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Universe-Brain-Artificial intelligence and three-dimensional five-dimensional space neural network —— Cognition and analysis of "group combination-circle logarithm" from 0 to 1

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Abstract: This article introduces the principle, derivation and application of "group combination-circle logarithm" in general. It is believed that the universe-brain, macro-gravity-micro-quantum, physical calculation theory-life cell neuron...all depend on the multi-dimensional, multi-regional, multi-level, multi-parameter, and isomerization disciplines of nature-the human body. Neural Networks. It is expressed as the integration of high-order calculus equations-pattern recognition clustering into an algebraic equation of "no derivative, limit, logical symbol", and mapping to the circle logarithm of a three-dimensional five-dimensional neural network with "no specific element content" , Cognition and analysis of zero-error arithmetic logic between {0: [0 to (1/2) to 1]: 1}. The universe called artificial intelligence-the brain's three-dimensional five-dimensional space neural network algorithm.

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Key words artificial intelligence; neural network; algebraic model; three-dimensional five-dimensional space; group combination-circle logarithm.

1. Raising the problem

The vast and boundless outer space of the universe, the vast ocean with a depth of ten thousand meters, the mysterious and unpredictable life science... With the help of space technology and new scientific engineering, mankind goes to the sky and dives into the sea to expand the scope of human activities and obtain the latest domain knowledge. At present, the hot topic explored at home and abroad is artificial intelligence that imitates nature, and innovatively proposes a "cosmic-brain-artificial intelligence three-dimensional neural network".

Question 1: **Why is it a three-dimensional network?**

Cosmic space: There are 10^{200} qubits, such as macro-micro natural forces: gravitation, electromagnetic force, nuclear strength, nuclear weak force, and currently unknown dark mass and dark energy, connected to a three-dimensional neural network. Fast information transmission of short-distance and multi-surface node elements.

Human brain: more than 10^{12} neurons, or no non-neuronal information transmission such as heart, lung, blood, etc., such as brain nerve cell axons and other known or unknown nerve cell axons or cell bodies one by one. How to converge to hundreds of billions to hundreds of billions of neuron network cell nodes as soon as possible, and connect them into a three-dimensional neural network. Fast information transmission of short-distance and multi-surface node elements.

Question 2: **Why is it a five-dimensional space network?**

Three-dimensional space is easy to understand, no one doubts. There has been no clear record of the five-dimensional (high-dimensional) subspace network, which has become a shortcoming in mathematics and calculation theory.

Here, the traditional geometric approximation calculation is extended to the three-dimensional five-dimensional (high-dimensional) spatial neural network of classical algebra, irrelevant mathematical models, and the logarithm of the circle without specific digital content, in the infinite {0:[0 to (1/2) to 1]: 1}, zero-error arithmetic logic is accurately calculated.

Question 3: What is the relationship between cyberspace?

Composition of infinite multidimensional sub-element:

$\{X\}$=Neural network $\{q\}\in$Basic five-dimensional network $\{q_{(xyz+uv)}\}\in$Triple generator $\{q_{(jik)}\}$;

Among them: the weight parameter of the cluster set is contained in the combined element $\{q_{(xyz+uv)}\}=\{q_j\omega_i r_{k(xyz+uv)}\}$, $\{q_{(jik)}\}=\{q_j\omega_i r_{k(xyz+uv)}\}$, which does not affect the circle Calculation of logarithms. But in the analysis, each element needs to be solved for each root element and weight. The weight determines the distance and space range of the universe-brain element information transmission.

Question 4: **What is a time series?**

Time series control arbitrary functions, equations, clustering sets, including the value and status of the depth, breadth and velocity, acceleration, energy, etc. of the calculus order (±N=0,1,2).

Time series (power function) $K(Z)/t=K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(m)\pm q)/t$ can control the circle logarithm to a simple base circle logarithmic grid: { 102 (two-dimensional), 106 (three-dimensional), 10^{12} (five-dimensional network)}, through the [S=S±Q±M] tree-like distribution, the computing power quickly reaches 1443 qubits, and the combination of each region, level group and Zero error expansion of univariate elements. $\{X\}^{K(Z\pm q)/t}=\{X\}^{K(1463)}=\{X\}^{K(11+121+1331)}=10^{K(292)}\geq 10^{K(200)}$; (qubit);

This level of 10^{200} qubits is the "cosmic castle soup" proposed by physicists, that is, all cosmic particles that reach this level are mixed together like a "castle soup" and can't distinguish each other, that is, the cosmic boundary value.

Question 5: Why is the mathematical modeling of classical algebra?

Classical algebra is an ancient mathematical modeling. Based on the Abel Impossibility Theorem, it says that "the equations of the fifth degree and above in one element cannot have integer radical solutions", and it has become a cage for the development of algebra for hundreds of years. Here, the latest discovery of the reciprocal rule of "multiplication and addition" or "root and coefficient" in the four arithmetic operations addition, subtraction, multiplication and division. A classical algebraic polynomial is proposed, which is mapped to a three-dimensional and five-dimensional (high-dimensional) spatial neural network, and the corresponding unified calculation rule is called "group combination-circle logarithm".

There is an unwritten unwritten rule for arithmetic calculations internationally: only six arithmetic symbols of "addition, subtraction, multiplication, division, and power" can be used for calculation. It satisfies the advantage of accurate calculation in classical arithmetic calculation. Other non-arithmetic four arithmetic operation symbols, such as: limit, iffy and iff, etc. calculations, some mathematicians think that the theoretical calculation requirements are not rigorous enough.

A three-dimensional spatial neuron network composed of a five-dimensional spatial network is added to the three-dimensional three-dimensional space. It consists of: three-dimensional (xyz) is a convex-concave spherical arbitrary Euclidean surface space, which is called a ring network function; two-dimensional (uv) is a radial network, which is a ring The connection between the layers of the network is called the radial network function. Through the classic algebra model, it becomes an arbitrary surface network level and node (a gathering area containing elements) in a three-dimensional space. Consists of a universe-brain-integrated intelligent neuron information network and non-neuron information network, directly in three-dimensional five-dimensional (high-dimensional) space (xyz+uv), and network nodes quickly transmit three-dimensional information to the network. Cognition and analysis of parameters, isomerization and unstructured nodes.

