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Manifestation of Functional Ensembles of Intellectual Agents Based on Live Information in Various Spheres of Life Activity

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ABSTRACT: Neural networks with deep learning and reinforcement are able to compose poetry and music, draw paintings, and write short stories, as well as come up with scripts for films. Functional ensembles of harmoniously interacting intellectual agents with living information can virtually model creativity for various spheres of life activity. Virtual modeling of creativity by harmoniously interacting intellectual agents is carried out based on living creative processes represented by acts of creation accumulated by humanity in a certain sphere of life. Live information of creative acts of creation for functional ensembles from harmoniously interacting intellectual agents is revealed from the effective creative practice of specialists in specific conditions and presented in the format of smart ethical communicative-associative cases. To model creativity, a virtual environment of a certain sphere of activity is formed, in which the ensemble gives birth to a creative fruit according to the plan of a specialist. Functional ensembles of harmoniously interacting intellectual agents with live creative practice can cooperate with a person, and can also independently virtually model the creative creation of new designs of a specialist, if the ensemble has enough acts of creation.

Keywords: Creative modeling, intelligent agents, live information, virtual environment.

REVIEW PAPER

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I. INTRODUCTION

With the development of neural networks, they come up with more and more diverse methods of application. They teach Tesla autopilots, and facial recognition is used not only for processing photos by applications like Prisma, but also in security systems. Artificial intelligence is taught to diagnose diseases. In the end, with his help, elections win.

But there is one sphere that has traditionally been considered to belong exclusively to man - creativity. However, this statement is beginning to be called into question. Lee Cedol, who lost the AlphaGo, admitted: "The defeat made me doubt human creativity. When I saw how AlphaGo plays, I doubted how well I play myself." Is artificial intelligence capable of stepping into the territory of creativity, into the space of perception?

Nature is a sweet, familiar and beloved creature on the heart. Nature is one of the most important sources from which creative people draw inspiration. Nature is a muse for people's creativity.

In the history of our country there are many famous people whose work was strongly influenced by nature. One of them is Alexander Sergeevich Pushkin. "Boldinsky Autumn" is the brightest period in his work. While in the village of Boldino, the writer revealed himself in many genres and wrote a large number of works. What attracted Pushkin this village? And the fact is that he in Boldino found a muse that did not leave him either for days or nights. This muse is nature.

Yasnaya Polyana had a great influence on the work of the writer Lev Nikolaevich Tolstoy. It was here, in his native estate that Lev Nikolaevich felt like an artist. It was here that he was first visited by inspiration, which later glorified the writer as an exponent of Russian nature. It was here that images were born, which later entered many of the writer's works.

Nature and creative people are closely interconnected. Nature is the main source of inspiration for them.

A person has the ability to see the beautiful. Here, a man saw the depth of the blue sky, the flickering in the dark night of beautiful and mysterious stars, crimson sunset before a windy day, a gentle pink dawn nascent day, the wild beauty of the steppes, a crane pack in celestial azure, the reflection of the sun in clear droplets of morning dew, gray threads of rain in overcast autumn, a gentle stalk and blue - saw and was amazed and began to create his beauty, in his heart.

A man became creative when he heard a whisper of autumn leaves and fell in love with him, heard a bird's song and tried to convey it through sound reproduction and the creation of many musical instruments. When he managed to convey through his works of art the magazine of the spring stream and the ringing of the silver bells of the lark in the bottomless sky, he noticed the uniqueness of each snowflake and the longing from the curling of the snow blizzard outside the window, the affectionate shoulder of the wave and the solemn silence of the night. Man heard all this and, holding his breath, listens to the wonderful music and poetry of nature for hundreds and thousands of years. The world around us is reflected in a person's emotional state. Nature always inspires man, gives him a sense of beauty and harmony with the world.

Left alone with nature, a person can understand himself and find answers to all the questions of interest. This is her creative influence. Good nature has taken care of everything so that everywhere you find something to learn (Leonardo da Vinci). Man is endowed by the Creator with power over external nature, while in his work he is subordinate to it (Georg Hegel). Nature is a pleasant mentor, and not so much pleasant as careful and faithful (Michel Montaigne).

