Proof that P can = NP via theoretical Quantum Information Preprocessors

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Proof that P can = NP via theoretical Quantum Information Preprocessors

A computer science and mathematics paper Proving that AI can so solve problems over polynomial time using Relational Algebra, Set Theory, Relativistic Physics, Quantum Computing theory, Exponentiation expression, and propositional logic.

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A Proposed patent rights for Quantum Preprocessor
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Abstract: *In this paper I prove with algebra and propositional logic that problems (represented as information in a computer system or the the superset p) can theoretically be solved over time by Artificial Intelligence. I do this by merging relational algebra / set theory from mathematics (mathematical proof/s), nondeterministic Quantum Physics and computing theory from theoretical physics (conceptually) and finally using propositional logic for the final proof to solve the problem P=NP over polynomial time(t) and propose a new law of Quantum Computing -"T***he Quantum Law of pre-processing"**

Statement: A Non-Deterministic AI can solve problems and we in the Science community should make sure that if we can bring such a power into our world that we should make them what I like to call 'service workers' i.e objective thought machines and not machines that seek to replicate emotion. So this is not a turing machine implementation proposal but a proposal of an AI learning system / neural network to help solve complex problems (i.e. Climate change, ecological disaster) not a turing machine test proposal (though theoretically the logic implies that it 'could' be possible to create a 'thinking / feeling' human 'alike' Artificial Intelligence given that p=np over a given set of polynomial time) as proved in the final proof of the superset p.

In an nutshell - *"We should create AI that answers questions not AI that creates them, Or P = NP in maths form"*

Contents

Mathematical Definitions and symbols

Non-deterministic Physics symbols

T - This represents Polynomial Time

I - Speed of Information Transfer achieved via ‘Quantum preprocessors’ (The abstract conception of which is at the end of this paper)

Relational Algebra / Set Theory applied to P

Superset P Sets of all Problems (Hard / Soft)

Subsets

P(h) -Hard Problems i.e *problems that are hard to solve over a lot of time*

P(s) - Soft Problems i.e *problems that are easier to solver over less time*

NP Sets of No Problems

Subsets

P - All Hard and soft problems are theoretically solvable by AI given access to infinite information complexity(i^2)within polynomial time(t^2).

≠P - Hard problems cannot be solved over polynomial time (T or *t*)

Symbols and math used:

Relational Algebra, Greek Maths symbols, Set Theory, Exponentiation, propositional logic (algebra)

Logical Assumptions

In this paper the following 4 following assumptions are made:

1) $np \neq i^2$ - If you have enough information you have no problems.

2) $P \neq T^2$ - if you have problems which are processed in outside relativistic spacetime all hard / soft problems can be solved because Time can no longer be understood in a relativistic manner ***i.e Quantum time*** (Theoretically possible given developments in quantum computing over t.

3) $pt^2 \neq np^2$ - problems over time do not create more problems

4) $i2 = (t^2 \Delta i^2)t$ - Processing an infinite information set is possible if time exists in both possible states **i.e p(h)** $= (p = np) \cap ($ **p(s)** $= (p \neq np)$ with Quantum preprocessors i.e both hard state p(h) and soft state problems p(s) are solved at the same time using the theoretical ‘Quantum Pre-Processor technology I have proposed.

Abstract Propositional Logic statements

The following propositions in order define the problem with p=np and my assumptions

$i^2 < np \text{ or } \textit{Given enough information all problems can be solved}$ or

$pt^2 \neq pt^2 < t^2$ any problem is *not a problem over enough time*

$t^2 > p$

When you consider non-relativistic time to solve a problem there are no problems that cannot be solved because the normal laws of time are not in operation i.e non-deterministic time as defined in “Schrodinger **uncertainty principle”** this then implies that

$p(t^2) \neq np(t^2) < t^2 \Delta i^2$

So If the set p can be solved over nondeterministic time then no problems can be solved under nondeterministic time then $p \neq np$

The final proposition presents a problem as the final proposition is a contradiction and needs to be solved otherwise $p \neq np$ and p will never equal np.

