HIV Mysteries Decrypted By Computer Artificial Intelligence

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Abstract:-
When benevolent editors invited the author of this scientific study to write article for the American magazine, the naive Russian author, of course, agreed. But when he began to fulfill his promise, he realized that he far exceeded his abilities. Because the huge topic of HIV and AIDS promised by him does not fit into this article. But promises need to be fulfilled, and the author, instead of the promised scientific research, will tell here only a few fragments of this great work, explaining its main features and main results.

Story 1
BROKEN THE MIRROR OF MAN SCIENCE

1.1. Loss of man in the way of studying man
Man is the most complex object of the Universe, and therefore the most interesting for his study of science. And science set to work! Dividing a man into many parts, first large, then smaller, reached its members and organs, the cells that make up these organs, examined the composition of these cells, and continues their detailed study.

This is not science, but a huge scientific industry! Hundreds of biological, biochemical, biophysical, medical, biomedical, pharmaceutical and other scientific institutes with dozens of laboratories have been created, hundreds of scientific journals have been organized, with dozens of specializations. And this science industry prints hundreds, thousands, millions of ever more depth studies.

This process of expanding and deepening the science of man fundamentally accelerated the computer, which allows you to process, record, save the obtained research information. And data banks have already been created, and access to these computer data banks has been streamlined and facilitated, and knowledge bases have been created.

That is, the huge humanitarian problem of human knowledge is being successfully solved! But in order to plunge into the depth of the subject, you need to forget about everything else except this particular subject. - And modern science, breaking up a man into millions of fragments, and writing them down in computer knowledge bases, lost the idea of a man as a whole!

Biologists and physiologists do not need this general knowledge of a man; they go on digging through the depths of science with their test tubes, mortars, microscopes and other blades and picks.

And medicine, too, has ceased to be human, and has become a computer. The notion of “doctor” disappeared, and the notion of “specialist” appeared instead. This allowed fundamentally complicate the methods and technologies...
of medicine, for example, made it possible to observe the internal state of the human body, and to make previously impossible surgical operations available.

Everything is fine! But life always prepares dirty tricks on the path of progress. The largest airships fell and burned, the largest and most reliable ship “Titanic” unexpectedly collided with an iceberg and drowned, the largest and most reliable aircraft for some reason fall. And modern medicine and biology also encountered another iceberg – HIV and AIDS – and were confused. It turned out that test tubes, microscopes, X-rays, ultrasound, laser scalpels and the most powerful drugs against this iceberg are powerless. Because even the term “iceberg” is insufficient here. In the 30 years since the appearance of this plague of our time, more millions of people have died from it than in the bloody First and Second World Wars combined!

What to do? - Of course, in no case can not stop the search for traditional methods of biology and medicine against this terrible enemy. Because, even falling into the icy water, you need to continue to flounder, with the hope of salvation. But where to wait for salvation?

1.2. Synthetic science of man

Need to remember the story! - That is a time when the wonderful mirror of knowledge about a man was not fragmented and scattered into millions of fragments by modern science. That is, to recall the man as a whole, whom philosophers and mathematicians studied first of all doctors and biologists.

The most famous example is the artist, engineer and anatomist Leonardo da Vinci (1452-1519), who has deeply studied the structure of the human body. The famous mathematician Kepler (1571-1630), who calculated the shape of the orbits of the Solar system, studied in detail the physiology of vision, first expressed the hypothesis of biorhythms. Kepler's biographer writes:

“Kepler’s petition to the Duke of Württemberg was crowned with success: he was given the Department of Medicine in Tübingen. This clearly shows the extent to which all the then natural philosophy was a single whole, and how insignificant was the specialization in all its branches, between which real Chinese walls were erected in our time. Is it conceivable now that a mathematician and astronomer teach moral philosophy or medicine? At the same time it did not seem strange to anyone. The elixir of the astronomer Tycho Brahe against general diseases was sold in all pharmacies and acted wonderfully. The scientist should have known everything, in no case without stipulating that it is "not in his part."

Modern pharmacists remembered this past, and made the medicine "Kepler", enhancing human brain activity.

Subsequently, the brilliant scientist Newton (1642-1727), the creator of modern mathematics, deeply studied the structure of human and animal organs, coming to the conclusion about their extraterrestrial origin:

“The structure of animals, their wonderful, full of good organization, are convincing evidence of the existence of the all-powerful and wisest Creator.”

Modern materialistic science, having more extensive knowledge of the details of the structure of a person, cannot provide a more meaningful answer to the question about a man.

But the philosopher and mathematician D'Alambert (1717-1783), in his first Encyclopedia of science, saw the separation of knowledge best of all, seeing between private knowledge not Chinese walls but emptiness:

“Everything in nature is connected; all entities are connected by a chain, the continuous parts of which we sometimes observe, although in most cases this continuity escapes us. The art of philosophy is not to forcibly bring together remote parts, inadvertently connecting this chain where it is broken; ... the art of philosophy is to add new links to disconnected parts in order to make them less distant.”

This is the most correct recipe for building a common science – it is difficult to destroy the Chinese walls, it is much easier to fill the voids with links at the junction of various sciences. But today's scientists do not have time to
engage in philosophy; they urgently need to dig their small scientific beds behind the continuously growing Chinese walls.

1.3. Restoration of a broken man's mirror
We are not talking here about elixirs and philosophy, but about the general knowledge of man. And modern mathematicians remembered man and medicine! And they try to understand a man not in his fractional biomedical description, but in general. And this is a fundamentally new knowledge, because it is not based on analysis, but on synthesis!
And we can say that this new mathematical direction in the study of man is a continuation of the past, and the development of the next era of synthetic science about man as a whole. Because it allows you to combine all the scattered private knowledge about a person into his general portrait, that is, to collect and glue together all the precious fragments of this broken scientific mirror.
So that everyone, including doctors and biologists, could see the whole man in this magic mirror, and see their place in the knowledge of this eternally mysterious object of science, and of themselves too.
And the most important fundamental difference of this synthetic direction is that it allows one to study not only the general state of the human body, but also its functioning in time. And this opens up completely new opportunities for medicine, which is able to predict the results of treatment processes, and choose the best ones!
Of course, this is only the beginning of a new synthetic era of medicine and biology, which should combine physicians and biologists with mathematicians and cybernetics, and build new technologies in the computer language. In these technologies, physicians and biologists will transmit the results of their private analysis to mathematicians and cybernetics, and mathematicians and cybernetics will synthesize them into a common holistic knowledge of the man as a whole.