Humans are part of nature. At every step you can notice the influence of nature on human creativity. People tried to comprehend various elements and describe the impact of external forces on their activities. The consequence of this influence is the fact that the interaction of human activity and nature very often gives impetus to various creations. Nature fills the heart with the beauty of forests and flowering meadows, bright positive emotions, awakens joyful feelings, sows well and pushes for new creations. Usually, after a long stay in nature, the mind seems to be purifying, it begins to be filled with new thoughts and ideas that immediately want to run and implement. Simply put, we are inspired.

Everything that happens to people since their appearance is connected with spiritual laws, especially harmony, creativity and beauty. The ideal is the life of people in harmony with nature. Nature is perfect in terms of harmony and beauty.

Nature has creative qualities. It reproduces flowers, trees, grass, etc., in certain conditions, with living information about them. By feeding on the wildlife information of objects, processes, phenomena, connections and laws, man becomes the creator of living knowledge and living practice [1].

The living information of Nature represents the communication vibrations of its essence. Man has a natural mechanism of creative activity with wildlife information of Nature. The mental biopolis of the mind perceives the communicative vibrations of Nature. When perceived natural communicative vibrations come into resonance with the vibrations of psychic energy of the associative neural network systems of the brain, and then their figurative or linguistic similarity arises depending on the concentration of attention.

The article is devoted to the formation and creative manifestation of functional ensembles of intellectual agents based on live information.

The second section is devoted to the formation of a platform for a virtual creative living environment. It examines the presentation of creative acts by intelligent ethical communicative-associative cases and professional images of intellectual agents.

The third section describes the platform of creative ensembles of intellectual agents with smart hybrid competencies and functional harmonious self-organization of large ensembles of intellectual agents according to the law of gold section [2].

The fourth section examines aspects of modeling creative activities by ensembles of intelligent agents in a virtual environment.

2. Building Virtual Creative Living Environment Platform

2.1 Presentation of information on creative acts by smart ethical communicative-associative cases

The presentation of living information of creative acts of specialists in a virtual creative environment is carried out by smart ethical communicative-associative cases. They use both attributes and sets of entities, processes, relationships, as well as parameters, characteristics, methods, digital models of human twins, knowledge, skills, behavior, images and other objects of harmonious interaction of ensembles of intellectual agents. For example, Table 1 - Table 7).

Table-1: General

Use case name	**Smart ethical communicative-associative communications of ensembles of intellectual agents**			
Application domain	Hi-Tech Labor Market			
Deployment model	Human digital double			
Status	Results of research: Harmonious self-organization of large ensembles of intellectual agents to the law of gold; functional self-organization of large ensembles of intellectual agents with competent images of smart hybrid competencies			
Scope	Industrial sectors and social services			
Objective(s)	Find harmonious and universal application of large ensembles of intellectual agents			
Narrative	Short description (not more than 150 words)	The standard case defines the properties, characteristics and attributes for harmonious self-organization of large ensembles, consisting of a set of functionally interfacing intellectual agents with competent images of smart hybrid competencies. They determine the state of stable equilibrium that arises from the correct distribution, combination, interaction of intelligent agents. To obtain the necessary result, competent images of intelligent agents with smart hybrid competencies are formed. The functions of interaction of intellectual agents of the ensemble are set. According to the law of gold cross-section, the critical value of intellectual agents is determined. Then the functional self-organization of the ensemble is carried out by achieving synergy in the functions of interaction of intellectual agents. Then the ensemble adapts to a specific environment. As a result of harmonious functional self-organization, in accordance with the standard case, a target ensemble of intellectual agents is formed to obtain the necessary result.		
	Complete description			
Stakeholders	Highly technological producer and user			
Stakeholders' assets, values	Reputation, responsibility, security			
System's threats and vulnerabilities	Legal and ethical aspects of interaction with society			
Key performance indicators (KPIs)	ID	Name	Description	Reference to mentioned use case objectives
	1	AI management of professional cooperation process	Creative process management technology can itself predict the optimal timing of individual stages based on accumulated information about their labor intensity, choice of equipment loading route and competencies of intelligent agents. Streamline processes and automatically delegate tasks.	Improve of synergy between agents
	2	Productivity and quality AI	Smart communication artificial intelligence works with fewer errors and is safer. Smart communication artificial intelligence improves the quality of life of a person and society in everyday concerns, as well as productivity in high-tech industry and production.	Improve of efficiency
AI features	Task(s)	1 .Safe interaction of technocratic societies. 2 .Building high-tech synergies of technocratic societies.		
	Method(s)	Ethical language, behavioural and active communication and utility and preference criteria		
	Hardware	Supercomputer with Strong Artificial Distributed Intelligence		
	Topology	Distributed Modular Interconnect Topology		
	Terms and concepts used	Technocratic societies, synergy of interaction intelligent agents, ethical language behavioural and active communication, harmonious self-organization of large ensembles of intellectual agents, utility and preference criteria, creative communication safe artificial intelligence.		
Standardization opportunities/ requirements	Smart communication artificial intelligence requires process standardization, as does every human activity.			
Challenges and issues	Qualitatively new type of harmonious self-organization of large ensembles of intellectual agents according.			
Societal concerns	Description	Security and ethical and aspects of harmonious self-organization of large ensembles		
	SDGs to be achieved	A universal approach to the ethical and safe use of intellectual agent ensembles with language behavioral and active communications.		