Solution

$\notin p = p(i^2)t$ There are no problems if the set of all problems (p) had access to an infinite information set(i ^{2}) and no limitations on time i.e a nondeterministic time frame from which to gain access to information to solve a problem with p or t ^{2} within a theoretical computer / AI.

Conclusion of propositions

If processors are operating via nondeterministic time principles, Problems can theoretically be solved by doubling solutions on an information level (i) in nondeterministic time (t) with quantum / parallel processing or $\notin p = p(i^2)t$

Polynomial Time Sets and equations

Problem: I must Prove that given enough time problems can be solved if there is enough accessible information in a dataset/s where i represents the dataset

Calculus / summation of polynomial time equations for p and p(h) and p(s)

$$\sum_{np1}^{t} = i\{1,2,3,4,5,6,7,8,9,10...\}$$

The Information regression Problem in relativistic time

p = { i {T,T,T,T,T,T,T,TT} (Superset) OR p(h) ^ p(s) = i{T,T,T,T,T,T,T,TT} (Subset)

This makes no sense and results in an infinite regression back to t (i.e infinite time / singularity)

Solution in nondeterministic timeframe

However If time can be measured in nanoseconds and occurs in two simultaneous timeframes via Quantum Superposition and information(i^2) exists in both an on and and off state at the same ‘time’ (t^2) then

$$\sum_{p1}^{t} = i\,\{1,2,3,4,5,6,7,8,9,10...\}$$

Now becomes

$$\sum_{np1}^{t^2} = i^2\,\{1,2,3,4,5,6,7,8,9,10...\}$$

Theoretically then

The Superset now becomes P = i(t) because solving the set of all problems in p is just a problem of information(i) over time(t) or the sum total of the subset of p(h) and p(s) problems.

Because p $\neq$ t - solving the problems of set p (p) is just a questions of deterministic time(t) in relativistic linear time and not nondeterministic or quantum time.

This proves the propositional logic of p=np, because it reframes the problem (p) to be a question of nondeterministic time and information sets, and not one of computation within deterministic time (**i.e Moores Law of processing power**).

If this theory is correct, it is a new paradigm in computer processing theory and information theory and I propose to call this new law the Law “Quantum Law of pre-processing”.

Proofs for Hard and Soft problems

Propositional proof that The subsets of p=np given that p(h) = hard problems and p(s) are easier ones to solve over linear deterministic time.

$p(h) \;<= (\,p \;\neq np)$

p(s) =>($np \neq p$)

Hard Problems:

$p(h) \;=\; np^2((t\,\Delta\, pi \cap np\;t\,)) \;\neq\; pt^2 \;=\; p(npi^2) \;\Rightarrow$

$np\;t = ((np\;i) \cap (t \neq pt))$

$p(h) < p = np$

Soft Problems

$np = ((t\;\Delta np\;i \cap p\;t\,)) \cap p(h) > p = np$

And therefore

$p(h) < p = np \;\cap\; np = ((t\;\Delta np\;i \cap p\;t)) \;\cap p(h) > p = np$

Which leads to 'Proof of P=NP over polynomial time using propositional logic'

$$p = np(p(h) < p = np \cap np = (t \Delta np\, i \cap p\, t) \cap p(h) > p = np) \wedge (p \neq np)(p(s) < p = np \cap np = ((t \Delta np\, i \cap p\, t)) \cap p(s) > p \neq np) \Rightarrow p = np$$

- **'The Quantum Law of pre-processing'**

What does this potentially mean?
If my proof is correct, over time problems of information can be solved with the theoretical "Quantum Law of pre-processing" and quantum pre-processing, an abstract diagram of which I have Detailed in the appendix to this paper.

This paper also posits that 'Time to the power of time multiplied by the power of information itself over time' means that p can be equal to np for both hard and soft problems in polynomial time. This is a problem that requires a technical solution and is the next stage this mathematics can be developed practically i.e **To develop my idea of theoretical 'service worker AI'**.