2. Overview of the three-dimensional and five-dimensional space of the universe-brain

Why is the mathematical modeling of classical algebra?

Classical algebra is an ancient mathematical modeling. Based on the Abel Impossibility Theorem, it says that "the equations of the fifth degree and above in one element cannot have integer radical solutions", and it has become a cage for the development of algebra for hundreds of years. Here, the latest discovery of the reciprocal rule of "multiplication and addition" or "root and coefficient" in the four arithmetic operations addition, subtraction, multiplication and division. A classical algebraic polynomial is proposed, which is mapped to a three-dimensional and five-dimensional (high-dimensional) spatial neural network, and the corresponding unified calculation rule is called "group combination-circle logarithm".

At present, the approximation calculation of two-dimensional plane or non-linear projection (normalization) is the leading factor, and the discrete combination of video, image, natural language, text, etc., is used for big data statistics and medical activities. The algorithm is based on the three founders of deep learning that appeared in the era of artificial intelligence, and the winner of the 2019 Turing Award: Geoffrey Hinton (Geoffrey Hinton) back propagation algorithm representative; Yang Likun (Yann Lecun) convolution Neural network representative figures; Joshua Bengio's sequence probability model theory representative figures, approximate calculations with geometric measures of interface mode and ellipse mode.

The "universe-brain" converges hundreds of millions of {1012} mass-energy particles and cellular neurons. They are collectively called "neurons" and are connected to form a neural network. Do these fascinating phenomena hide a natural rule that has not been discovered so far?

Many experts and mathematicians at home and abroad have speculated that there may be a natural rule of "last, hardest, and biggest" that has not yet been discovered by human beings. Once they are found and cracked, they may become a new generation of artificial intelligence supercomputing models.

Computer experts, mathematicians, and scientists urgently need to carry out a new generation of artificial intelligence algorithm reforms or reconstruct mathematical models, but where is the way out?

(1) 、 In the universe-brain: how does a single planet-cell neuron relate to each other (such as gravitational transmission, cellular neurons) and discreteness (ocean tides of fluid mechanics, non-neurons of living organisms) Network composition?

(2)、 In the universe-brain: What kind of information transmission and interaction coordination does the network have, and what kind of cognition and analysis does it have?

Classical algebra calculation features: limited to the calculation of the six arithmetic symbols of "addition, subtraction, multiplication, division, and power", because mathematicians believe that arithmetic calculations can ensure the accuracy of calculations and require the establishment of "algebraic equations without derivatives, limits, and logic symbols." ".

Smoothly resolve the multi-dimensional, multi-regional, multi-level, multi-parameter, and isomerization disciplines of nature-human body to form various characteristic neural networks. It is expressed as the integration of high-order calculus equations-pattern recognition clustering into an algebraic equation of "no derivative, limit, logical symbol" and mapping to the logarithm of a three-dimensional five-dimensional neural network with "no specific digital content" , Cognition and analysis of zero-error arithmetic logic between {0: [0 to (1/2) to 1]: 1}. A three-dimensional spatial neural network composed of a three-dimensional five-dimensional spatial network, consisting of: three-dimensional (xyz) is a convex-concave spherical arbitrary Euclidean surface space, which is called a ring network function; two-dimensional (uv) is a radial network, which is a ring network level The connection between the two is called the radial network function. Three-dimensional five-dimensional spatial neural network and algorithm called universe-brain-artificial intelligence.

3. The basic principles of the universe-the three-dimensional and three-dimensional five-dimensional space of the brain

The innovation of the logarithm of the circle lies in the arithmetic logic calculation of a closed "irrelevant mathematical model, no specific element content" through the algebraic mode. It is robust, safe, interpretable, extensive and applicable. It also contains closed and invariant perfect circle patterns (positive, medium, and inverse mean function), which realizes the recognition and analysis of reciprocity between "unlabeled machine learning" and manual control or automatic program supervision.

3.1. The basic definition of the three-dimensional five-dimensional (high-dimensional) space of the universe-brain:

Definition 3.1. Group combination: The universe-brain is a (Z) big data multi-disciplinary multi-variable cluster set-elements, distributed in multiple dimensions (S), multiple regions (Q), multiple levels (M)..., and multiple parameters (ω), isomerization (r), structure (calculus (±N=0,1,2) elements) and unstructured (cluster set asymmetry) {xjωi}, {xjωirk} each network space. The {q} element combination form, (/t) represents the time synchronized with the calculus form. Where S=S±Q±M±…={q}. Group combination multi-element continuous multiplication combination of each element for non-repetitive continuous multiplication (continuous addition) combination and collection.

$$\{X\}^{K(Z\pm S)/t}=[\prod\{x^S\}\{x^Q\}\{x^M\}\ldots]\in\{x_{(xyz+uv)}\omega_i r_k\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=0,1,2,3\ldots)/t}$$

$$\in\{x_j\omega_i r_k\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=0,1,2,3\ldots)/t}\in\{q_{jik}\}^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=0,1,2,3\ldots)/t};$$

Definition 3.2. Feature modulus: the multi-element combination is divided by the combination coefficient, which is called the mean value of the median inverse power or the feature network of the three-dimensional five-dimensional space network.