1.4. Mathematical models of the functioning of the human body
So far, only the first steps have been made in this new direction, and so far efforts are directed at building the first blocks of this common mirror, which are called mathematical models in mathematical language. Mathematicians do what they can – they build mathematical models of diseases of individual human organs. We will point out the pioneering studies of the Russian mathematician Dr. G. Marchuk [1], who built the mathematical model of hepatitis, and the main for this publication, the outstanding studies of American mathematicians, Dr. G.F. Webb and Dr. D.E. Kirschner [4, 5], who built a detailed mathematical model of HIV development in the human body.
These biological equations, written in the language of mathematics, are very complex, so there is no need to study them for physicians and biologists who do not have advanced mathematics. We only note that they are as complex as the mathematical equations of the famous American Voyager spacecraft. And that these biological equations make it possible to travel in the same complex space of the human body as the mechanical equations of the Voyagers allowed them to travel in the space of the Solar system.
And scientists of all specialties understand the two meanings of the word cosmos! And it is precisely in this that a new project for the development of medicine and biology consists: – For the destruction of the Chinese walls of alienation, everyone needs to do his own work, but everyone speaks the same language – organism, cell, virus, and so on, describing these concepts with his tools: biologists – biological, and mathematics – mathematical.

1.5. Purpose of our research
Readers are already in the new era of integrated development of medicine and biology, and we speak a language that is understandable to scientists of all specialties.
Two remarkable achievements of American scientists – the mathematical equations of mechanical Voyagers, and the mathematical equations of biological HIV – are similar because they describe space travel. But the journey of the Voyagers in the Solar system, before departure beyond its borders, lasts 30 years. A journey of the patient on the equations of HIV, until his death from AIDS, lasts only 8 years.

And in this language of space travel, understood by scientists of all specialties, we can now explain the purpose of our research: We teach an HIV patient to travel in the space of his life as long as the American Voyagers. That is, to live, that is, to travel on our Earth, the planet of the Solar system, until its death, is also 30 years.

And if the goal is set, we can assume that it has already been achieved. Because Russian mathematicians can manage complex cosmic equations of HIV as well as American mathematicians can manage Voyagers. And we have quite a bit left – to reach this goal, and to tell the readers how it has been achieved.

Story 2
MATHEMATICAL MODEL COMBATING THE IMMUNE SYSTEM WITH HIV

2.1. The composition of the model "The immune system against HIV"

The American mathematical model of HIV describes the complex interaction of 2 types of protective cells of the human immune system with 2 HIV populations - initial and modified. And additionally - the impact on the process of this interaction of 2 types of drugs.

Such models of processes, which are called differential equations, invented Newton to predict the motion of the planets under the influence of the attraction of the Sun. And similar American equations of HIV allow predicting the behavior of cells of the human immune system under the influence of their attraction by HIV populations. And additionally, the impact on these processes of anti-HIV drugs.

2.2. The development of an insuperable HIV disease

As a result, the American HIV model describes the complex interaction of 6 active factors: 2 types of cells of the immune system, 2 HIV populations, and 2 drugs. This model is more complex than the models of the movement of the planets of the Solar System and the Voyagers, because the cells of the immune system and HIV are living, they have their own will, and are guided in their lives by their own goals.

This characteristic is common to all infectious diseases, but in all cases the goals of the pathogen and the immune system are different. The purpose of the pathogen is to destroy the human organ chosen by him, and the purpose of the immune system is to destroy this pathogen.

But the goals of the HIV pathogen and the immune system of a person fighting this pathogen paradoxically coincide! And this paradox needs to be discussed in more detail.

The cells of the immune system are sent to the HIV pathogen to destroy it. But for this they need to find this pathogen in the body. And HIV does not hide from these defenders in the body, but also searches for them, and also to destroy these defenders. That is, the goal of the defender and the pathogen is common – to meet! Because HIV is a homeless person without a home, and without a body, and he can only live in a foreign body, and his body and home are the cells of the human immune system!

Cells of the immune system, the natural evolution of millions of years taught to protect its human host. And these noble defender cells wear a white kimono with a well-deserved black belt, run towards the enemy of HIV in a black kimono with a white belt, grab him with two hands on this white belt to strangle him. But they themselves
are turning into this enemy of HIV in a black kimono with a white belt! And even in the whole gang of these enemies, because they have already multiplied in the still warm dead cell defender.

Medicine is trying to help cell defenders, shooting these enemies of HIV in a black kimono with a white belt with deadly drugs, but these enemies immediately change into a black kimono with a black belt, which is no longer possible to get into because they become invisible. And it is clear that this is no longer medicine, but a fighting club with no rules, where judges pathologists have to award a victory to HIV bandits in a black kimono with a black belt.

2.3. External accomplices of internal thugs
This unsuccessful struggle is being conducted in clinics, and on the streets of these bandits are drug dealers who are also indestructible! The defense of the population against this external enemy is no longer doctors, but policemen. They are trained to look for a gangster, grab his hand with a white bag, put on handcuffs – and throw him in jail. But – this white bag with white powder turns into a black bag with green pieces of paper! And these papers are unclean, sticky, and so firmly stick to the hands of a policeman that it is impossible to get rid of them. And the noble policeman turns into a vile drug dealer!