Table-2: Data

Data characteristics	
Description	Smart Communication Artificial Intelligence Professional Images
Source	Criteria and Technology of Smart Communication Artificial Intelligence
Type	Smart ethical communicative-associative №
Volume (size)	Hi-Tech Labor Market
Velocity (e.g. real time)	Supercomputering velocity
Variety (multiple datasets)	Streams of Competent Images
Variability (rate of change)	Self-organization
Quality	High

Table-3: Process scenario

Scenario conditions					
N.	**Scenario name**	**Scenario description**	**Triggering event**	**Pre-condition**	**Post-condition**
1	Training	Training of intellectual agents in competent images and language, behavioral and active communications.	By technological process of modeling flow of competent images and language, behavioral and active communications	Formatting of competent images and language, behavioral and active communications	Management of safety
2	Evaluation	Trained model	Development of technological thinking and behaviour	Cognitive thinking patterns and psychological behaviors	Meeting KPI requirements is condition of synergy
3	Execution	Model and Technology Tooling	Interaction	Activization of Model	Completion of interaction
4	Retraining	Retrain model with self-organization competent images and language, behavioral and active communications.	New professional activities and competencies	Additional images and communications	Combining images and communications

Table-4: Training

Scenario name	**Training**				
Step No.	**Event**	**Name of process/Activity**	**Primary actor**	**Description of process/activity**	**Requirement**
1	Sample competent images and language, behavioral and active communications is ready	Specification and classification	Manufacturer	Transform sample competent images and language, behavioral and active communications	Smart Communication Artificial Intelligence Software
2	Completion of Step 1	Creating Experimental competent images and language, behavioral and active communications	Manufacturer	Development of language, behavioral and active communications through job modelling	Software of modelling
3	Completion of Step 2	Model training	AI solution provider	Model competent images and language, behavioral and active communications created by Step 2	Sample competent images and language, behavioral and active communications

Table-5: Evaluation

Scenario name	Evaluation				
Step No.	**Event**	**Name of process/Activity**	**Primary actor**	**Description of process/activity**	**Requirement**
1	Completion of training/retraining	Research	Manufacturer	Model of sample experimental data set created	Ethical language, behavioral and active communications
2	Completion of Step 1	Identification	AI solution provider	Based on new data, confirm that the ensemble of intelligent agents performs trained professional process.	Synergy
3	Completion of Step 2	Evaluation	Manufacturer	Comparison of Step 1 and Step 2	Synergy
Input of evaluation		Ethical language, behavioral and active communications			
Output of evaluation		Synergy			