Conclusion of Proof for P = NP via Quantum Information Preprocessors

A Non-Deterministic AI can theoretically solve all problems in a given problem set
This paper has proved that if one possesses a theoretical Quantum information pre-processor that is capable of processing in 2 simultaneous time / spatial dimensions (via Quantum superposition) i.e $i2 = (t^2 \Delta i^2)t$ using advanced as yet uninvented futuristic Quantum computing processors then one can solve all hard and soft problems before they occur in the space/time time continuum.

I propose the idea that because unsolved problems are already solved before they occur in this theoretical pre-processor that AI can predict all possible problems before they occur in the general time / space continuum as defined by Einstein in his theory of general relativity, and Quantum superposition as defined by Heisenberg in a theoretical high powered Quantum Computer processor (A "Schrödinger's processor if you like, a metaphor being in a quantum pre-processor a 0 exists as a 1, and a 1 as a 0 at the same time in linear non-deterministic time(t^2).

This technology of course is out of our reach at present and assumes that AI can function on a level that can predict all possible outcomes of any possible decision and it's opposite on a piece of information in time, so therefore at this point it is highly theoretical in nature, but has massive possible implications for cryptology and computer security, given that theoretically that Quantum computing could become a paradigm in the next few decades or even years and may profoundly affect all aspects of Cybersecurity and Cryptography.

Service Worker AI -

Ethical and Technological conclusions / possible implementations with regards to AI

This I think however shouldn't mean that we should hand decision making to AI, but merely that we should think of computers and AI / learning systems as service workers that offers possible solutions to hard and soft problems that exist in data sets, pre-processed by AI / neural nets and learning systems i.e we ask the machine for help to provide solutions to complex problems and not think of it as a means to assume that AI has any preference to the results of solutions i.e **not a turing machine but a non-deterministic AI paradigm solution for solving problems that we have in society.**

Remaining problems and questions to solve related to P=NP assuming I am correct in my mathematics proving p = np

1)Building a Quantum Preprocessor - technical details of how this can be achieved
2)How to reduce hard problems using quantum processing outside of mathematics
3)Technical implications to industry if theory is proved as true after peer review.

References

Quantum Computing

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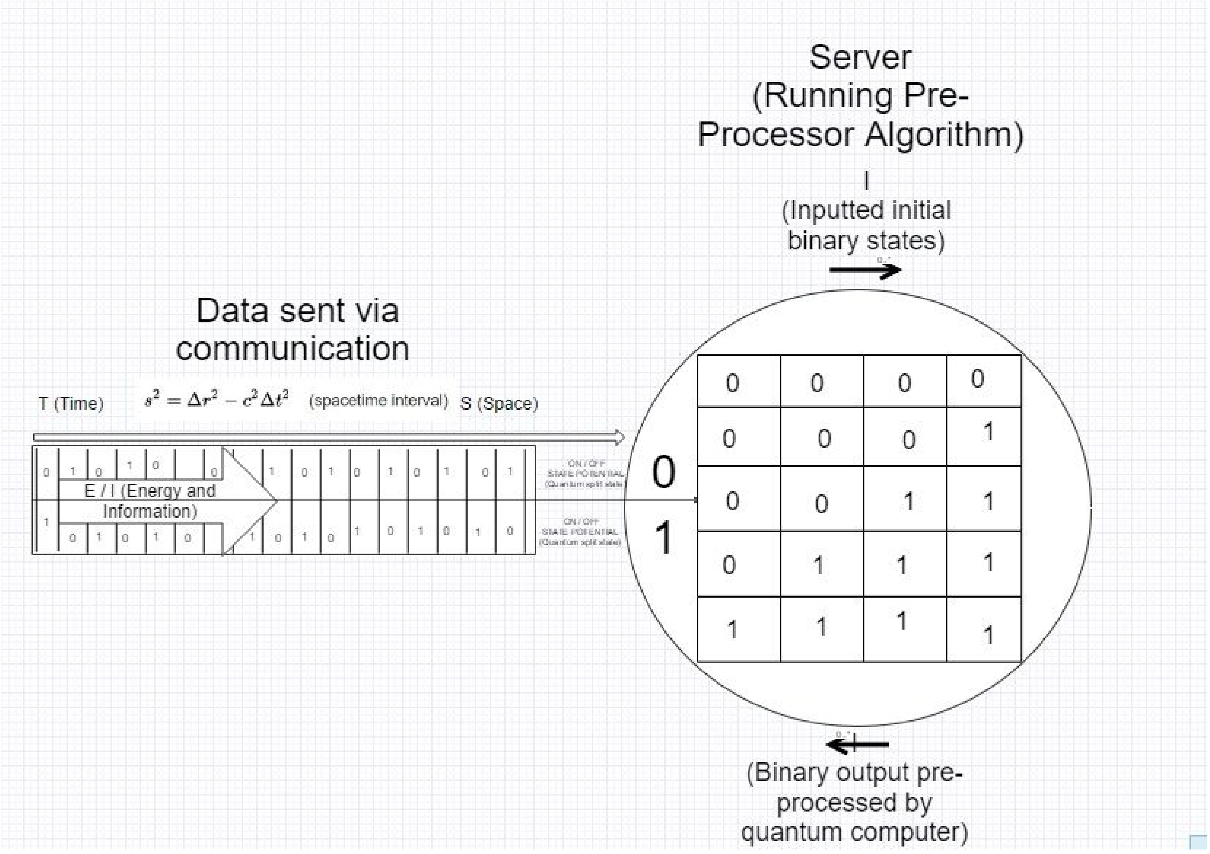
https://www.newscientist.com/article/2146503-this-qubit-redesign-may-make-it-easier-to-make-quantum-computers/