And the drug dope can turn into a crystal palace of lovers, and into a dirty hangout of criminals, and in both cases transfers ineradicable black HIV from one human body to another. And an individual HIV disease turns into a social AIDS epidemic!

Story 3

GOOD AMERICAN
AND FAILURE RUSSIAN DECISION

3.1. The team of Russian researchers
A team of three researchers began to solve this problem. The head is a professor, his clever graduate student, and the laptop of this graduate student. The professor explained to the graduate student the mathematics of the American HIV equations, then the graduate student read the additional literature and explained to the professor the biological content of these equations, and then the computer solved these American equations.

In these American equations, the HIV patient can only be observed, or it can be intensively treated. And the graduate student’s laptop considered that if the patient is only observed but not treated, he will live 7 years and 10 months. And if this patient is treated intensively, he will live longer - as much as 8 years! – But this is less than the Voyagers flew!

But what does the Voyagers experience say? – If they are not filled with fuel at all, they will not fly at all. And if they fill up, and give full gas immediately, where will they fly to? It is not known, but it will not be 30 years, but 3 minutes, if they do not immediately burn. These Voyagers flew for 30 years because the fuel was wisely consumed little by little! It means that the HIV-patient should also be treated with a little bit of clever medicine!

3.2. How to write prescriptions correctly
This is all doctors know. It is necessary to prescribe 1, 2, or 3 medicines to the patient for 3, 5 or 10 days. Doctors are accustomed to quickly treat patients, but the HIV patient does not want to die quickly, he wants 30 years of a little smart doctor treatment. This means that these 1, 2, or 3 medications for a patient need not immediately, but gradually be given. How to do it? The author does not undertake to teach experienced doctors, but he will tell medical students about this so that they can get to know their future profession.
1 pack with 10 tablets can be written out for 10 days in 1 prescription. But, maybe, it is more useful for a patient to swallow them not everything, but at intervals? Then from this pack for 10 days you can write 1024 recipes. Treatment with 2 packs with 10 pills will be even better, because of them 1,048,576 prescriptions for 10 days can be written out, the best one of them can be chosen, and given to the patient. And with 3 packs of 10 tablets you will have complete success, because you already have 10,737,418,240 opportunities to write out the best recipe for these 10 days!

Why does modern medicine, with such a wealth of possibilities, only 1, 2, or 3 prescriptions write out? The author advises medical readers to write out all the prescriptions from 4 packs of 10 tablets for 10 days, and then choose the best one for your patient's health.

In the meantime, you will train, we will tell you how a postgraduate’s laptop discharged tablets for an HIV patient and chose the best ones.

3.3. How the Russians failed to cure an HIV patient by American equations

And what are the best recipes? - Of course, such recipes in which the HIV-patient will live as long as possible. And the professor taught his graduate student the prescriptions to write, and the graduate student taught his laptop. And this laptop solved the American HIV equations with two American prescriptions: the 1st one didn’t give the patient any medication at all, and the 2nd one gave him 7 years and 10 months daily 1 tablet of the 1st and 2nd medication.

And the laptop of the Russian graduate student obtained the same American solutions: according to the 1st prescription, the patient dies after 7 years 10 months, and according to the 2nd prescription after 8 years. But the Americans offered only 2 prescriptions, and they can be prescribed more if the patient is not treated with these pills every day! And everyone can calculate how many different prescriptions can be written, if you take a full supply of 2 tablets for all days of 8 years, but not every day to give them. These prescriptions for 8 years are as easy to write as we wrote out of 2 packs of tablets for 10 days. Only the number of millions of billions of billions of these prescriptions cannot be written by the author because many-many-…-many pages are required for this.

Neither the professor nor the graduate student can do this, but the laptop can, because his graduate student has taught the special method that he has learned from the professor. And the laptop of the graduate student therefore became the head of our project instead of the professor, and the graduate student his assistant made him turn it off on time when he overheats from intensive work. Therefore, further the story is not a professor, but a laptop of this graduate student.

And the laptop decided to calculate what happens if, instead of the 2nd American prescription for an 8-year continuous treatment, he misses 1 day of treatment, he will not give tablets to the patient on that 1 day. It turned out that on what day, at the beginning, in the middle, or at the end of the treatment, the HIV patient has 1 tablet to take, he will not live to 8 years. So, the Americans found the best solution when the patient was continuously treated!

And the Russian professor asked this notebook to send e-mail to American scientists congratulations on their absolute 2-month world record in the treatment of HIV. But the proud Americans did not answer, because they themselves knew about their absolute record, and did not need Russian greetings.

Story 4
STRANGE COMPUTER
4.1. Random strange computer calculations
The graduate student, upset that he could not do anything better than the Americans, and his dissertation could not work, he threw his laptop under the bed, but forgot to turn it off. And here the fun begins!
When a graduate student a week later got his laptop out from under the bed for another task, it turned out that he had been working all week and continued to heal the HIV-patient on his internal battery. And the treatment method is arranged in such a way that if the selected prescription fails, the dose should be reduced, so the laptop in the 2nd American recipe, 8 years of permanent treatment instead of 1 day of treatment, canceled 1/2 day. He counted all the days, but the patient died before 8 years. But nobody turned off this laptop, because he was lying under the bed, and he continued to count, canceled 1/4 of the day of 8 years of permanent treatment, and his patient’s life time increased by a few seconds.
And if the time increased, the laptop knew that good calculations needed to be repeated. The laptop repeated them, and with each repetition of the solution, the patient's life-time increased even more.
And after 50,000 repetitions, the HIV patient's lifetime from 8 years increased to almost 24 years! But this is not all – at the same time the amount of medicine for treatment was spent 10 times less! That is, the laptop has consistently canceled medications in different years, months, days, and at different hours, but with the same benefit for the patient!
But this does not happen! The professor used to solve space problems, and he always succeeded that the more fuel poured into the rocket, the longer and farther it flies, and in this biological task it’s the other way round – the less laptop writes drugs in prescription to the patient, the HIV-infected person live longer!
And the professor realized that the graduate student had kicked his laptop too hard when he was being thrown under the bed, so he, that is, not a graduate student, but a laptop, had damaged his mind and needed repair.