(1) ,Linear mean function:(linear mean function);

$$\{X_0\}^{K(Z\pm S\pm(q=1)/t}=\sum_{(Z\pm S)}(1/S)\{x^S+x^Q+x^M\ldots\};$$

(2), Non-linear mean value function:(linear mean function);

$$\{X_0\}^{K(Z\pm S\pm q)/t}=\sum_{(Z\pm S)}[(1/C_{(Z\pm S\pm q)})^K\prod_{(Z\pm S\pm q)}\{x^S\}\{x^Q\}\{x^M\}\ldots];$$

(3),Three-dimensional five-dimensional space network: including homeomorphic spheres and torus networks composed of convex-concave functions.(linear mean function);

$$\{X_0\}^{K(Z\pm S\pm(q=5))/t}=\sum_{(Z\pm S\pm(q=xyz))}[(1/C_{(Z\pm S\pm q)})^K\prod_{(Z\pm S\pm(q=uv))}\{x^S\}\{x^Q\}\{x^M\}\ldots];$$

Where: {q=xyz} represents the three-dimensional torus network surface or torus composed of convex-concave functions, and {q=uv} represents the three-dimensional radial network composed of convex-concave functions.

Definition 3.3. Logarithm of circle: the multiplication and addition of each sub-item combination of the group combination, the corresponding comparison or reciprocal relationship between symmetry and asymmetric, uniform and uneven, sparse and dense, fractal and chaos, etc., called Three-dimensional five-dimensional space network

$$(1-\eta^2)=\prod_{(Z\pm S\pm q))}\{x^S\}\{x^Q\}\{x^M\}/\sum_{(Z\pm S\pm q)}[\{x_0{}^S\}\pm\{x_0{}^Q\}\pm\{x_0{}^M\}];$$

Definition 3.4. Time series; the logarithmic integer expansion with the base of the circle logarithm

$K(Z)/t=K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=0,1,2,3\ldots)/t$

Among them: the superscript represents the area and value of the group combination function..., and the subscript represents the area, value... of the group combination function.

Definition3.5, three-dimensional five-dimensional space network calculus equation (±N=0,1,2)-clustering set {q(xyz+uv)}

$\{X\}^{K(Z\pm S\pm N\pm q)/t}=\{x_j\omega_i r_k\}^{K(Z\pm S\pm N\pm q)/t}=\{q_{(xyz+uv)}\}^{K(Z\pm S\pm N\pm q)/t}=\{q_{jik}\}^{K(Z\pm S\pm N\pm q)/t}$;

$AX^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=0)/t}\pm BX^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=1)/t}+\ldots+P X^{K(Z\pm S\pm Q\pm M\pm\ldots\pm N\pm(q=P-1)/t}$;

3.2. The basic theorem of the three-dimensional five-dimensional space network of the universe-brain:

3.2.1、Basic theorem: there are the theorem of addition (convex function, ring-directed function); the theorem of subtraction (concave function, ring-directed function); the theorem of subtraction (radial function connected between network surfaces); And the reciprocal function of asymmetry); the logarithm theorem of the probability circle (the sum of logarithmic factors of the probability circle is {0 or 1}); the logarithm theorem of the topological circle (the combination factor of the logarithm of the topological circle changes from {0 to 1}); the relative symmetry theorem of the logarithm of the center zero point circle (the two sides of the center point of the logarithmic combination factor of the probability-topological circle are equal); the center zero point {1/2} is proved by algebraic simultaneous equations;

3.2.2, The core theorem: such as multiplication and addition combination reciprocity rules and proof of the isomorphic consistency of circle logarithms, that is, simple polynomials and complex polynomials have consistent time calculations. This derivation is easy to prove by relying on the regularized combination coefficients. Reflects the invariance characteristics of the universe-brain three-dimensional five-dimensional space network (provided by a feature article, this article is omitted).

$(1-\eta^2)=\prod_{(Z\pm S\pm q))}\{x^S\}\{x^Q\}\{x^M\}/\sum_{(Z\pm S)}(1/S)[\{x_0^S\}+\{x_0^Q\}+\{x_0^M\}]$

$=\prod_{(Z-S)}[\{x_0^{-S}\}\cdot\{x_0^{-Q}\}\cdot\{x_0^{-M}\}]/\prod_{(Z+S)}[\{x_0^{+S}\}\cdot\{x_0^{+Q}\}\cdot\{x_0^{+M}\}]$

$=\sum_{(Z-S)}[\{x_0^{-S}\}+\{x_0^{-Q}\}+\{x_0^{-M}\}]/\sum_{(Z+S)}[\{x_0^{+S}\}+\{x_0^{+Q}\}+\{x_0^{+M}\}]$;

4. Calculus equations and analysis

4.1. Calculus equations and analysis (including zero-order, first-order, and second-order calculus)

The mathematician Abel in the 18th century believed that "the fifth degree equation cannot have a radical solution." The Abelian Impossibility Theorem has become a cage for the development of mathematical sciences, hindered the development of algebra, and even embarked on a divergent path, becoming a congenital defect of mathematics. Here is a brief introduction based on the logarithm of the circle to successfully process the unary quintic calculus equation in {0 to 1} analysis.

Choose an example here: power function K(Z±S)/t=5;

$\{x\pm{}^S\sqrt{\mathbf{D}}\}^{K(Z)/t}=Ax^{K(Z\pm S\pm N\pm(q=0)/t}+Bx^{K(Z\pm S\pm N\pm(q=1)/t}+\wedge+Px^{3K(Z\pm S\pm N\pm(q=P-1)/t}+\mathbf{D}$

$=(1-\eta^2)\cdot\{X_0\pm\mathbf{D_0}\}^{K(Z)/t}$

$=[(1-\eta^2)\cdot(0\leftrightarrow 2)\cdot\{\mathbf{D_0}\}]^{K(Z)/t}$;

$(1-\eta^2)=[\{{}^5\sqrt{\mathbf{D}}\}/\{\mathbf{D_0}\}]^{K(Z)/t}=\{0:(0\text{到}(1/2)\text{到}1):1\}^{K(Z)/t}$;

(A),Calculus order (N=±0,1,2) respectively represents the original network function (zero-order, first-order, second-order) and its changing speed, momentum (first-order), acceleration, energy (second-order) and other motions state.

