

Research Article

# Network Training by Generative AI Assistant of Personal Adaptive Ethical Semantic and Active Ontology

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## Abstract

In the process of life, a person forms and develops a three-level adaptive, thinking and 'ethical spatial intelligence. Adaptive intelligence is formed and developed in the environment, forming a spatial adaptive ontology. Thinking intelligence is formed and developed by multimodal communication, learning, problem solving and decision making, forming a spatial semantic ontology. Ethical intelligence is formed and developed according to ethical values, forming spatial ethical value ontology. Three-level adaptive thinking 'ethical spatial ontology participates in decision-making in real time at every moment of human activation in space. Three-level adaptive thinking 'ethical spatial personal ontology of knowledge and skills can be formed by a generative AI assistant network learning. By forming three-level personal ontology, it will be possible to effectively and efficiently develop relevant and promising scientific research education. Preparing specialist for research activities, teaching his research skills and skills becomes the most important task of modern education. Training a specialist who can think creatively, independently find solutions in problem situations, navigate the information space is a priority in modern research education. Research scientific education helps to prepare qualified specialists capable of independent scientific activity and innovation, which is especially important in the context of a rapidly changing world and global challenges. Consequently, research education allows for the development of practically effective research activities based on the latest trends and discoveries in science, as well as the formation of fundamental science leading to new practical results.

## Keywords

Network Learning, Generative AI Assistant, Personal Ontology, Scientific Research Education

## 1. Introduction to the Spatial Three-level Ontology of Knowledge and Skills

Spatial three-level ontology captures the knowledge and skills in a multimodal format for perceiving, analyzing, and manipulating spatial relationships and objects. It includes the ability to visualize and represent three-dimensional objects, as well as perceive, understand, and create spatial schemes and models that facilitate the ability to:

1) Visualize objects and their relative positions in space.

This may include imagining how an object will look from different angles or at different scales.

2) Orient yourself in space, which is important for moving around in the environment. People with a high level of spatial ontology tend to remember routes well and can easily find their way.

3) Create and modify objects in imagination or in practice.

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**Received:** 24 March 2025; **Accepted:** 9 April 2025; **Published:** 29 April 2025



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This can manifest itself in skills such as architecture, engineering, education, medicine, and other activities.

- 4) Be involved in analyzing and solving spatial problems related to activities, and design-related tasks that require working with spatial concepts and objects.

Adaptive ontology captures physical, cognitive and social adaptation. Adaptive ontology promotes adaptation to changes in the environment, finding solutions in new and non-standard situations, depending on how their knowledge, skills and behavior adapt depending on various factors, such as social, cultural, environmental and technological conditions. It allows a person to effectively interact with the world and other people, relying on the processes through which a person changes their behavior, perception or knowledge in response to changes in the spatial environment. Human adaptive strategies change in response to changes in the spatial environment, and influence of cultural norms and values on the perception and use of space.

Thinking ontology is associated with the processes of logical and critical thinking that help analyze information, make informed decisions and develop behavioral strategies. It is based on the ability to synthesize information.

Ethical ontology, in turn, covers the understanding of moral norms and values, and promotes decision-making based on ethical principles. On its basis, responsibility and understanding of the consequences of one's actions for other people and society as a whole arise.

The formation of a three-level spatial ontology implies the creation of an internal model of the world, in which a person understands his interactions with the environment, other people and themselves. This includes understanding one's place in the world, as well as awareness of the interrelations and interactions of various elements of this environment [1-8].

Ontologies serve for the systematic organization of knowledge, allowing to discover new facts, to identify the necessary interrelations between elements. Knowledge organization systems based on ontologies are already very widespread and are used in many industries. The ontology of reality reproduces those structural and attribute connections and relations that are inherent in reality [9]. The ontology of reality contains communicative sequences - associative acts marked with attributes. This allows, in the process of attribute automatic analysis of associative acts, to find similar associative acts of other communicative sequences leading to a rational decision. When forming an ontology, the following sequence of actions is distinguished: classification of basic concepts, selection of basic concepts, definition of relationships, a conceptual scheme of the ontology as a connected complex of concepts is formed, the ontology is supplemented with subject implementations of Individuals and data that have a physical meaning, a linguistic component is formed. The power of an ontology is manifested if the relationships between its elements are described in detail and qualitatively.