4.2. Computer mental health check
But a professor with a graduate student decided to check the mental abilities of this laptop before returning it for repair. And they asked him to write a quarter of a pill to a completely untreated HIV patient. The laptop considered the result of this prescription according to the American equations, and it turned out that the HIV patient lives a few seconds longer than 7 years and 10 months.
Then the graduate student did not turn it off, and left on the table for a week. And this laptop counted that after 50,000 prescription changes for 1/4 pills in different years, months, days and hours, this HIV-patient lives instead of 7 years 10 months for almost 24 years! And at the same time he needs very few pills!
That is, our laptop is completely healthy, but the whole old control theory is completely unhealthy. That is, the control theory, completely intact for technical systems, turns out to be completely unsuitable for biological systems. But this disease of the theory leads to a huge practical positive result in the treatment of an HIV patient!
And this disagreement between theory and practice has led to disagreements between members of our research team. The laptop did not want to explain anything, rested after work. The graduate student began to rewrite these calculations of his laptop as if it were his achievement, although he only turned his strange laptop on and off.
And the professor has lost sleep and peace – how can this be?! How can it be that medicines are 10 times less given to a HIV patient, and he lives 3 times longer?!

Story 5
GENIUS COMPUTER

5.1. The absolute effectiveness of American drugs
The professor couldn’t think of anything, so he told his graduate student that while he didn’t solve this riddle, he wouldn’t dream of a dissertation. And graduate student remembered that he should not only turn his laptop on and off, but sometimes even think, and they began to build calculation charts with a laptop and compare them with each other and with American charts.

And they saw on the American and their charts that the record calculations of Americans are absolutely correct, and the American tablets are absolutely effective! Because with the constant treatment of an HIV patient in his body, 2 months after the start of treatment of the original clone HIV does not remain at all! That is, the patient is healthy! And you can talk about a complete drug victory over this terrible HIV!

But this is a victory over the enemy in a black shroud with a white belt. However, that part of this criminal clan that managed to change into a black shroud with a black belt, these pills, which are fatal to the original clone of HIV, are simply ignored. And taking the place of the already defeated initial clone, the modified HIV clone defeats the patient in 7 years and 10 months.

That is why a patient treated with HIV lives on wonderful American pills not for 7 years and 10 months, but for as many as 8 years! – These drugs work remarkably effectively, but only the first 2 months!

5.2. Genius biological discovery of computer

The professor and the graduate student began record schedules of Americans with record schedules of the laptop to compare, and cunning have found out! This tricky laptop came up with the idea not to destroy the original HIV clone in a black shroud with a white belt with wonderful American pills! For what purpose? – To this enemy continued to live and multiply?

– It is for this!

Because the apartment occupied by the original clone of HIV in a black shroud with a white belt leaves no room for its descendant to settle in and multiply in it – a modified HIV clone in a black shroud with a black belt!

It must be emphasized that this is an independent discovery of our ingenious notebook. A graduate student wrote down an HIV treatment program for a patient to maximize life extension, and the laptop did not treat the patient! – Because it is useless! He used the pills allocated to him for treatment in a completely different way – in order to embroil two HIV clones between themselves, and prevent them both from living and multiplying! Before this, not only no graduate student, but no professor could ever think of it!

And the better the laptop quarreled among themselves these clones of HIV in black shrouds with white and black belts, the HIV patient lived longer. They quarreled with each other, and they forgot about their goal to kill the HIV patient! Not completely, of course, forgotten, because in 24 years the patient still has to die, but in 24 years a lot of different things can happen, maybe even a method of absolute cure for HIV will be found by science!

5.3. Mathematical realization of biological computer discovery

If the professor and the graduate student knew about this discovery of a laptop, they would immediately solve the problem of combating HIV - you just need to keep the number of these enemies in black samanas with a white and black belt at the same level.

But the laptop did not receive such a task, he received the task of treating an HIV patient, and he groped for his discovery for a long time, sorting through 50,000 recipes. This figure is impressive, but in order for readers to estimate the actual amount of work by Russian researchers, it should be said that each of these 50,000 recipes needed to be chosen from an astronomical number of possible recipes, first by 8, and then 24 years in advance. We are in paragraphs. 3.2 and 3.3 Story 3 is clearly explained.

The volume of this work is large, but the work itself is simple. For example, in order to complete the 43.674th calculation step, you need to make all recipes for 23 years 2 months in advance using the methods of Story 3. And
go to the next 43.675th step of calculations, in which the 43.675th recipe is chosen exactly from the astronomical number of possible recipes.

Doctors and biologists believe these stories, because they are printed in a scientific magazine, but mathematicians and cybernetics, both Russians and Americans, understand that these are not stories, but fairy tales. – No computers, even the most powerful American ones, can choose from the astronomical number of recipes. It is like finding the most beautiful star in the sky!

Therefore, the Russian professor, and even not today's professor, but the last graduate student, whom this professor had long been before, came up with another method for choosing the best recipes. It is called the method of small changes in control [2], and is as follows.

In order to write out the 43.675th prescription, you need the previous 43.674th prescription only for quarters of two tablets in just one day for 23 years and 2 months to change. But only so that the lifetime of an HIV patient according to a new prescription is longer than the previous prescription. And in this special method, all this can be done in 1 calculation of the American equations. With one small addition – for this method, not school arithmetic is required, but a higher section of higher mathematics, which is called functional analysis [2]. It's boring, because you don't need to shoot stars from the sky, but this 1 calculation can even be done by a student laptop.

And if this simple 1 calculation using functional analysis 50,000 times to repeat, the HIV patient will live for not 8 years, but almost 24 years. It's very simple, if you know math, and you have the American HIV equations, and a student laptop that can solve them.