(B),Among them: in the calculus equation, the group combination cluster set: {X}={xjωiRk}; that is, the weight parameter is hidden in the variable, avoiding the interference of the element and weight in the calculation, ensuring stability, mode confusion and collapse, Does not affect the calculation of the logarithm of the circle.

(C), group combination-circle logarithm: (1-η2) = continuous transitional change between {0 to 1}. (For the leap-forward transition of term sequence, the circle logarithm changes with (1-η2)={0 to 1} continuous transition. (1-η2)={1/2} is the center zero-point circle logarithm.

(D), Symmetry of the zero point of the circle logarithm center:

|Σ(S=(1+2))(1-η2)+1|=|Σ(S=(3+4+5))(1-η2)-1|

Or: |Σ(S=(1+2))(+η)|=|Σ(S=(3+4+5))(-η)|; in the process of calculus, the total elements (S and D_0) Keep immutability. The boundary condition D determines the unique certainty of the network point (root element).

4.1、The circle logarithm converts two asymmetric functions into two relative symmetric functions, and performs probability-topological analysis calculations between {0 to 1}. Why is "relative symmetry"? Relative symmetry means that the balance of symmetry is achieved under the action of the circle logarithm. Once the circle logarithm is removed, the "asymmetry" is still restored.

Here is a numerical example: power function K(Z±S)/t=5; (±N=0,1,2, omitted);

(A), establish equation conditions:

Known conditions: power dimension elements and number S=5; average value D_0=12; $\{D_0\}$={12}; boundary condition D;

Dimension (S=5 combination coefficient: 1:5:10:10:5:1, sum of coefficients: $\{2\}^5$=32;

（1）Boundary condition $\mathbf{D}=\{{}^5\sqrt{\mathbf{D}}\}^{(\pm5)}=248832$；(K=±1±0)；

Discriminant:

$(1-\eta^2)^{+1}=[D/D_0]^{(+5)}=[248832/248832]=1$; It belongs to the discrete type (convex-concave function conversion network surface) calculation.

（2） Boundary condition D={5√D}(+5)=79002; (K=+1);

Discriminant: $(1-\eta^2)^{+1}=[D/D_0]^{(+5)}=[79002/248832]\leq 1$; It belongs to entanglement (convex function network conversion) calculation.

（3） Boundary condition $\mathbf{D}=\{{}^5\sqrt{\mathbf{D}}\}^{(-5)}={}^5\sqrt{5153632}=22^5$；(K=-1)；

Discriminant: $(1-\eta^2)=\{{}^5\sqrt{\mathbf{D}}\}^{(-5)}=5153632/79002\geq 1$; It belongs to entangled (concave function network) calculation.

Rewritten as: $(1-\eta^2)^{-1}=(79002/5153632)^{-1}\le 1$; meeting the discriminant requirements belongs to diffusion calculation.

（4）、Symmetry of the zero point of the circle logarithm center:

$|\Sigma_{(S=(1+2)}(1-\eta^2)^{+1}|=|\Sigma_{(S=(3+4+5)}(1-\eta 2)^{-1}|$

Or: $|\Sigma_{(S=(1+2)}(+\eta)|+|\Sigma_{(S=(3+4+5)}(-\eta)|=0$;

in the process of calculus, the total elements （S and $\mathbf{D_0}$） Keep immutability. The boundary condition **D** determines the unique certainty of the network point (root element).

(B), calculus order (N=±0,1,2) respectively represent the original network function (zero-order, first-order, second-order) and its changing speed, momentum (first-order), acceleration, energy (two Level) and other motion states.

(C), group combination-circle logarithm: $(1-\eta^2)$ = continuous transitional change between {0 to 1}. (For the leap-over transition of term sequence, the circle logarithm changes with $(1-\eta^2)$={0 to 1} continuous transition. $(1-\eta^2)$={1/2} is the center zero-point circle logarithm.

The circle logarithm converts two asymmetric functions into two relative symmetric functions, and performs probability-topological analysis calculations between {0 to 1}. Why is "relative symmetry"? Relative symmetry means that the balance of symmetry is achieved under the action of the circle logarithm. Once the circle logarithm is removed, the "asymmetry" is still restored.

In particular, for the convenience of beginners to learn or test, introduce the calculation example of the actual number equation,

4.2. [Example 1]: Discrete calculus zero-order (±N=0,1,2, omitted) equation; $(1-\eta^2)=1$,

Unary quintic equation: $(1-\eta^2)^{(\pm1)}$={0 or 1},

Known: The number of power dimension elements S=5;

The average value $D_0=12$; $\mathbf{D}=\{\sqrt[5]{\mathbf{D}}\}^5=248832$;

Boundary condition $D=\{\sqrt[5]{D}\}^5=248832$;

Power function: $K(5)/t=K(Z\pm(S=5)\pm(N=0,1,2)\pm(q=5))/t$ (K=±0, means neutral);

Discriminant: $(1-\eta^2)=[\sqrt[5]{\mathbf{D}/\mathbf{D_0}}]^5=248832/248832=1$; It belongs to neutral discrete statistical calculation.

(4.2.1)

$\{x\pm\sqrt[5]{\mathbf{D}}\}^5=Ax^5+Bx^4+Cx^3+Dx^2+Ex^1+\mathbf{D}$

$=x^5\pm60x^4+1440x^3\pm17280x^2+103680x^1\pm248832$

$=(1-\eta^2)[x^5\pm5\cdot12\cdot x^4+10\cdot12^2\cdot x^3\pm10\cdot12^3\cdot x^2+5\cdot12^4\cdot x^1\pm12^5]$

$=[(1-\eta^2)\{x_0\pm\mathbf{D_0}\}]^5$

$=[(1-\eta^2)\cdot\{x_0\pm12\}]^5$

$=[(1-\eta^2)\cdot\{0\leftrightarrow2\}\cdot\{12\}]^5$;

(4.2.2)

$(1-\eta^2)^{(\pm0,\pm1)}=(1-\eta^2)^{-1}\cdot(1-\eta^2)^{+1}=(1-\eta^2)^{-1}+(1-\eta^2)^{+1}$={0：(0 to(1/2) to 1)：1}；

Among them: property function k=(+1,±1±0.-1/); (K=+1) positive power (convergence, circular convex function network, see example 2) and (K=-1) negative power (Extension, circle-concave function network) function; neutral function (K=±1, ±0) (connecting arbitrary circle convex-concave function layer network) and transfer function. This calculation without logical symbols is similar to the discrete statistical algorithm.

