Some aspects of directly parallel operation of neural networks and their subtle energy

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Abstract

There is a need to develop an instrumental mathematical base for new technologies, in particular for a fundamentally new type of neural network with parallel computing, in particular for creating artificial intelligence, but this is not the main task of a neural network, and not with the usual parallel computing through sequential computing. Nobel laureates in physics 2023 Ferenc Kraus and his colleagues Pierre Agostini and Anna Lhuillier used a short-pulse laser to generate attosecond pulses of light to study the dynamics of electrons in matter. According to our Theory of singularities of the type synthesizing, its action corresponds to singularity $\uparrow I\downarrow_h{}^q$, which allows one to reach the upper level of subtle energies to manipulate lower levels. In April 2023, we proposed using a short-pulse laser to achieve the desired goals by a directly parallel neural network [1]. We then proposed the fundamental development of this directly parallel neural network. In the articles new mathematical structures and operators are constructed through one action - "containment" [1-13]. Here, the construction of new mathematical structures and operators is carried out with generalization to any actions. The significance of our articles is in the formation of the presumptive mathematical structure of subtle energies, this is being done for the first time in science, and the presumptive classification of the mathematical structures of subtle energies for the first time. The experiments of the 2022 Nobel laureates Asle Ahlen, John Clauser, Anton Zeilinger and the experiments in chemistry Nazhipa Valitov eloquently demonstrate that we are right and that these studies are necessary.

Keywords: S_{mnSprt}, Target block

1. Introduction

There is a need to develop an instrumental mathematical base for new technologies. The task of the work is to create new approaches for this by introducing new concepts and methods. Therefore, our mathematics for new type of neural network is adapted not only to obtain results, but also to directly control actions, which will certainly show its benefits on a fundamentally new type of neural networks with directly parallel calculations, for which it was created. Any action has much greater potential than its result

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We consider $\Delta SprtA = Sprt_{activation\ with\ tW}^{\{A_1,A_2,...,A_n\}} - \{A_1, A_2, ..., A_n\}$, $v_{SprtA} = \frac{\Delta SprtA}{\Delta\tau}$, $a_{SprtA} = \frac{d^2 SprtA}{d\tau^2}$

tW- the corresponding target weight [2,3,8].

$Sprt_{activation\ with\ tW}^{\{A_1,A_2,...,A_n\}}$ will be called the current of $\{A_1, A_2, ..., A_n\}$.

In particular, if $\{A_1, A_2, \ldots, A_n\}$ – electrons, will be called the current of electrons, if $\{A_1, A_2, \ldots, A_n\}$ – neurons actions, will be called the current of neurons actions [2,3,8]. Let's consider an analogue of Maxwell's equations for networks operating on electromagnetic energy:

$rot(E^{tw}_{SprtA}) = -(1/q_0) \, \partial(B^{tw}_{SprtA})/\partial t$, (*$_H$)

$rot(H^{tw}_{SprtA}) = j/q_0 + (1/q_0) \cdot \partial(D^{tw}_{SprtA})/\partial t$, (**$_H$)

E^{tw}_{SprtA} - activation tension with target weight tw, B^{tw}_{SprtA} - induction of self with target weight tw, q_0- bioenergy constant, H^{tw}_{SprtA} – tension of self with target weight tw, D^{tw}_{SprtA} - activation induction with target weight tw, j - activation density.

Here we mean (*$_H$), (**$_H$) in the neuron action space, where e.g., basic actions are designated as $x_1, x_2, \ldots, x_n$.

Let us denote the neuron current strength as I_{SprtA}.

Let us denote the neuron current voltage as U_{SprtA}.

Let us denote the resistance to neuron current as R_{SprtA}.

The field of the given structure tw is used for the activation of networks. The field can remain in effect until it is executed tw. Here all stages of the structure tw can be executed directly in parallel, in particular, an algorithm for solving the desired problem. We will call this field the operational activation field. This field will be created according to the structure tw.

2. Methods

The structure of the attosecond pulses of light, that a short-pulse laser to generate, or the microwave alternating current is close to

$$(a \uparrow I \downarrow^a) \uparrow I \downarrow (\downarrow_a \downarrow I^{\uparrow a}) = Sprt \; {}^{Sprt^{Sprt\overrightarrow{\leftarrow}}_{Sprt\overleftarrow{\rightleftharpoons}}}_{\ldots}$$ (***$_H$),, i.e., type ${}^a_a Sprt^a_a$, and upon activation it will be induction of same type self, which

is necessary for the formation of a local assembly point d_r of external energy fibers El^{d_r}. Its locality (assembly point position r) will be determined by the location of microwave generation through Targetblock of S_{mnSprt} [2], [3], [8]. Execution tw will be achieved through setting the assemblage point in the desired position r_1 to engage the appropriate external energy: $Sprt^{{}^r_{d_r} Sprt^{d_r}_{r1}}_{{}^r_{d_r} Sprt^{d_r}_{r1}}$.