Thus, a spatial three-level adaptive, thinking and ethical ontology helps a person to more effectively navigate in a

complex world, make informed decisions and act in accordance with moral principles. These are important aspects of personal and social development in the context of a constantly changing reality. A spatial three-level ontology helps develop strategies and solutions aimed at improving the quality of life of people in various spatial contexts.

## 2. Spatial Orientation of a Person to the Object of Attention

Focusing on an object activates human spatial orientation. Human spatial orientation to an object of attention is a complex process that involves perception, attention, memory, and motor skills. This process allows a person to evaluate surrounding objects and interact with them effectively. Let's consider the key aspects associated with this phenomenon:

- 1) Human perception of space is associated with the use of various sensory systems, such as vision, hearing, and touch. These systems help a person determine the distance, direction, and size of objects.
- 2) Attention plays an important role in spatial orientation. When a person focuses on a specific object, his or her attention helps to distinguish this object from the environment, which facilitates further navigation and interaction with it.
- 3) Spatial orientation also includes motor skills such as movement, coordination, and balance. For example, to approach an object, a person needs to plan and execute movements correctly.
- 4) The human brain is capable of creating ontological mental maps of space that help in orientation. These mental representations are based on previous experience and can include both visual and verbal elements.
- 5) Spatial orientation can vary among individuals, depending on their spatial skills. Some may have high spatial skills, allowing them to navigate unfamiliar environments more easily, while others may have difficulty.
- 6) People can use various strategies to improve spatial orientation, such as using landmarks, route planning, or forming ontological mental maps through learning.
- 7) Spatial orientation is influenced by various factors, including age, cognitive ability, stress level, and even cultural aspects.

Thus, human spatial orientation to an object of attention is a multifaceted process that involves the interaction of different cognitive functions and sensory systems, allowing us to effectively perceive and interact with the world around us.

## 3. Generative AI Assistant Forms Human Ontology During the Learning Process

Formation of human ontology by generative AI (artificial

intelligence) through learning is a complex and promising task [10]. Ontology includes various aspects:

- 1) Education: knowledge and skills.
- 2) Work experience: work history.
- 3) Skills: professional and everyday skills that have been developed through education, work and social life.
- 4) Team participation: participation in significant projects, achievements and contribution to teamwork.
- 5) Goals and interests: professional goals, interests and areas in which a person wants to develop.

To form an ontology of a specific person by generative artificial intelligence in the learning process, the following approaches can be used:

- 1) Automated collection of information from open sources and analysis of data on skills and experience.
- 2) Algorithms that can analyze and update the profile based on new data and achievements.
- 3) Individualized recommendations for development based on the created ontology.
- 4) Implementation of a feedback system to assess the accuracy and completeness of the ontology.
- 5) Ensuring the confidentiality and security of a person's personal information.

This approach helps in the overall development of professional and everyday skills.

#### 4. Everything Is Determined by Current Information

Current information plays a key role in the modern world, in various areas of life, such as education, medicine, science, technology and others. Current information includes data that is constantly updated and changed, which allows you to make more informed decisions and adapt to new conditions.

- 1) In the field of healthcare, current information about patients, their condition and reactions to treatment allows doctors to quickly adapt treatment methods and provide better care.
- 2) Current scientific research data allows researchers to make new discoveries and adjust their hypotheses in accordance with the latest results.
- 3) In economics and business, companies use live information to analyze the market, forecast demand and optimize their business processes.
- 4) The introduction of technologies such as the Internet of Things allows you to collect and process data in real time, which opens up new opportunities for automation and increased efficiency.
- 5) Live interaction of users on social networks creates a constantly updated flow of information that influences public opinion and marketing strategies.

Overall, having a live and up-to-date understanding of data helps people and organizations respond more effectively to change and make informed decisions.

#### 5. Network Search for New Knowledge and Skills by AI Assistant

Online search for new knowledge and skills with the help of AI assistants is a process in which artificial intelligence helps the user find, process and assimilate information from various sources on the Internet. Let's consider the key aspects of this process:

- 1) AI assistants can search through large volumes of data, filtering results by relevance, timeliness and quality. This allows the user to quickly find the necessary knowledge and skills.
- 2) Modern AI assistants can adapt to the user's preferences, taking into account their interests, level of knowledge and goals. This allows for more targeted recommendations.
- 3) AI assistants can analyze information, highlighting key ideas and concepts. This may include creating a summary, highlighting main topics and presenting data in a convenient format.
- 4) AI assistants can recommend training courses, articles, videos and other resources that will help the user develop new skills. They can also offer interactive forms of training, such as practical tasks.
- 5) AI assistants can act as mentors, answering user questions, providing feedback, and helping to solve problems during the learning process.
- 6) Some AI assistants can track the user's progress in learning, offering additional resources or adjusting the training program depending on the results achieved.
- 7) AI assistants can integrate with various platforms and services, such as online courses, webinars, and communities, making the learning process more flexible and accessible.