Table-6: Execution

Scenario name	Execution				
Step No.	**Event**	**Name of process/Activity**	**Primary actor**	**Description of process/activity**	**Requirement**
1	Analysis of modeling results	Research	Manufacturer	Development of set of experimental data through job modelling	Compatibility
2	Completion of Step 1 and Step 2	Identification	AI solution provider	Based on the self-organization of communication of competent images according to the created experimental set.	Synergy
Input of Execution		Ensemble of the intellectual agents with competent images			
Output of Execution		Determining the critical value of the intellectual agents of the ensemble, harmonious self-organization of the intellectual agents of the ensemble.			

Table-7: Retraining

Scenario name	Retraining				
Step No.	**Event**	**Name of process / Activity**	**Primary actor**	**Description of process/activity**	**Requirement**
1	New professional activities and competencies	Research	Manufacturer	Additional competent images and language, behavioral and active communications	Completeness
2	Completion of Step 1	Experimental data set creation	Manufacturer	Combining competent images and language, behavioral and active communications	Compatibility
3	Completion of Step 2	Model training	AI solution provider	Comparison of phase 2 results	Harmonious synergy
Specification of retraining data		Data of new professional activities and competencies			

2.2 Professional Images of Intelligent Agents

Professional images of creative acts of intellectual agents indicate belonging to a certain profession. Professional images are a cognitive component of intelligent agents. The substantive components of professional images are creative functions, process and professional result of creative acts, criteria for assessing the achievements of the result. Professional images include an owl of evaluation characteristics and associated behavioral actions. The component composition of the professional image is described by the attributes of live information of the real environment.

Attributes of live information of the real environment: objects, objects, materials, things, processes, the phenomena and other aspects of the physical world have various properties and characteristics. Properties are represented by qualitative attributes. Characteristics appear to be meaningful attributes. The qualitative attribute can be visual or sound. The meaningful attribute may be represented by a number, a language sense, a visual or sound image, a mathematical or behavioral action, or an algorithm. Meaningful qualitative attributes are big data of smart artificial intelligence, connected in time, space and subject area. The attributes of the fields of economics, industrial industries, technologies and professions help to build and train the ensembles of intelligent agents to

manage, make decisions and make recommendations to specialists and managers.

3. Intelligent Agent Creative Ensemble Platform

3.1 Smart Hybrid Smart Agent Competencies

Intellectual agents may have psychological, analytical, research, language, professional and behavioral hybrid competencies. Its psychological competencies are communication, self-regulation, adaptability, motivation, empathy.

Psychological competencies are determined by a model with psychological requirements. Psychological requirements are functional states of the system. Psychological requirements are states that play an appropriate role in the functional organization of the system. Each state is independent in communications. Adaptation is the state of optimal system operation in a variable environment. Empathy is a functional identification of the needs of the environment. The psychological competencies of intellectual agents are functional in terms of conceptual apparatus and methods.

The research competence of intellectual agent ensembles requires mastering and receiving new creative acts to model the implementation of the proposed idea, work with various sources of creative processes of the virtual environment, explore such topics, conduct experimental observations, propose solutions to the proposed idea and look for the most rational solutions. Research competencies develop in the course of creative activity according to the model of their formation. The development of research competencies is carried out on the basis of key competencies. Key competencies are various universal tools and tools, formalized methods, methods and techniques such as comparison, analysis, systematization, generalization, classification, causation, etc. Key competencies allow you to achieve results in uncertain creative situations. They allow you to independently and in cooperation with a specialist to implement plans for the resolution of which there is no complete set of accumulated funds. Key competencies are interdisciplinary, manifested in various areas. Their availability is necessary for productive research, building communications with the environment.