To gain access to object transformation, just go to the level $lS = \frac{2}{\pi} arctg(1 + \mathcal{E})$, $\mathcal{E}$ may be quite small.

Examples of transformation:

1) $Sprt^q_q \rightarrow Sprt^{St^q_q}_{St^q_q} \rightarrow Sprt^{Sprt^b_c}_{Sprt^b_c}$ (1)

2) $Sprt^q_q \rightarrow S_3 f(self(q)) \rightarrow Sprt^r_r$ (2)

Remark H.1. This is a rather conditional interpretation, because in fact, the lS of the "vessel" (energy cocoon) of the object may turn out to be greater than $\frac{2}{\pi} arctg(1)$. This is taken for initiation: we build a theory of this, starting from this stage of interpretation. After experiments, the next stage may begin.

Different types of neural networks: based on living structure

1) tree

2) insect

3) virus

4) etc

The energy of the container itself {A}, abstracted from its contents $\{\}_A$:

$$Sprt_{\{\}_A}^{\{\}_A}, \ _{\{\}_A}^{\{\}_A}Sprt_{\{\}_A}^{\{\}_A}$$

Mathematics, theoretical science and programming are actually concerned with structuring their spaces and the capacities within these spaces. Experimental science and experimental programming are concerned with the contents in real spaces and the capacities in those spaces. Ordinary level programming is a self- theoretical science, self-programming is programming oneself, in particular programming environments, self^2-programming is, in particular, programming the creation of programming environments etc. (oself-self) -science - this is work S_{mnSprt} in activation mode, for example, through the attosecond pulses of light, that a short-pulse laser to generate, or the microwave alternating current; the same applies to practical (experimental) programming with real objects and energies [2,3,8]. Implicitness is a sign of a mathematical cocoon of a mathematical equation (problem). The "form" of implicitness is the mathematical cocoon (structure).

Appendix

Remark H.2. Hypothesis H.1: One can try to conventionally represent the mathematical model of the energy structure of an amorphous object as a hierarchical dynamic operator

$$\begin{array}{c} Sprt_{E_s}^{E_s} \\ (\ Sprt_{A_0+E_s}^{A_0} + \ Sprt_{A_0}^{A_0+E_s})\ (****_H), \\ Sprt_{A_0}^{A_0} \end{array}$$

we can assume that access to the upper level can be achieved through $Sprt_{\ Sprt_{A_0}^{A_0}}^{\ Sprt_{A_0}^{A_0}}$, and access to the middle level can be achieved through

$$Sprt_{A_0+Sprt_{A_0}^{A_0}}^{A_0} + \ Sprt_{A_0}^{A_0+Sprt_{A_0}^{A_0}}.$$

$_{A(t)}^{A(t)}Sprt$ will be called dynamic anti-capacity from oneself. For example, "white hole" in physics is such simple anti-capacity. The concepts of "white hole" and "black hole" were formulated by the physicists based on the subject of physics –the usual energies level. Mathematics allows you to deeply find and formulate the concept of singular points in the Universe based on the levels of more subtle energies. The experiments of the 2022 Nobel laureates Asle Ahlen, John Clauser, Anton Zeilinger and the experiments in chemistry Nazhipa Valitov correspond to the concept of the Universe as a capacity in itself as the element. They experimented with connections for elements of the microworld, and since here the connections are self-connections, then when the object component of self-connections is removed, its higher level remains, which was manifested in their experiments. The electron spin belongs to the second level - above the level of objectivity. The energy of self-containment in itself is closed on itself.

Remark H.3. Self A $=Sprt_A^A$ can be transformed into any D if $\mu l(D) = \mu l\ (Sprt_A^A)$, $\mu l(x)$ - level measure of self for x, in particular, into $Sprt_A^{any\ C}$ or $Sprt_{any\ C}^A$, and also an object R into any object Q or any energy U. The transformations of this type will be called

stransformations. $Self^N$ A can transform itself into any D if N $\geq$2; to realize this we need an even larger quantity N.

Example of a parallel-serial program statement

$$Sprt \quad \begin{array}{l} s:=Sprt^C \\ \quad\quad Sprt^Q_A \\ if\ \{g\}Sprt \\ \quad\quad Sprt^R_A \\ \quad\quad\quad Sprt^{af:=}_E \\ for\ w\ Sprt \\ \quad\quad Sprt^{if\ C}_J \end{array} \quad (3)$$

Each self-field (3) can automatically rebuild the self-program to the desired.