As a result, using AI assistants to search for new knowledge and skills online contributes to more effective and targeted learning, allowing users to quickly adapt to changes in the world and develop the necessary skills.

#### 6. Network Personal Education on the Formation of Adaptive Semantic Ontology by Generative AI Assistants

Network personal education of a person in the context of the formation of his adaptive semantic ethical ontology with the help of generative AI assistants is a multi-level process that includes several key aspects:

Adaptive ontology implies the ability of an individual to adapt to rapidly changing environmental conditions. Generative AI assistants can contribute to the formation of an adaptive ontology:

- 1) Personalized learning. Using AI to create individual learning plans that take into account the strengths and weaknesses of the student.

- 2) Data analysis. AI can analyze the user's behavior and preferences, providing recommendations for improving skills and knowledge.
- 3) Flexibility in learning. The ability to quickly change directions and approaches to learning depending on new data and changes in interests.

Thinking ontology concerns the development of cognitive thinking and analytical skills. Generative AI can help with this through:

- 1) Interactive learning. AI can ask questions, suggest scenarios and conduct discussions, allowing students to develop their analytical abilities.
- 2) Modeling and simulations. Using AI to create complex problems and scenarios that require deep analysis and critical thinking.
- 3) Feedback. AI can provide timely and constructive feedback, which helps students improve their thinking skills.

Ethical ontology includes the formation of moral and ethical principles. In this context, generative AI assistants can:

- 1) Discussion of ethical dilemmas. AI can offer scenarios that pose ethical questions to the user, facilitating discussion and reflection.
- 2) Learning by example. Using stories and cases to illustrate complex ethical situations and the consequences of various decisions.
- 3) Formation of values. AI can help users explore and form their own values and beliefs through reflection and dialogue.

Thus, the integration of generative AI assistants into networked personal education can significantly enrich the process of forming an adaptive, thinking and ethical ontology of a person. This requires the joint work of specialists in the fields of education, psychology and technology to create effective and ethical learning tools that will contribute to the development of personality in modern conditions.

## 7. Human Intelligence Uses Information from the Ontology of Life

Human intelligence relies heavily on information that forms its ontology of life. The ontology of life in this context can be defined as a system of ideas, concepts, and knowledge about the world that is formed on the basis of personal experience, social interactions, and cultural influences. Let's look at several key aspects of how human intelligence uses the information of the ontology of life:

The ontology of life helps organize and structure knowledge. Human intelligence uses categories and concepts that allow it to classify information, draw conclusions, and build logical connections. For example, understanding social roles, moral norms, and cultural traditions allows a person to make informed decisions in various situations.

Ontological knowledge forms the basis for cognitive

thinking. Human intelligence analyzes, interprets, and evaluates information based on its ideas about the world. This allows it to question existing beliefs, seek alternative points of view, and develop its own ideas.

The ontology of life includes knowledge of social interactions and emotional reactions. The human intellect uses this information to understand other people, which helps to form sympathy and improve interpersonal relationships. Awareness of cultural differences can help avoid misunderstandings and conflicts.

Human intelligence uses the ontology of life to adapt to new conditions. When faced with new situations, it draws on its previous knowledge and experience, which allows it to find effective solutions. This is also related to the learning process: integrating new knowledge into an existing ontology helps to strengthen and expand mental models.

Human intelligence uses the ontology of life to form its moral and ethical principles. Knowledge gained from culture, upbringing, and personal experience influences how a person perceives good and evil, justice and injustice. These principles then guide their behavior and decision-making in social contexts.

Thus, the information of the ontology of life serves as the basis for human intellectual activity. It not only structures knowledge and promotes critical thinking, but also influences emotional perception and moral attitudes. Intelligence based on this ontology becomes more flexible, adaptive, and capable of a deeper understanding of the world and interaction with it. Natural intelligence based on relevant information and ontology of life activates human behavior and life activity.

