you can lose the quality of your paper unknowingly. There are various programs available to help you which you can get through the internet.

**5. Use the internet for help:** An excellent start for your paper is using Google. It is a wondrous search engine, where you can have your doubts resolved. You may also read some answers for the frequent question of how to write your research paper or find a model research paper. You can download books from the internet. If you have all the required books, place importance on reading, selecting, and analyzing the specified information. Then sketch out your research paper. Use big pictures: You may use encyclopedias like Wikipedia to get pictures with the best resolution. At Global Journals, you should strictly follow here.



**6. Bookmarks are useful:** When you read any book or magazine, you generally use bookmarks, right? It is a good habit which helps to not lose your continuity. You should always use bookmarks while searching on the internet also, which will make your search easier.

**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

**9. Produce good diagrams of your own:** Always try to include good charts or diagrams in your paper to improve quality. Using several unnecessary diagrams will degrade the quality of your paper by creating a hodgepodge. So always try to include diagrams which were made by you to improve the readability of your paper. Use of direct quotes: When you do research relevant to literature, history, or current affairs, then use of quotes becomes essential, but if the study is relevant to science, use of quotes is not preferable.

**10. Use proper verb tense:** Use proper verb tenses in your paper. Use past tense to present those events that have happened. Use present tense to indicate events that are going on. Use future tense to indicate events that will happen in the future. Use of wrong tenses will confuse the evaluator. Avoid sentences that are incomplete.

**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice.

Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.



**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.

**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.



### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.
- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
- Use present tense to report well-accepted matters.
- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

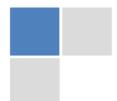
- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.



*The following approach can create a valuable beginning:*

- Explain the value (significance) of the study.
- Defend the model—why did you employ this particular system or method? What is its compensation? Remark upon its appropriateness from an abstract point of view as well as pointing out sensible reasons for using it.
- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.

#### **Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

As always, give awareness to spelling, simplicity, and correctness of sentences and phrases.

#### **Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

When a technique is used that has been well-described in another section, mention the specific item describing the way, but draw the basic principle while stating the situation. The purpose is to show all particular resources and broad procedures so that another person may use some or all of the methods in one more study or referee the scientific value of your work. It is not to be a step-by-step report of the whole thing you did, nor is a methods section a set of orders.

#### **Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

#### **Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

#### **Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

#### **What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.



**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.

**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

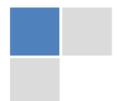
If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

The discussion is expected to be the trickiest segment to write. A lot of papers submitted to the journal are discarded based on problems with the discussion. There is no rule for how long an argument should be.

Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

Infer your data in the conversation in suitable depth. This means that when you clarify an observable fact, you must explain mechanisms that may account for the observation. If your results vary from your prospect, make clear why that may have happened. If your results agree, then explain the theory that the proof supported. It is never suitable to just state that the data approved the prospect, and let it drop at that. Make a decision as to whether each premise is supported or discarded or if you cannot make a conclusion with assurance. Do not just dismiss a study or part of a study as "uncertain."



Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

- You may propose future guidelines, such as how an experiment might be personalized to accomplish a new idea.
- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.

**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

## THE ADMINISTRATION RULES

Administration Rules to Be Strictly Followed before Submitting Your Research Paper to Global Journals Inc.

*Please read the following rules and regulations carefully before submitting your research paper to Global Journals Inc. to avoid rejection.*

*Segment draft and final research paper:* You have to strictly follow the template of a research paper, failing which your paper may get rejected. You are expected to write each part of the paper wholly on your own. The peer reviewers need to identify your own perspective of the concepts in your own terms. Please do not extract straight from any other source, and do not rephrase someone else's analysis. Do not allow anyone else to proofread your manuscript.

*Written material:* You may discuss this with your guides and key sources. Do not copy anyone else's paper, even if this is only imitation, otherwise it will be rejected on the grounds of plagiarism, which is illegal. Various methods to avoid plagiarism are strictly applied by us to every paper, and, if found guilty, you may be blacklisted, which could affect your career adversely. To guard yourself and others from possible illegal use, please do not permit anyone to use or even read your paper and file.



CRITERION FOR GRADING A RESEARCH PAPER (COMPILATION)  
BY GLOBAL JOURNALS

Please note that following table is only a Grading of "Paper Compilation" and not on "Performed/Stated Research" whose grading solely depends on Individual Assigned Peer Reviewer and Editorial Board Member. These can be available only on request and after decision of Paper. This report will be the property of Global Journals.

Topics	Grades		
	A-B	C-D	E-F
<i>Abstract</i>	Clear and concise with appropriate content, Correct format. 200 words or below	Unclear summary and no specific data, Incorrect form  Above 200 words	No specific data with ambiguous information  Above 250 words
<i>Introduction</i>	Containing all background details with clear goal and appropriate details, flow specification, no grammar and spelling mistake, well organized sentence and paragraph, reference cited	Unclear and confusing data, appropriate format, grammar and spelling errors with unorganized matter	Out of place depth and content, hazy format
<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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