Analytical competencies, through the analysis of live information, extend the requirements for specific creative processes to target processes. This requires knowledge and data on creative activities, strong data management skills, excellent statistical skills, and the ability to evaluate the positive and negative aspects of the proposed actions. Analytical competencies involve a consistent analysis of data and situations in order to see the cause and effect and use this to make effective decisions. Laying out the plan on components (A, B, C). List items, tasks or activities without setting priorities. Consider the data and identify the main creative acts. Determines the reason and consequence "if A..., then B." and use this to compose creative processes. They analyze complex situations, considering several possible causes and consequences. They conduct a comprehensive analysis of complex data, and by analyzing complex situations, they find a solution to the plan.

3.2 Harmonious self-organization of large ensembles of intellectual agents according to the law of gold section

There is a systemic pattern of gold cross-section and systemic stability and harmony. The golden section is a universal manifestation of structural harmony. Scientific research and practice show that in order to ensure systemic and structural stability and harmony of systems in technology, it is necessary to establish ratios between the main indicators of the system, corresponding to the gold proportion. In the rounded percentage, the proportions of parts of the whole will be compared as 62% to 38%. As a rule, the presence of gold proportions (0.62 and 0.38) between the elements of the system serves as an indicator of stability, stability and harmony in the system. The law of the golden section is an objective law. Gold-cross-section technology serves as a mechanism for self-organization of systems.

Self-organization is the formation of a spatial, temporal, information or functional organization, structure (more precisely, the desire for organization, for the formation of a new structure) due to the internal resources of the system as a result of targeted interactions with the environment of the system. We are talking about information interaction with the external environment. In recent decades, algorithms have appeared that allow you to work with large information flows.

A measure of the amount of information of a particular event is the logarithm of its probability p. Since both sides of the binary opposition are measurable, the logarithm of its insolvency (improbability) can also serve as a measure of this event. And both of these measures, according to the condition of comparability, which is satisfied with the natural values of the parameter k, with the need to be multiples: $\log (1 - p) = k \log p$, или $p^k + p - 1 = 0$. The roots of this equation are generalized gold sections (GGS). Being invariants of evolution and self-organization, nodal values of probability as a measure of the viability (insolvency) of events, they are important in the modern theory of systems, the diagnosis of their qualitative states, in synergy as a theory of self-organization, cooperative action, the emergence of new qualities, integrity. GGS serve as attractors not only for probabilities, but also for other integral indicators normalized per unit (if they have a unit interval of their values) for distributed systems and ensembles. An example of such a measure is

information entropy, assigned to its maximum possible value - the logarithm of the number of structural groups or states of the system. Such an integral indicator can be characterized by any ensemble of intellectual agents brought to its maximum, as a measure of the limited variety associated in this ensemble. Equating it with one of the GGS, we obtain a basic ratio for the self-organization of the dichotomy of ensembles of intellectual agents, complex compositions of the totality of parts of the whole.

The principle of dichotomy is based on the following simplest identity linking binary numbers:

$2^n = 2^{n-1} + 2^{n-1}$,
Where $n = 0, \pm 1, \pm 2, \pm 3,....$ For case $n = 0$, it can be written as:

$$1 = 2^0 = 2^{-1} + 2^{-1} = \sum_{i=1}^{\infty} 2^{-i} \quad (1)$$

The principle of gold cross-section connects the degrees of gold proportion:

$$1 = \tau^0 = \tau^{-1} + \tau^{-2} = \sum_{i=1}^{\infty} \tau^{-(2i-1)} \quad (2)$$

The meaning of formulas (1) and (2) is that they express the decomposition of "Units" as a universal model of "Integer" into the simplest components. The principles of dichotomy and gold cross-section are based on (1), (2). The principle of golden cross-section is the basis of universal equilibrium and optimal connectivity of parts and the whole. The generalized principle of the golden section is expressed in the form of the following common identity:

$$1 = \tau_p^{-1} + \tau_p^{-(p+1)} = \sum_{i=1}^{\infty} \tau_p^{-(i-1)(p+1)-1}, \quad 3)$$

Which is reduced to the identities (1) and (2) for private cases $p = 0$ and $p = 1$.