## 8. Create Generative AI Assistants with OpenAI's GPTs Builder

The GPTs constructor from OpenAI is an innovative platform that allows you to create AI assistants. By developers — for quick creation, as well as integration of AI into projects. By entrepreneurs — for process automation, improving customer experience. By content creators — for generating texts, scripts or ideas. By researchers — for processing data to find insights.

To do this, it is enough to define the behavior of the AI assistant, set tasks for it, and also upload the necessary data for training. The constructor allows you to adapt the AI assistant to specific tasks, change the communication style, and also train it on your own data. Deep integration with OpenAI products allows you to easily connect your model to other OpenAI solutions, such as DALL•E for image generation or Whisper for working with voice. Integration with other services makes it possible to connect the AI assistant to messengers, websites, CRM systems or other platforms via API. Customization for specific tasks allows you to adapt the AI assistant to work in any field with an



ethical measure [11]. The designer provides a set of tools for customization and training of the AI assistant, allowing to use it for almost any task. Using the designer, you can develop an AI assistant:

- 1) for communication with clients and solving specific issues,
- 2) for generating document texts, - as a customer support tool that will automatically answer frequently asked questions,
- 3) as an analytics system capable of processing data and generating useful insights.

One of the most useful advantages of the GPTs constructor is the ability to set a certain communication style for the AI assistant. It can be formal, friendly, playful or expert - it all depends on the audience for which you are creating it. The AI assistant can be trained on your own data.

For complex scenarios, the constructor allows you to connect the AI assistant to external platforms via API. This makes it possible to integrate it with your website, application, order management system or CRM.

To understand the essence of a request to the AI assistant, it is important to imagine what components it consists of. A request consists of instructions, main content, examples, hints and auxiliary content. Instructions help the AI assistant understand what is required of it, the main content is the request that it needs to process, examples show the desired result, hints serve as a kind of "push" for generation, and auxiliary content is needed for fine-tuning - fine-tuning the response.

Successful training of an individual by an AI assistant ensures relevant data selection for the individual, optimization of work for specific tasks and continuous testing. Data quality is the basis for successful training by an AI assistant. The more relevant the data, the more accurate and useful the training of an individual by an AI assistant will be. Make a list of questions or tasks that users will face and test the AI assistant, carefully study the feedback. This will help to identify weaknesses and make adjustments. Regular improvement of the AI assistant is a continuous process that allows it to adapt to new requirements and provide the best user experience in the process of training and forming an individual ontology.

## 9. Conclusion

Formation of an individual ontology contributes to the optimal use of human resources. Individual ontology helps a person define their key values, goals, and priorities in life. This allows them to focus on those aspects that are most important and avoid empty or insignificant actions.

Formation of a personal ontology implies systematization of knowledge and experience, which helps to better navigate complex situations. A person can apply this knowledge to make more informed decisions and effectively solve problems. Individual ontology allows for a better understanding

of oneself and the world around them, which helps to adapt to changes. In the context of rapidly changing information and circumstances, it is important to be able to respond to new challenges using one's internal resources.

A clear understanding of one's goals and values helps to allocate time and resources more effectively. This can lead to increased productivity and life satisfaction, since a person will be doing what is truly important to them. Formation of an individual ontology promotes self-awareness and personal growth. A person who understands their strengths and weaknesses, as well as their desires and aspirations, can work on their development, improving the quality of their life.

A clear individual ontology facilitates more effective interactions with other people. Understanding one's own needs and values helps establish healthy and harmonious relationships, which in turn facilitates the optimal use of human resources in a team. Thus, individual ontology not only helps a person better understand himself, but also optimizes the use of his intellectual resources, which ultimately leads to a fuller and more fulfilling life.

Global formation of individual ontology facilitates the optimal use of human resources on a national and international scale. It facilitates harmonious, synergetic, safe, peaceful organization of society's life [12-15].

The planetary formation of an ecological civilization requires the solution of problems of restoration and maintenance of ecology by the international community. Planetary environmental education based on network training by generative AI assistant of personal adaptive ethical semantic and active ontology can accelerate the planetary formation of an ecological civilization.

## Author Contributions

Evgeniy Bryndin is the sole author. The author read and approved the final manuscript.

## Conflicts of Interest

The author declares no conflicts of interest.

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## Research Field

**Evgeniy Bryndin:** Computer technologies, Hybrid intelligence, Educational technologies, Social technologies, Health the preserving technologies, Economic models.