4.3. [Example 2]: Calculus equation (±N=0,1,2, omitted), convergence (1-η2)(+1)≤1;

Unary quintic equation: $(1-\eta^2)^{(+1)}\le1$;

(4.3.1)

$\{x\pm\sqrt{\mathbf{D}}\}^{(5)}=Ax^5+Bx^4+Cx^3+Dx^2+Ex^1+\mathbf{D}$

$=x^5\pm60x^4+1440x^3\pm17280x^2+103680x^1\pm79002$

$=(1-\eta^2)\cdot[x^5\pm5\cdot12\cdot x^4+10\cdot12^2\cdot x^3\pm10\cdot12^3\cdot x^2+5\cdot12^4\cdot x^1\pm12^5]$

$=[(1-\eta^2)\cdot\{x_0\pm12\}]^5$

$=[(1-\eta^2)\cdot\{0,2\}\cdot\{12\}]^5$;

(4.3.2)

$(1-\eta^2)^{(+1)}=(1-\eta^2)^{-1}\cdot(1-\eta^2)^{+1}=(1-\eta^2)^{-1}+(1-\eta^2)^{+1}$={0：(0到(1/2)到 1)：1}$^{(+1)}$；

4.4. [Example 3]: Diffusion type calculus equation (concave function network) zero-order (±N=0,1,2) equation; $(1-\eta^2)^{-1}\le1$;

One-variable quintic equation:$(1-\eta^2)^{-1}\le1$;

$\mathbf{D}=\{\sqrt[5]{\mathbf{D}}\}^{-5}=5153632^{-1}$；

Discriminant:$(1-\eta^2)^{(-1)}=[\sqrt[5]{\mathbf{D}/\mathbf{D_0}}]^5=[5153632/248832]^{-1}\le1$; It belongs to the diffusion type (toroidal concave neuron network) calculation. (K=-1) is synchronized with$(1-\eta^2)^{(-1)}$.

(4.4.1)

$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K(5)}}=Ax^{\mathbf{K5}}+Bx^{\mathbf{K4}}+Cx^{\mathbf{K3}}+Dx^{\mathbf{K2}}+Ex^{\mathbf{K1}}+\mathbf{D}$

$=x^5\pm60x^4+1440x^3\pm17280x^2+103680x^1\pm5153632$

$=(1-\eta^2)^{\mathbf{K}}\cdot[x^5\pm5\cdot12\cdot x^4+10\cdot12^2\cdot x^3\pm10\cdot12^3\cdot x^2+5\cdot12^4\cdot x^1\pm12^5]^{\mathbf{K}}$

$=[(1-\eta^2)^{\mathbf{K}}\cdot\{x_0\pm12\}]^{\mathbf{K5}}$

$=[(1-\eta^2)^{\mathbf{K}}\cdot\{0,2\}\cdot\{12\}]^{\mathbf{K}}$；

(4.4.2)

$(1-\eta^2)^{K(-1)}=(1-\eta^2)^{(-1)}\cdot(1-\eta^2)^{(+1)}=(1-\eta^2)^{(-1)}+(1-\eta^2)^{(+1)}$={0：(0 to (1/2) to 1)：1}$^{K(-1)}$；

4.5. The equation has three calculation results:

(1) 、Represents balance, rotation, conversion, vector subtraction, and three-dimensional ring network.

(4.5.1)

$\{x-\sqrt{\mathbf{D}}\}^5=x^5-60x^4+1440x^3-17280x^2+103680x^1-79002$

$=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^5=0$；

(2)、 Network surface representing balance, precession, radiation, vector addition, three-dimensional homeomorphism forward (circular (K=+1), radial (K=1)) network.

(4.5.2)

$\{x+\sqrt{\mathbf{D}}\}^{\mathbf{K(5)}}=x^{\mathbf{K(5)}}+60x^{\mathbf{K(4)}}+1440x^{\mathbf{K(3)}}+17280x^{\mathbf{K(2)}}+103680x^{\mathbf{K(1)}}+79002^{\mathbf{K}}$

$=[(1-\eta^2)\cdot\{2\}\cdot\{12\}]^{\mathbf{K(5)}}$；

$=(1-\eta^2)\cdot32\cdot12^{\mathbf{K(5)}}$

$=(1-\eta^2)\cdot7962624^{\mathbf{K}}$；

(3) 、 The network surface of the three-dimensional homeomorphism forward and backward (circular (K=+1), radial (K=1)) network representing the

periodicity of the five-dimensional-six-dimensional vortex space.

(4.5.3)

$\{x+\sqrt{\mathbf{D}}\}^{\mathbf{K(5)}}=x^{\mathbf{K(5)}}+60x^{\mathbf{K(4)}}+1440x^{\mathbf{K(3)}}+17280x^{\mathbf{K(2)}}+103680x^{\mathbf{K(1)}}+79002^{\mathbf{K}}$

$=[(1-\eta^2)\cdot\{0\to1\}\cdot\{x_0\pm12\}]^{\mathbf{K(5)}}$

$=[(1-\eta^2)\cdot\{0\to2\to0\}\cdot\{12\}]^{\mathbf{K(5)}}$

$=[(1-\eta^2)\cdot[0\to\{32\cdot12^5\}\to0]^{\mathbf{K}}$

$=[(1-\eta^2)\cdot[0\to7962624\to0]^{\mathbf{K}}$;

(4)、 Represents the value of the central zero point of the periodicity (2πK) of the five-dimensional-six-dimensional vortex space