5.4. Computer - a brilliant strategist
The laptop counted all this, and a professor with a graduate student searched all the biological and medical literature on the Internet — nowhere have they found such a clever method of fighting HIV. This means that our laptop has come up with this trick not only independently, but also for the first time in history! But a professor who is interested in history remembered that he had heard about such a trick somewhere.

And remembered! This principle was thought up by the ancient rulers, and it is called "Divide and rule." This is when the state has several strong opponents who cannot be defeated by force. Then you need not to fight these opponents, but on the contrary, to help them in every way - give them money and weapons for free. And then they will fight with each other for a long time, and they will not be stronger, but will become weaker and weaker. And there is no political deception here, but there is only a competent economy, because it is cheaper to watch other people's wars than to fight for yourself.

And it is precisely such a principle “Divide and rule” not the great ancient ruler, but our modern student’s laptop himself! Because he is intelligent, and such a computer mind is called artificial intelligence.

Story 6
THE ROLE OF COMPUTER IN SCIENCE

6.1. All computers learn from a man
our computer teaches man
It is superfluous to explain the enormous role of computers in modern life and in science; we note here only those bright facts that the computer has demonstrated in our research. They are pushing the boundaries of the already familiar uses of a computer, in which it is better, faster, or more accurately performs the mental work of a man – but the kind of work that a man already knew how to do without a computer.
A computer can work as an accountant, translator, or criminologist - but this has been taught to it by accountants, translators, and criminologists. The computer creates banks and knowledge bases, but libraries with card files were before. The computer today speaks in smartphones and shows movies on TVs, but it was all up to the computer. A computer can solve mathematical equations that are inaccessible to scientists, but scientists have taught him this ability.

This computer work is extremely useful, but it can not be called artificial intelligence. This is the same work that an excavator and bulldozer do, helping a person with a shovel, that is, it is an amplifier of a person’s natural abilities, in this case not physical, but mental. We prefer to call these useful auxiliary functions of the computer "technical intelligence" [3].

On the contrary, our computer in the fight against HIV is doing something that nobody knew before, and what nobody taught it! We gave our computer the most powerful cybernetic weapon against the most powerful cunning enemy of HIV – our carefully developed technical intelligence. But the computer refused to stupidly follow our recommendations, he developed his own artificial intelligence!

The difference between these concepts is huge. Technical intelligence is what a man teaches a computer, and artificial intelligence is what a computer teaches a man. Technical intelligence is smarter than a computer, and artificial intelligence is smarter than a man. This is the realization of fantasy dreams, the emergence of a robot that is smarter than man. But science fiction writers thought that an iron robot would appear at the beginning of the night, and then he would learn to think.

But the main force of the robot is not in its iron hands, but in its electronic head! And having a clever head, he will soon make himself iron hands, and will be ready to replace a man who cannot withstand even colds and flu, especially HIV. Thus, our research has created a mighty helper man and at the same time his dangerous enemy.

The evolution of robots will occur very quickly, they will force a man out of the land, populate the highest mountains, all the seas and oceans.

But we will not develop this fascinating and dangerous topic here, return from the dangerous future to the dangerous present, and praise our ingenious laptop for useful help. The biological discovery of our laptop, obtained by its own artificial intelligence, we discussed above. Consider the accompanying facts revealed by our research.

### 6.2. Computer – the creator of artificial human evolution

Our computer was instructed to treat an HIV patient, but he refused to kill HIV in the human body, began to support him, began to play other games with him. In which? - In such a bloody game, in which the cat plays with the mouse. Mom cat brings her kittens caught mouse, bites her and releases, teaches kittens to play with her, teaches them to hunt mice. And our computer teaches a person’s immune system to play with HIV, bite it and let it go to teach it how to fight HIV. That is, it does what the wildlife has always done in the process of evolution.

But there is a fundamental difference. The cat plays with the mouse, and the immune system plays with the HIV gangster who has put a knife to the patient’s throat. The cat eats the mouse, the HIV bandit cuts the patient’s throat. But our computer repeats this game!

How did evolution bring up the human immune system? – In the most ruthless way, she killed the unsuitable, and left to live better adapted to the fight against disease. What our computer does is that – it kills the previous setting of the immune system, and replaces it with the next, more HIV-resistant setting of the immune system.

That is, our computer sequentially modifies the generations of the immune system, and as a result of this artificial evolution, after 50,000 generations, found such a construction of the human immune system that can resist HIV for not 8 years, but 24 years!
But why only 24 years old? – Because we do not have complete knowledge of the human immune system and HIV, there is no exact model of their interaction, there are no exact solutions, and there is no supercomputer. And the more these tools we manage to take into our own hands, the longer the HIV patients will live.

But we must hurry so that this does not happen in the 50,000th generation of researchers, but in the 1st, or in the 2nd, because HIV has already learned how to quickly change its generations, and does not wait for us to write our scientific dissertations.

6.3. Computer - the leader of the Russian scientific group

When the professor explained all this to his graduate student, this graduate student rather disconnected his ingenious laptop from external electricity, and closed the lid so that he would not peek at his internal battery. And all the graphs that this notebook counted, rewrote in his thesis. But the graduate student did not compare himself with the ancient rulers in this dissertation, and due to his modesty he received a Ph.D. degree for this obvious plagiarism from his own notebook [11].

But not doctors of science. Because in Russia, after a bachelor’s and master’s degree, there is a Ph.D. And the doctor of science in Russia should come up with something new himself, and it is obvious that the doctor of science in our research group is a laptop graduate student.

And the professor in Russia is the one who can only tell something. And the professor, who gave way to the project manager of a laptop, this dissertation of a graduate student, which he wrote off from his laptop, rewrote into his monograph, and now he is telling you.

6.4. Computer - the leader of the international scientific community

A graduate student, having written off the achievements of a laptop in his thesis, became a Ph.D. A professor of cybernetics, never engaged in biology and medicine, and just rewriting the dissertation of his graduate student in his monograph, became an authoritative scientist in the field of biology and medicine. And he received offers to send his research to hundreds of biological and medical journals, and invitations to make scientific reports on his monograph around the world – from the Netherlands, France, Italy, England, the USA, to OAU, India, China and Australia.