Appendix

Conceptual Diagram of *Quantum Information Pre-processor*



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http://www.noirvortex.co.uk/scientific-theories/hyperdimensional-information-abstract-diagram/

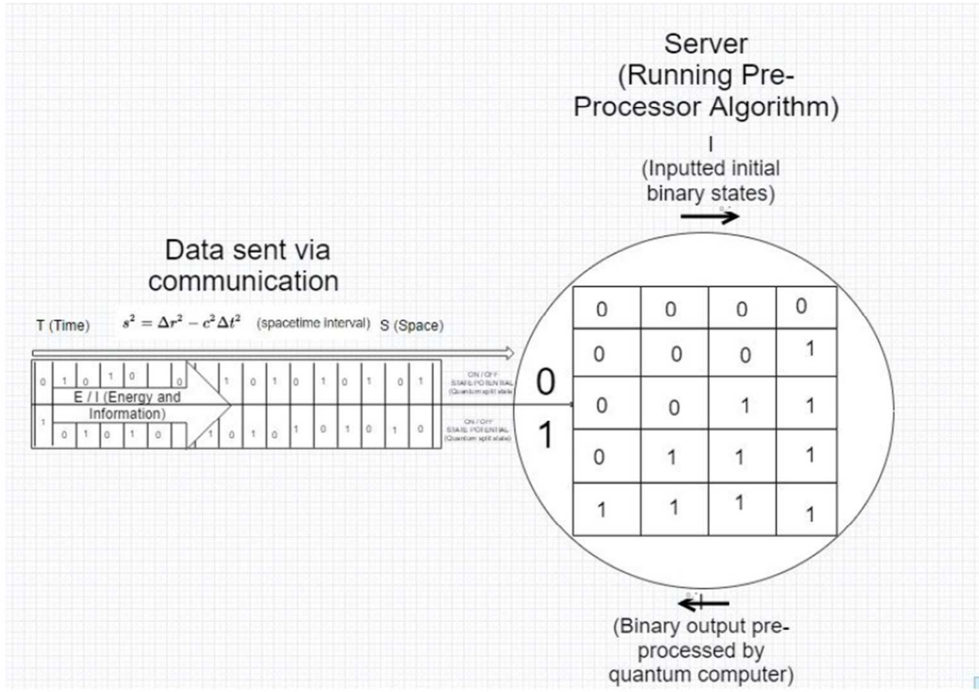

Diagram of conceptual processor