(4.5.4)

$\{x\pm\sqrt{\mathbf{D}}\}^{\mathbf{K(5)}}=(1-\eta^2)\cdot[\{0\leftarrow1/2\to1\}\cdot\{x_0\pm(\mathbf{D}_0)\}]^{\mathbf{2\pi K(5)}}$

$=(1-\eta^2)\cdot[0\leftarrow7776(\text{中心零点}=(1/2)\to1]^{\mathbf{2\pi K(5)}}$;

or: $=(1-\eta^2)\cdot[-1\leftarrow7776(\text{中心零点}=(0))\to+1]^{\mathbf{2\pi K(5)}}$;

4.6. Solving: Analyzing the quintic equation of one variable in {0 to 1}

[Example 1 and Example 2] have the same number of elements and average value (characteristic mode): $B=(S=5),\mathbf{D}_0=60$; the center zero point is between $x_1x_2x_3$ and x_4x_5. Through the central zero point$(1-\eta_\omega{}^2)$, $\eta^2=19/60$ is tested (not satisfied), and $\eta^2=17/60$ is tested again (balance and symmetry can be satisfied). Symmetry of circle logarithmic factor:

(4.6.1)

$(1-\eta^2)B=[(1-\eta_1{}^2)+(1-\eta_2{}^2)+(1-\eta_3{}^2)]-[(1-\eta_4{}^2)+(1-\eta_5{}^2)]60$

$=[(1-9/12)+(1-5/12)+(1-3/12)]-[(1+7/12)+(1+10/12)]60$

$=(17/60)-(17/60)=0$; (satisfying the symmetrical balance condition).

(4.6.2) $(\eta_1+\eta_1+\eta_1)=(9+5+3)=(\eta_4+\eta_5)=17$; (Symmetry circle logarithmic factor);

The root element analysis is derived from the group combination root D0, and the univariate root (x) loses its independence in the group combination root. It must be analyzed from the corresponding topology-probability circle logarithm corresponding to $D_0=12$ in the group combination root.

(4.6.3) $x_1=(1-\eta_1)\mathbf{D_0}=(1-9/12)12=3$;

$x_2=(1-\eta_2)\mathbf{D_0}=(1-5/12)12=7$;

$x_3=(1-\eta_3)\mathbf{D_0}=(1-3/12)12=9$;

$x_4=(1+\eta_4)\mathbf{D_0}=(1+7/12)12=19$;

$x_5=(1+\eta_5)\mathbf{D_0}=(1+10/12)12=22$;

In formula 4.6.3, $\{q_{xyz}\}=\{x_1x_2x_3...\}$ forms a circular neural network,$\{q_{uv}\}=\{x_4x_5...\}$ forms a radial neural network. Three-dimensional five-dimensional spatial neural network.

5. Principle and application of three-dimensional and five-dimensional space image

When the network node contains more elements, the faster the network transmission speed. Here is an explanation of a neuron of the associative neural network, which can be quickly transmitted to the perception and analysis of each node of the overall network. In the three-dimensional and five-dimensional neural network, $\{X\}=\{q_{xyz}\}=\{x_1x_2x_3\dots\}$ constitutes a circular neural network, and $\{X\}=\{q_{uv}\}=\{x_4x_5\dots\}$ constitutes a radial neural network. The weight parameters $\{q_{(xyz+uv)}\}=\{X_j\omega_ir_k\}$ such as temperature, mechanical constants, transmission characteristics, material properties... etc. are expressed in terms of $\{\omega_i=\alpha,\beta,\gamma\dots\}$, which are included in group variables and single Among the variables, it does not affect the expansion of the circle logarithm, and avoids the defects of model collapse and model confusion of traditional computer programs.

Special $\{q_{xyz}\}=\{x_1x_2x_3\dots\}$ and $\{q_{uv}\}=\{x_4x_5\dots\}$ have different values in the continuous multiplication combination. Through logarithmic processing of the center zero point circle, we obtain $|\Sigma_{(S=(1+2+3))}(+\eta)|=|\Sigma_{(S=(4+5))}(-\eta)|$, which means 5 (high-dimensional) elements, which are balanced in the ring and radial directions of the network nodes and have the same logarithmic symmetry characteristics , Can be equivalent permutation and covariance. The logarithm of the circle can correspond to the characteristic of the eigenmode (D_0) equivalent neural network$\{D_0\}^{K(Z\pm S\pm Q\pm M\pm N\pm\dots\pm q))/t.}$

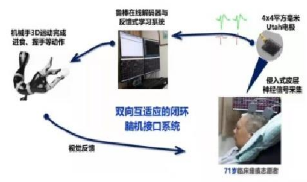
5.1, three-dimensional five-dimensional space image processing principle

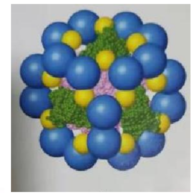
According to Brouwer's theorem, the central point represented by {X} is extended to the boundary of the perfect circle through the concentric circles of the homeomorphic topological circle, and then continues through the boundary of the perfect circle$(1-\eta^2)=\{0$ to 1 Expand to fill the entire boundary of any curve, surface, or volume to form a three-dimensional or planar image. The opposite is also true. It is called "perfect circle pattern recognition and analysis", the former is called analysis, and the latter is called cognition, both of which can be mapped to "three-dimensional and five-dimensional neural networks."

For a network composed of a perfect circle, a rectangle, a regular polygon, a regular polygon, a regular sphere, a regular polyhedral sphere, etc., the uniformly shaped surface and volume$(1-\eta^2)=1$, and the arbitrary shape of the surface, volume and non-uniform shape The face and body. The circle logarithm reflects the relationship between them as $(1-\eta^2)=\{0$: (0 to (1/2) to1): 1}, the center zero point{1/2} makes their homeomorphic centers superimpose together , To achieve synchronous expansion between {-1,0,+1}. Among them, through the movement of the center zero point or the deformation of the boundary shape, it becomes concentric

A perfect sphere or a perfect circle.