$Self^N$- OS and is designed for such transformations, and it itself can be transformed at N$\geq$1, or it itself can be transformed at N $\geq$2.

Remark H.4. Hypothesis H.2: equations for real processes in a non-trivial form can be used to fully or partially interpret the self-level of the process, replacing the equal signs with identification signs, and solutions to these equations as a manifestation of this level on the level of objectivity and ordinary energies. That is, equations for real processes serve as a definition of the self-level of the process, the definition of self-values (self-characteristics) of the process through the identification sign, i.e., they are defined (expressed) through themselves. In particular, forms (1.1) - (1.4) from [2] can be used as forms of identification. Each such singularity creates its own field, the process, the object etc. Much more effective than science for working with these singularities will be special Dynamic programming, which we are currently working on to create. Identification at the lower levels of a hierarchical dynamic structure of type (****$_H$) will lead to the upper level. Let us denote the upper level of A by $\overline{A}$, the upper level of P by $\overline{P}$. Then singularity $\overline{A} \to \overline{P}$ is the setting for the transformation of A into P. You can also try to use it for full or partial interpretation of the self-level of chemical reactions, but here there will be a trivial identification and determination of the self-level will be much simpler. For example, a type w $\equiv$ 2w singularity at the top level of the structure of a mathematical simplified model of DNA generates a field for DNA division. A rather complex type of singularity at the upper level of the structure of a simplified mathematical model generates an electromagnetic field through identification in Maxwell's equations. For example, using of the attosecond pulses of light, that a short-pulse laser to generate, or the microwave alternating current to "turn on" a program operator Q↑|↓R by the corresponding eprogram, where Q is a normal neurons action, and R is activation of S_{mnSprt} with tW g, should give g as a result of execution. A program operator Q↑|↓R acts through the top level of structure type (1.1) [2] for Q to the top level of structure type (1.1) [2] for R. The entrance to the upper level S_{mnSprt} during activation mode (via the attosecond pulses of light, that a short-pulse laser to generate, or microwave with minimum amplitude and maximum frequency) can bring S_{mnSprt} to the edge of objectivity or even beyond it, using the corresponding eprograms with the necessary tW. The base energy environment for S_{mnSprt} will be a microwave with minimum amplitude and maximum frequency or ultraviolet, and when activated, the attosecond pulses of light, that a short-pulse laser to generate will be used.

In principle, changing the singularity of the upper level by at least a sufficiently small amount through the identification structure of Maxwell's equations, S_{mnSprt} can go beyond objectivity depending on the change. It is important to organize "anchors" for returning to one or another position through the corresponding eprograms. When you begin to identify, you immediately reach the upper level, since the operation of identification is an operation of the upper level. The operator team must initiate (turn on) the desired output to the upper level, and then the included process is executed.

Remark H.5. In any structure, connection, task related to the search for the unknown, it is possible by identification to obtain for the upper level of this unknown a singularity that interprets the upper level corresponding to its real image.

Hypothesis H.3: The upper level is the identification of everything that is there, by definition.

The upper level of objectivity (i.e., the boundary of objectivity) is the identification of all objects. Then it is quite possible, through the use of dynamic programming in the required activation (Remark H.3. Hypothesis H.2: equations for real processes in a non-trivial form can be used to fully or partially interpret the self-level of the process, replacing the equal signs with identification signs, and solutions to these equations as a manifestation of this level on the level of objectivity and ordinary energies. That is, equations for real processes serve as a definition of the self-level of the process, the definition of self-values (self-characteristics) of the process through the identification sign, i.e., they are defined (expressed) through themselves. In particular, forms (1.1) - (1.4) from [2] can be used as forms of identification. Each such singularity creates its own field, the process, the object etc. Much more effective than science for working with these singularities will be special Dynamic programming, which we are currently working on to create. Identification at the lower levels of a hierarchical dynamic structure of type (****$_H$) will lead to the upper level. Let us denote the upper level of A by $\overline{A}$, the upper level of P by $\overline{P}$. Then the singularity $\overline{A} \to \overline{P}$ is a setting for the transformation of A to P through attosecond pulses of light that are generated by a short-pulse laser or ultra-high frequency current with a minimum amplitude and maximum frequency to transfer SmnSprt to the boundary of objectivity. to accomplish the desired task, in particular. for the required transformation, required action, etc. The necessary manifestations of the upper level on the lower ones can be carried out through the appropriate settings in the upper level. It is clear that the upper-level singularity corresponds not only to one object, process, task, etc., but also to a whole class of those corresponding to this singularity. Therefore, in particular, a transition to other elements of this class is possible. Using the work of 2023 Nobel Prize winners in physics Ferenc Kraus and his colleagues Pierre Agostini and Anna Lhuillier, their experimental methods of generating attosecond pulses of light to study the dynamics of electrons in matter, we will attempt to carry out the experimental part of our work as soon as we receive a specially equipped laboratory and funding.