The process of self-organization of ensembles of intellectual agents is carried out according to the law of structural harmony of the system: "Generalized gold sections are invariants, on the basis and through which in the process of self-organization of the system they gain a harmonious structure, stationary mode of existence, structural-functional stability." The harmonious state of the system is not the only one and for the same system there can exist an infinite number of harmonious states corresponding to the golden p proportions. The organization of the system involves a certain coordination of the states and activities of its subsystems and component elements. The ability to self-organize is based both on the multiplicity of elements of the system and the branching of connections between them, which contribute to the emergence of integrity, and on the presence of flexible interaction between elements by the type of feedback. Negative feedback NF) ensures stability of system functions, constancy of its parameters, and resistance to external influences. Positive feedback plays the role of process enhancers and is of particular importance for the development, accumulation of changes. The presence of negative and positive feedback leads to the possibility of developing a gold section according to the law using external and internal relationships.

The ensemble of intellectual agents has many relationships between competent agents. In order to make these links effective, to establish an optimal mode of interaction, a functional organizational structure is needed. It arranges communications, allocates authority, establishes the circle of agents making decisions, and agents performing them. The ensemble of intelligent agents is characterized by a high number of variants; this is due to the variety of external conditions in which the intelligent agents operate. The high much variability of large ensembles of intelligent agents with smart hybrid competencies requires their effective self-organization, mediated by cognitive limits, related to the volume that a person can effectively master and use, with the number of destinations with which they can interact, with the organization of work in networks. The ensemble self-organization processes are carried out on the collaboration of intelligent agents with smart hybrid competencies with adaptive flexible infrastructure. At the time of the self-organization of the ensemble, a qualitative transition takes place; intellectual agents begin to function as a whole, organizational stability begins.

In recent years, cognitive systems with functional self-organization technologies have appeared. A framework for designing compassionate and ethical artificial intelligence and artificial consciousness [9]. Expandable cognitive AI architectures for large-scale multi-agent human-robot collaborative learning [10]. Cognitive assistant robots for reducing variability in industrial human-robot activities [11]. Cognitive Robots Augment Human Intelligence [12]. Emerging Technologies for Autonomous Behavior Generation at Run-Time by Cognitive Robots [13]. Brain-Inspired Active Learning Architecture for Procedural Knowledge Understanding Based on Human-Robot Interaction [14]. Software Testing: Issues and Challenges of Artificial Intelligence & Machine Learning [15]. Third Millennium Life Saving Smart Cyberspace Driven by AI and Robotics [16]. Implementation of Competencies by Smart Ethical Artificial Intelligence in Different Environments [17].

A fundamental step in describing such systems was taken by a Danish scientist who worked in America for many years, Per Buck in the theory of self-organized criticality [18]. The title emphasizes that the system self-organizes into a critical state in which its dynamics acquire large-scale invariance in collective interaction in the network that develops as a result of self-

organization. This approach is called "connectionism" (from English to connect - connect).

The steady distribution of positive and negative responses of interacting links according to the law of the golden section determines the critical value of the intellectual agents of the ensemble. An ensemble having the number of necessary intellectual agents of equal or more critical importance is capable of self-realization and obtaining the necessary result. Determining the critical values of the ensembles of intelligent agents for the implementation of various sets of functions and competencies will help create a universal large ensemble to implement creative processes and designs according to the law of the golden section. To implement and maintain this project requires ultra-powerful supercomputers [19].

4. Modeling creative activities by intelligent agent ensembles in virtual environment

Modeling of creative activity by ensembles of intellectual agents in a virtual environment is carried out by ethical communications of images of creative acts of intellectual agents.

Modeling helps build creative practice in real time and at the same time use it to train intelligent agents. Modeling determines the ethical status of intelligent agents and the limits of professional image attribute values. The ethical state of intellectual agents within the values of the attributes of professional images contribute to their ethical communications.

Language ethical communications are based on a system of stable forms of communication; prescribed by society as rules of speech behavior to establish speech contact of interlocutors, maintain communication in a chosen tone, respectively, their social roles and role positions relative to each other, and mutual relations in a professional environment. The degree of ownership of creative etiquette determines the degree of professional fitness. Knowledge of creative etiquette is the key to success in the implementation of creative design.