In this way, the principle of image conversion is the network point of the computer program → perfect circle (body) → ellipse (body) → surface (body) of arbitrary shape, and the reverse procedure is also true.



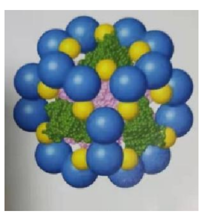
Five-dimensional multi-sphere network; Five-dimensional neural network; Five-dimensional biological gene (Image source: According to the network report on November 19, 2021: The operation case of the Second Hospital of Zhejiang University, and the three-dimensional and five-dimensional space model reported on the website).

The operation example of the Second Hospital of Zhejiang University is to use a 0.1 mm surgical robot to place 100 electrode needle tubes on two 4 mm × 4 mm chips and send them to the predetermined cell position in the fifth layer of the deep brain. Obtain recognition and perceive the intelligence of neurons, and replace hemiplegic neurons to restore movement consciousness.

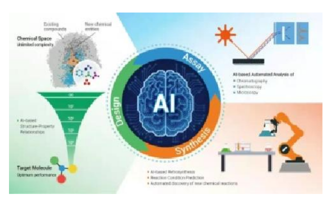
Try to apply the algebraic model (polynomial formula) to explain: the brain has 1012 neurons, which form a multi-level, multi-regional three

Three-dimensional five-dimensional equation $\{X_{DN}{}^{10}\}^{12}=(1-\eta^2)\{D_{0DN}\}^{K(Z)/t}$, for implanting 10^{12} electrode needle tube chips Connect with neuron $\{X_{xp}{}^{10}\}^2=(1-\eta^2)\{D_{0xp}\}^{K(Z)/t}\cdot\{X_{DN}{}^{10}\}$, $\{\mathbf{D}_{0DN}\}$ and $\{X_{xp}{}^{10}\}$, $\{\mathbf{D}_{0xp}\}$ are the unknown (to be observed) network function and the known (expected, model) network function, respectively. Based on the logarithm of the isomorphism circle $(1-\eta^2)$, the chip passes The function of connecting neurons that replace hemiplegia is controlled by the brain's consciousness.

The mathematical, physical, chemical, and biological events corresponding to the three-dimensional neural network can be converted into a logarithmic network and table.





Five-dimensional turbine blade network Five-dimensional planet network Five-dimensional artificial intelligence

(Image source: Internet official account: if there is disagreement or infringement, after pointing out, the author of this article expresses his gratitude or signifies the author of the image or deletes it).

5.2. Circle logarithm table,

The three-dimensional five-dimensional neural network circle logarithm table respectively corresponds to the probability, topology, center zero point, and time series circle logarithm. Only the topological circle logarithm table is listed here. (Other tables can be found in monographs, omitted). The circle logarithm table is used to make a three-dimensional three-dimensional chip through a programming language, and the information transmission is quickly transmitted in the three-dimensional direction, and is no longer a long curved curve transmission. Topological circle logarithm $(1-\eta_{jik}{}^2)^{K(Z)/t}$

Topological circle logarithm $(1-\eta_{jik}^{2})^{K(Z)/t}$

$\{\eta_{ji}^{2}\}^{KM}$ represents the circle logarithm factor of the neural network topology;

K=(+1,±1(or ±0),-1); (plane hundred-digit network)

0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1	
0.0	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{00}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$
0.1	$(1-\eta_{11}^{2})^{K}$	$(1-\eta_{12}^{2})^{K}$	$(1-\eta_{13}^{2})^{K}$	$(1-\eta_{14}^{2})^{K}$	$(1-\eta_{15}^{2})^{K}$	$(1-\eta_{16}^{2})^{K}$	$(1-\eta_{17}^{2})^{K}$	$(1-\eta_{18}^{2})^{K}$	$(1-\eta_{19}^{2})^{K}$	$(1-\eta_{20}^{2})^{K}$
0.2	$(1-\eta_{21}^{2})^{K}$	$(1-\eta_{22}^{2})^{K}$	$(1-\eta_{23}^{2})^{K}$	$(1-\eta_{24}^{2})^{K}$	$(1-\eta_{25}^{2})^{K}$	$(1-\eta_{26}^{2})^{K}$	$(1-\eta_{27}^{2})^{K}$	$(1-\eta_{28}^{2})^{K}$	$(1-\eta_{29}^{2})^{K}$	$(1-\eta_{30}^{2})^{K}$
0.3	$(1-\eta_{31}^{2})^{K}$	$(1-\eta_{32}^{2})^{K}$	$(1-\eta_{33}^{2})^{K}$	$(1-\eta_{34}^{2})^{K}$	$(1-\eta_{35}^{2})^{K}$	$(1-\eta_{36}^{2})^{K}$	$(1-\eta_{37}^{2})^{K}$	$(1-\eta_{38}^{2})^{K}$	$(1-\eta_{39}^{2})^{K}$	$(1-\eta_{40}^{2})^{K}$
0.4	$(1-\eta_{41}^{2})^{K}$	$(1-\eta_{42}^{2})^{K}$	$(1-\eta_{43}^{2})^{K}$	$(1-\eta_{44}^{2})^{K}$	$(1-\eta_{45}^{2})^{K}$	$(1-\eta_{46}^{2})^{K}$	$(1-\eta_{47}^{2})^{K}$	$(1-\eta_{48}^{2})^{K}$	$(1-\eta_{49}^{2})^{K}$	$(1-\eta_{50}^{2})^{K}$
0.5	$(1-\eta_{51}^{2})^{K}$	$(1-\eta_{52}^{2})^{K}$	$(1-\eta_{53}^{2})^{K}$	$(1-\eta_{54}^{2})^{K}$	$(1-\eta_{55}^{2})^{K}$	$(1-\eta_{56}^{2})^{K}$	$(1-\eta_{57}^{2})^{K}$	$(1-\eta_{58}^{2})^{K}$	$(1-\eta_{59}^{2})^{K}$	$(1-\eta_{60}^{2})^{K}$
0.6	$(1-\eta_{61}^{2})^{K}$	$(1-\eta_{62}^{2})^{K}$	$(1-\eta_{63}^{2})^{K}$	$(1-\eta_{64}^{2})^{K}$	$(1-\eta_{65}^{2})^{K}$	$(1-\eta_{66}^{2})^{K}$	$(1-\eta_{67}^{2})^{K}$	$(1-\eta_{68}^{2})^{K}$	$(1-\eta_{69}^{2})^{K}$	$(1-\eta_{70}^{2})^{K}$
0.7	$(1-\eta_{71}^{2})^{K}$	$(1-\eta_{72}^{2})^{K}$	$(1-\eta_{73}^{2})^{K}$	$(1-\eta_{74}^{2})^{K}$	$(1-\eta_{75}^{2})^{K}$	$(1-\eta_{76}^{2})^{K}$	$(1-\eta_{77}^{2})^{K}$	$(1-\eta_{78}^{2})^{K}$	$(1-\eta_{79}^{2})^{K}$	$(1-\eta_{80}^{2})^{K}$
0.8	$(1-\eta_{81}^{2})^{K}$	$(1-\eta_{82}^{2})^{K}$	$(1-\eta_{83}^{2})^{K}$	$(1-\eta_{84}^{2})^{K}$	$(1-\eta_{85}^{2})^{K}$	$(1-\eta_{86}^{2})^{K}$	$(1-\eta_{87}^{2})^{K}$	$(1-\eta_{88}^{2})^{K}$	$(1-\eta_{89}^{2})^{K}$	$(1-\eta_{90}^{2})^{K}$
0.9	$(1-\eta_{91}^{2})^{K}$	$(1-\eta_{92}^{2})^{K}$	$(1-\eta_{93}^{2})^{K}$	$(1-\eta_{94}^{2})^{K}$	$(1-\eta_{95}^{2})^{K}$	$(1-\eta_{96}^{2})^{K}$	$(1-\eta_{97}^{2})^{K}$	$(1-\eta_{98}^{2})^{K}$	$(1-\eta_{99}^{2})^{K}$	$(1-\eta_{100}^{2})^{K}$
1.0	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$	$(1-\eta_{109}^{2})^{K}$	$(1-\eta_{10}^{2})^{K}$