Remark H.6. Parallel operator $Sprt^{symbols}_{places\ for\ symbols}$ corresponds to theoretical science, parallel operator $Sprt^{objects}_{x}$ corresponds to technology, x – the space "point" (space place).

Remark H.7. Let self-energy of A looks like

$$Sprt^{C_A+\Delta C}_{C_A+\Delta C} = Sprt^{C_A}_{C_A} + Sprt^{\Delta C}_{C_A} + Sprt^{C_A}_{\Delta C} + Sprt^{\Delta C}_{\Delta C}\ (4),$$

$Sprt^{C_A}_{C_A}$ corresponds to objectivity of A:

$$Sprt^{\Delta C}_{C_A} = E_A\,(*****_H)$$

EA - usual energy of A. ΔC determined from (*****$_H$) through C_A and then we can determine the complete self-energy of A.

Remark H.8. Even appropriate programming on ordinary computers allows you to create some types of self-energies, subtle energies of the upper level; and S$_{mnSprt}$ is specifically designed to manipulate a much larger set of upper level of subtle energies through special programming and special scanning.

Remark H.9. Our object world is a manifestation of the space of self-capacities (the space of subtle energies), the space of self-capacities is a manifestation of the space of self-containments etc. The self-capacity is the element of the self-level, but can partially manifest the corresponding parts of its content at lower levels, for example object level, in the corresponding "structures".

Remark H.10. Elementary particles are on the border of objectivity, therefore the uncertainty relation and also the possibility of manipulating them to achieve the desired goals (even unrelated to them), using either: 1) an ultra-short-pulse laser, or 2) a collider by SmnSprt etc.

Appendix

The self-space of a higher level contains many self-energetic fibers, collecting into appropriate sets that can be accessed by the corresponding self-spaces of lower levels. That's right, for example. This assembly point on the human cocoon can carry out this, in particular, access to our self-space with objects.

The energy of a living organism:

$$f(r, a, E_q) = Sprt_{t_0}^{\{{}_{W_q}^{q({}_a^a Sprt_a^a)} Sprt_{q({}_a^a Sprt_a^a)}^{E_q}, Sprt_{d_r(E_{in}l^{d_r})}^{\{E^{ex}l^{d_r}\}}\}} \quad (5)$$

${}_a^a Sprt_a^a$ -internal energy of a living organism, q- a gap in the energy cocoon of a living organism, r-the position of the assemblage point d_r on the energy cocoon of a living organism; W_q- energy prominences from the gap in the cocoon of a living organism, E_q-external energy entering the gap in the cocoon of a living organism, $E^{ex}l^{d_r}$ - a bundle of fibers of external energy self-capacities from outside the cocoon, collected at the point of assembly of the cocoon of a living organism at time t_0, $E_{in}l^{d_r}$- a bundle of fibers of external energy self-capacities from inside the cocoon, collected at the point of assembly of the cocoon of a living organism in the same position r of the assemblage point d_r. d_r is the subject of identifying the energy fibers of the subtle energy of the Universe in position r both outside and inside the cocoon. r= $St(t)_{D(t)}^{Q(t)}$, when Q(t) = D(t)=talk, $Sprt(t)_{D(t)}^{Q(t)}$ the usual position of the assemblage point is supported (fixed) with the help of internal conversation (internal dialogue with oneself (self-talk)), if Q(t) ≠ D(t) the position of the assemblage point changes and, when Q(t) = D(t) ≠talk occurs, position of the assemblage point and is fixed in a new position; $d_r = St_{E_{b_a}}^{St_{E_{b_a}}^{E_l St_{E_{b_a}}^{E_{b_a}}}}$, the cocoon of a living organism $E_{b_a} = St_{{}_a^a St_a^a}^{{}_a^a St_a^a}$. Energy with measure of fuzziness μ_1, μ_2 of a living organism of a person:

$$f(r, a, E_q) = Sprt_{t_0}^{\{{}_{W_q}^{q({}_a^a Sprt_a^a)} Sprt_{q({}_a^a Sprt_a^a)}^{E_q}, Sprt_{d_r(self(E_{in}l^{d_r}))}^{\{E^{ex}l^{d_r}\}}\}} \quad (6)$$

Remark H.10. In the World, at least, there are the following spaces: the space of self-capacities, which is usually called the energy space, and the space of self- containments, which is usually called spirits.

Remark H.11. Subtle energy can manifest itself in the form of: 1) objectivity, 2) ordinary energies, 3) information. Using neural networks of the SmnSprt-type, it is possible to organize a S-Internet, where instead of exchanging information, an exchange of subtle energies will take place.

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