But all the achievements of our group belong to our laptop! Thus, our humble laptop, which opened a new method of combating HIV, has taken a worthy place in the scientific community, along with specialists, doctors of science and professors. And even higher than the number, because all the doctors of science and professors all over the world have so far failed to offer any means to fight HIV.

Scientific journals of the publication publish that AIDS can be successfully cured, but ordinary HIV-sick people do not read these publications, and they die unscientific. Outstanding scientists die less often, but this is because there are fewer of them. And literary magazines with pleasure obituaries to celebrities from the world of art print, because HIV became fashionable in a fit of inspiration from a colleague as a gift, then give it back to colleagues, and the young die!

And it is clear that no one will be able to stop this huge AIDS epidemic without a victory over the insignificant tiny HIV.

Our brilliant laptop, this terrible HIV also did not win, only prolonged the life of an HIV patient, and not a real living patient, but only his computer model, but the direction of research was guessed right.

It is necessary not to rely on medicines, but to look for complex means of combating this formidable enemy, who has already killed more lives than 100 atomic and hydrogen bombs. But no one is trying to defend himself from the atomic, especially the hydrogen bomb with drugs!
6.5. Computer tips for biologists and doctors

Our laptop has shown how effective a biological opponent of this HIV can be. This is the main thing that the colleagues of the authors of this study - biologists and physicians should pay attention to: It is necessary to search for living biological weapons against this living tribe of terrorists in black shrouds with white and black belts, and haunted without shrouds.

And if such a biological weapon is found, mathematics and cybernetics will help to apply it with the greatest efficiency.

Story 7

POETRY OF TALES AND PROSE LIFE

7.1. Scientific problems can be quickly solved

The professor, the author of these stories, teaches students and writes books for students, but students need to be taught only good things. And so he told the students in this book the best way to do science.

You need to write your task into your laptop, and then try to solve it with this laptop. You, of course, will fail, but this is because you are solving this task incorrectly – forcing the laptop to carry out your orders. But laptops do not like this, they want to show their character to you in everything, and therefore they never listen to you.

And you do not argue with your laptop, throw it under the bed, just do not turn it off. And when you get it out from under the bed in a week, you will see that he himself, without your prompting, solved your task in the best way possible. All Russian students of this professor know this way, and American students will also like it, because they have a lot of free time for rugby.

7.2. The scientific problem needs a long time to solve

American students were lucky because they learned this simple Russian way. And the Russian research team was not lucky, because they had not heard anything about it. Because the Russian professor came up with this wonderful way only yesterday, so that the terrible truth about HIV and AIDS was not terrible for students, but interesting to tell.

And in these stories, as in all fairy tales, everything is true, except for time and place. Our ingenious laptop not for 2 weeks solved this problem of prolonging the life of a HIV patient, but for many years. We got acquainted with the American HIV equations [4] in 1996, and our first results [6, 7] in 2001 were published – in 5 years!

And all this time, a graduate student, under the guidance of a professor, taught his laptop to math and cybernetics. And 5 years is a time for full higher education. And it is clear that a brilliant biological discovery, which is described here, was not at all an ordinary casual computer, but our laptop with a higher mathematical and cybernetic education!

But this higher education is based on the theory and methods of optimal control [2], published in 1966. And it turns out that for the very first solution of the problem of prolonging the life of a HIV patient it took 35 years! And if the time account is from this first publication of 1966, before the last publication of this project, the book [16] of 2017, it turns out that this project has been living for 51 years already!

By this time it is necessary to add those years, which are American scientists Dr. G.F. Webb and Dr. D.E. Kirschner on the development of its mathematical model of HIV spent. We don’t know of American colleagues at this time, but the whole story of this international work keeps up with the old Russian proverb: "Soon tale tales, but not soon work workes!"
7.3. History of the last publication of the project
The history of the last publication of this HIV treatment project – the monograph [16] is interesting, and precisely because such a project never existed! The article by the Americans [4] with equations similar to the equations of motion of a rocket came across to the Russian professor of cybernetics, but it turned out to be the equations of HIV. And this professor gave lectures about his theory of controlling space rockets to students, and he gave these equations to one of them, the most intelligent one, let him practice solving complex equations on a computer.

About HIV in Russia in that distant 1996, nothing was known, they heard that it was somewhere in Africa, or in America, and the Russian professor did not intend to begin a scientific project to save the African and American population. He simply gave the student a learning task – but she did not want to be solved.

And it was impossible to retreat, because the theory of the Russian professor is correct, and this incorrect American problem of HIV is not being solved. And the student persistently began to solve this American problem. He already became a graduate student, but she is not solving. He has already completed 3-year old graduate school, but this damned American problem about damned HIV process is not solved! But finally, by 2006, this problem was solved [11].

During this time, the AIDS epidemic began to grow around the world, and when it reached Russia, the professor invited his former graduate student to write a book about his difficult research on the materials of his dissertation. But the new Ph.D. categorically refused, saying that he was a scientist, and he now wants to use his high qualifications obtained in the fight against enemy HIV to control peaceful spacecraft.

And this enemy HIV began to kill even more of the population, and the professor of cybernetics had to write a monograph on HIV and AIDS [16] himself so that the defenseless population of Russia would know better about this enormous danger. Because in Russia, patients with this foreign-wise immoral HIV are treated only by church sermons on morality.

The Russian professor believes that such moral treatment is wrong, and the ministers of Russia believe that this professor is wrong because he does not understand the national traditions of Russia. But foreign colleagues understand him, and he has a lively correspondence with them, he answers every day to their letters. And for the invitation to write this chapter for the American book also gladly agreed.

Because HIV and AIDS is our common misfortune, without distinction of national traditions, and unfortunately it is impossible to defeat them with church sermons on morality. We need a broad international scientific cooperation against this common enemy of mankind.