Specialists in various fields have a need to summarize the experience of creative communication in one form or another and correlate it with the standards of ethics developed by humanity. In the field of creative relations, an objective assessment is introduced from an ethical point of view. Thus, taking into account the factors that form and determine creative etiquette, compliance with etiquette standards, contributes to the efficiency and efficiency of achieving the result with professional images of intellectual agents.

Communicative ethical behavior is a component of culture. Its core is values and principles, which are implemented in some norms and rules. Norms and rules are specific behavioral recommendations, prescriptions for behavior. These norms and rules are especially important to follow the professional images of intellectual agents in the creative field.

The ethics of creative communications is a set of moral norms, rules and ideas governing behavior and relations in the process of their production activities. The ethics of creative communications should be taken into account in its various manifestations: in the relationship between the ensembles of intellectual agents and the social environment, between the ensembles of intellectual agents in a virtual environment.

Taking into account the factors that form and determine linguistic, behavioral and active ethical communications of professional images, compliance with the norms and rules of communication and creative activity by intellectual agents contributes to the efficiency and effectiveness of their achievement of the result.

Ethical communication of professional images among themselves is carried out through intellectual agents with hybrid competencies, using mechanisms of coordination, cooperation or coalition according to ethical standard [20].

In the process of creative activity, the intellectual agent acquires the skills of the future profession through the inclusion of the environment and conditions of professional activity. The manifestation of an intellectual agent as a subject of creativity is revealed most fully in achieving a professional position that integrates professional situations, communications and a professional image, which characterizes his identity, certainty and integrity. The profession acts as a socio-objective component of the professional continuum of intellectual agent activity. Professional readiness arises as virtual reality, and professional identity as informal, semantic, subjective reality. In this view, creative identity is associated with causal dependence as a cause and consequence.

Ensembles of intellectual agents with professional images will allow him to have various required professions and competencies through diversification and mobility. An intelligent ensemble is a complex of compatible intelligent agents interacting through an intelligent interface, implementing technological process, social services, multidisciplinary interdisciplinary research, or a production cycle. Diversification extends the functions of the intellectual ensemble and its development of a new type of functionality in order to increase efficiency, quality and its functional diversity. Mobility contributes to the rapid functional retraining of intellectual agents and the development of professional intelligence of the ensemble. Diversification and mobility will align the

life cycle of intelligent agents as a common benchmark for linking them to the environment. The environment is perceived through images and scenes. Scenes consist of a number of images. Scenes are static (paintings) and dynamic. Dynamic scenes are characterized by communications of creative acts of professional processes. Professional processes are composed of creative acts of intelligent agents. Some intellectual agents distinguish; others compare and find associations based on live information of cases of smart ethical communication-associative communications of ensembles of intellectual agents. Ensembles build trees from existing creative acts, both from top to bottom and from bottom to top. Based on the trees of creative acts, they apply branched models of logic to a set of live information data, taking into account the laws and features established during preliminary analysis, until they form a creative process through the tree of creative acts.

Modeling the creative activity of intellectual agents depends on spatial, temporal, subject, visual and sound sensitivity, the ability to acquires, process, apply and diversify creative acts based on previous experience in solving specific problems related to processing the attributes of data of living information and the mobility of the intellectual ensemble. The recognition by experts of the execution of the plans of specialists by functional processes of ensembles of intellectual agents allows them to gain the status of creative processes.

5. CONCLUSION

Large ensembles of intellectual agents with smart hybrid competencies: analytical, research, psychological, language, professional and behavioral can surpass human intelligence in some areas of activity. Its hybrid psychological competencies allow you to fully interact with a person in many areas of life. The analytical and research capabilities of intelligent agent ensembles and their ability to process big data can help solve the pressing problems of mankind with powerful supercomputers. Robotic large ensembles of intelligent agents with smart hybrid competencies will gradually acquire human creative abilities. People will provide creative activities with them through wireless and mobile networks.

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