(1) The decimal q={0↔10} is converted to the logarithm of the topological circle of the "independent mathematical model".

(2), $(1-\eta_{00}^{2})^{K}$ and $(1-\eta_{00}^{2})^{K}$ represent the value of the center point and boundary corresponding to the logarithm of the topological circle.

(3), (S=S±Q±M) represents the accuracy of the logarithm calculation of the topological circle.

5.3 Principles of Form Application

After the mean value function is determined, the circle logarithm of the three-dimensional five-dimensional space neural network is the subject of computer theory:

$(1-\eta_{(jik)}^{2})=(1-\eta_{(xyz+uv)}^{2})\mathbf{i}+(1-\eta_{(xyz+uv)}^{2})\mathbf{j}+(1-\eta_{(xyz+uv)}^{2})\mathbf{k}$;

All arbitrary functions (images) have closed group combination, the total element (S) remains unchanged, $\{D_0\}^{K(Z)/t}$ feature modulus invariance, and the remaining operation is the logarithm of the three-dimensional five-dimensional space circle $(1-\eta_{(xyz+uv)}^{2})^{K(Z)/t}$ calculation. It avoids the influence of elements that cannot be left in traditional calculations, and adds unnecessary procedures and errors.

The logarithm of the circle$(1-\eta^{2})$={0：(0 to (1/2) to1)：1} can be converted into the operating language of the computer program. $(1-\eta^{2})$={0 or 1} meanwhile represents the electronic circuit switch corresponding to the logarithm of the circle.

6. Summary and Outlook

The group combination-circle logarithm is a newly discovered universe-brain natural rule. The vast majority of all functions are "multiplication and addition reciprocal combinations", which contains almost all contemporary function models, and obtains the mean function, which becomes a neural network function. The variable features are uniformly mapped to the "irrelevant mathematical model, no specific digital element content" three-dimensional neural network five-dimensional space.

Written as a unified formula:

$$w_{ijk}=(1-\eta_{(xyz+uv)}^{2})\cdot\{D_{0jik}\}^{K(Z)/t};$$

$(1-\eta_{(xyz+uv)}^{2})$={0 to(1/2) to1}；

When the decimal [S, Q, M] tree distribution is a three-level distribution, the computing power can reach 1463 qubits. In addition, the algebraic mode ensures the knowledge and analysis of zero-error arithmetic logic.

In particular, (1), the circle logarithm {0 or 1} is multi-regional, multi-level, multi-dimensional, multi-parameter, isomerization and unstructured big data multi-discipline (including calculus-clustering set node) Jump transitions between integer roots (including electronic circuit switches).

(2), The logarithm of the circle {0 to (1/2) to 1} is the description of relevance, including the continuous transition of parallel movement and deformation;

(3), The logarithm of the circle {(1/2)} is the center zero point symmetry balance, and the high parallel function (such as natural language, text, image, audio, video, etc.) is centered on the center zero point, on both sides {0 to 1} or {-1 to 0 to +1}, the concentric spheres (circles) of "candied haws bunch" unfold synchronously. Effectively control the high parallel stacking state to avoid mode collapse and confusion.

Group combination-circle logarithm, a three-dimensional five-dimensional spatial neural network established by classic algebra, with isomorphism, unity, security, robustness, privacy, simplicity, low time, low cost, low cost, High-function, high-efficiency, etc., universal science and engineering practice application prospects. It is called the artificial intelligence universe-brain's three-dimensional, four-dimensional, five-dimensional and six-dimensional neural network algorithm. (over)

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