Story 8
RESULTS OF RESEARCH PROJECT

Readers see that the author of these fascinating stories has been overtaken by literary inspiration, but a modest author does not claim to be invited from literary magazines to write his obituary. Therefore, he will finish the tales to tell, and will take up the presentation of the results of the work of our international research team. These results are presented in publications [2-17], here we give a brief overview of them.

8.1. Catastrophic features of HIV infection
HIV infection is fundamentally different from other viral infections by two features:
8.1. Catastrophic features of HIV infection
HIV infection is fundamentally different from other viral infections by two features:

1. All known viral infections affect certain organs of a person, and the immune system always protects a person rationally - he finds these disease-causing viruses, and comes to fight with them. But HIV infection affects the human immune system itself, and makes it act irrationally. Protective cells of the immune system are sent to fight HIV infection - and become an incubator for its reproduction! Therefore, in the fight against HIV infection, the internal defense mechanisms of a person are rendered helpless, and medicine has to rely only on external influences on HIV infection in the human body with drugs or vaccines.

2. However, HIV infection is distinguished by an extremely effective mutation ability. After a few months of successfully destroying its original clone in the human body, its place is taken by a mutant clone. This makes traditional methods of combating HIV infection with drugs and vaccines useless. Even extremely effective for the destruction of the identified clones, these traditional tools can not stop the rapid replacement of the destroyed clones with new mutants.

In our work, we abandon traditional medical and biological means of combating HIV infection and offer fundamentally new cybernetic methods. More precisely, we offer colleagues, doctors and biologists to get acquainted with these original methods developed by the artificial intelligence of our computer.

8.2. The main result of the project
is a three-fold prolongation of the life of an HIV-infected patient by methods of precision treatment based on the cybernetic model of HIV infection. The computer, calculating the treatment program by the criterion of maximizing the lifetime, found an unknown treatment regimen, consisting in organizing the fight between the two modifications of the virus among themselves.

Help cybernetics of biology. Biology studies the composition of the organism and the interaction of its individual parts. Cybernetics describes the whole aggregate of all these interactions by mathematical equations, and solving these equations allows one to know the functioning of the organism as a whole.

If you compare the human body with a musical instrument, you can say that biology analyzes and studies the construction of this tool, and cybernetics teaches you to press the necessary keys and play musical melodies on it.

8.3. Cybernetic model of the development of HIV infection
In the project, such equations are written for three types of cells in the human immune system, for two modifications of the HIV virus, and for two drugs. Even such a particular model is described by complicated equations that are similar to the equations of motion of a space rocket:

\[
\frac{dT_1(t)}{dt} = S(t) - \mu_T T_1(t) + \lambda_T T_1(t)V(t) - (\eta_T k_2 V_2(t) + k_V V_1(t))T_1(t)
\]

\[
\frac{dT_2(t)}{dt} = \eta_T k_3 V_3(t)T_2(t) - \mu_T T_2(t) - \lambda_2 T_2(t)V_3(t) \quad \frac{dT_3(t)}{dt} = k_3 V_3(t)T_2(t) - \mu_T T_3(t) - \lambda_2 T_3(t)V_3(t)
\]

\[
\frac{dV_2(t)}{dt} = (1 - q) \alpha_T T_3(t)V(t) - k_4 T_3(t)V_2(t) + \eta_V G_3(t)
\]

\[
\frac{dV_3(t)}{dt} = \lambda_T T_1(t)V(t) + q \alpha_T T_3(t)V(t) - k_4 T_1(t)V_3(t) + G_3(V) \frac{V_3(t)}{B + V(t)}
\]
But this model describes not the linear and angular velocity of the rocket, but the rate of change in the number of cells in the human immune system, and the attacking these cells of the viruses. Here:

- \( T \) - concentration of uninfected CD4 + T cells;
- \( T_S \) - concentration of CD4 + T cells infected with the immunodeficiency virus \( V_S \), sensitive to the effects of medications;
- \( T_r \) - is the concentration of CD4 + T cells infected with the immunodeficiency virus \( V_r \), resistant to chemotherapy;
- \( V_S \) - the concentration of the immunodeficiency virus, sensitive to the effects of medication;
- \( V_r \) - the concentration of the immunodeficiency virus resistant to chemotherapy.

\[
V(t) = V_S(t) + V_r(t)
\]

The functions \( \eta_1(t) \) and \( \eta_2(t) \) describe the effect of drugs on the virus. Function \( \eta_1(t) \) describes the suppression of chemotherapy by the process of infection of CD4 + T cells. Function \( \eta_2(t) \) describes the suppression of the inflow of the virus from the lymphoid system. It takes into account this fact that the therapeutic drugs do not act on the resistant group of the virus and on the CD4 + T cells affected by the resistant virus.

In more detail with these equations, the dynamics of the development of HIV infection in the human body can be seen from publication No. 12, available on the Internet.

8.4. Calculations on the dynamic model

consist in choosing the best, in terms of the effectiveness of treatment, the day and hour for the appointment, or the cancellation of each of the two drugs. These calculations are repeated many times, and the formation of a treatment program for a period of 24 years by days and hours requires tens of thousands of complex calculations.

A detailed description of the complex methods of these calculations, which in mathematics is called the theory of optimal processes, are also given in the publication No 12. Therefore, we shall only give the results of these calculations presented in graphs and tables.

In Fig. 1 shows the dynamics of the disease, calculated according to the mathematical equations:
Fig. 1. A typical course of HIV infection without treatment

Here the bottom line shows at first a slow and then rapid development of the HIV virus in the patient's body. The top line shows the death of protective T cells of the immune system, culminating in the death of the patient 7 years and 10 months after the onset of the disease.

In Fig. 2 shows the dynamics of treatment of HIV infection with two strong chemical preparations. The top line demonstrates the exceptional effectiveness of such drug treatment - the virus is almost completely destroyed in the first 20 days of treatment!

![Graph showing virus concentration over time](image)

Fig. 2. The course of HIV infection with continuous treatment 100 days

But this result is not counted in favor of the patient. The place of the destroyed top virus immediately takes its bottom copy, to which these wonderful drugs no longer work.

And Fig. 3 shows what happens if you continue to treat the patient with these strong chemicals – initial (bottom line) virus putted to death. But modified (middle line) clone of the virus kills the T cells of the patient (top line), and himself - 8 years after the start of treatment.
Fig. 3. The course of HIV infection with continuous treatment 3500 days

That is, this medical treatment is extremely effective - it extends the life of the patient from 7 years 10 months to 8 years - for as long as 2 months!

The following Figures 4, 5 and Table illustrate the effectiveness of our cybernetic intervention in this problem, in which medicine with its tablet weapon is defeated.

The left line Fig. 4 shows the death of the cells of the immune system and the time of death of the untreated patient. The 2, 3 and 4-th lines shows how long the life of the patient is after 5000, 15000 and 25000 iterations of our numerical optimization method No 3.
Fig. 4. Sequential approximations to the optimal solution

The last line shows the constructed optimal solution. The lifetime of the patient between the first and last lines is 16 years!

The following table shows the main results of calculations.

<table>
<thead>
<tr>
<th>Program treatment</th>
<th>Number iteration</th>
<th>1st preparat</th>
<th>Scope preparat</th>
<th>Time life</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Without treatment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2864 days</td>
</tr>
<tr>
<td>2. Contin. treatment</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>3. Extreme Program 1</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>4. Extreme Program 2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

Table. Comparative results of treatment programs

As initial approximations for the calculation of optimal regimes in all calculations, Fig. 4 the mode of Section 2 of this Table was used (with treatment with two drugs during the first 3500 days). The formation of the optimal recipe in Section 4 required 41,372 iterations. At the same time, when using the initial approach of the regime without the treatment of Section 1, in order to obtain the same result in Section 3, only 5,228 iterations are required.
Comparisons of medical and cybernetic treatment regimens by the number of medications used are also indicative. The extreme program of Section 4 requires twice less than the first drug, and 10 times less than the 2-nd drug, than the medical program of constant treatment of Section 2. And in the program of Section 3, the computer needed to properly dispose of only 21 tablets of the 1st drug, with complete abandonment of the 2nd drug!

It should be emphasized that this phenomenon is not found in medicine or in technology. In our cybernetic regimens, the AIDS patient lives longer, the less it is treated! Fig. 5 explains the biological law, self-discovered and used by the computer in this non-standard method of treatment.

![Fig. 5. Control of opposing virus populations](image)

This law is shown in Fig. 5 left and right intersecting lines. The computer does not immediately kill the original left virus, but allows it to live 1000, 3000, 6500, 7000 days, with the condition that it suppresses its right copy all this time. And the patient, due to a quarrel between his two deadly enemies, gets 16 years of life!

It can be said that our computer independently discovered the ancient principle of politics, which is given as an epigraph to this Addition.

But this is from the point of view of "diplomatic" cybernetics. And from the medical point of view, it is obvious that no current and future doctor's consultation is such a recipe, which three-fold, from 8 to 24 years prolongs the life of a patient with AIDS, can not be discharged. On this basis, it can be argued that our computer has a superintelligence, superior in strength to the natural intelligence of man.

We emphasize that this phenomenon is fundamentally different from the known realizations of computer "artificial intelligence". In all known examples, a person lays in the computer the required algorithms, which the computer only realizes with its speed.

And the developers of this project did not put this intellectual program into their computer, and its own invention can not be preached. They themselves could not have thought of such a law of controlled biology. You, readers, with your natural intelligence, can not do this either.

### 8.5. Scientific and practical results of the project

This project is at the crossroads of three areas - cybernetics, medicine and biology, so its results should be noted in all these areas.
Cybernetics. The author did not accidentally cite a space rocket as an example, because the management of space ships is his main specialty. And the problem of fighting HIV infection is considered in this project as the management of a "rocket" - a fragment of the immune system in the vast space of the human organism. The cybernetic results here are recording - our precise control of the immune system for more than two decades is second only to the 30-year program of the American Voyagers.

Medicine. The use of the methods of this project in medicine for the treatment of living people is still impossible. Optimizing methods of the project require such high accuracy of mathematical modeling of a living organism, which is unlikely to be available in the near future.

Biology. For biology, the results of our project are fundamentally important. We have shown that the virus of HIV infection can be suppressed by a biological opponent. The artificial intellect of our computer has found a method of protecting the organism, which is very similar to the already known method of vaccination with a weakened infection. But it is hardly feasible to manufacture a vaccine from the HIV virus. So, biology must be found in nature, or create an artificial virus-hunter that will be safe for humans, but will enter into a fight and win the virus of HIV infection. Cybernetics has received models of HIV infection in biology, and now returns the biology of the baton of a 30-year scientific marathon against this deadly danger of mankind.

8.6. Literature

The first mathematical model of a human organ

In Russia, it is assumed that the first mathematical work on modeling human organs is the study of a team led by the President of the Russian Academy of Sciences, Dr. Guriy Ivanovich Marchuk:


Publications of the project

The tools of this project are mathematical, cybernetic and computer methods:


This project is a continuation and development of the work of American scientists Dr. G.F. Webb and Dr. D.E. Kirschner:


The purpose of our continuation of the project is to extend the life time of the patient affected by HIV infection to the greatest extent possible. The results have been published in:


Book I – HIV: Theory, Forecasts of Catastrophic Development and Cybernetic Treatment of HIV Infection / In Book I, the mathematical theory of HIV infection is outlined, its catastrophic development in the human body is investigated, and a method for its treatment with precision adjustment of the immune system of the patient with artificial computer intelligence is proposed. Model analysis indicates the possibility of a multiple increase in the lifespan of HIV-infected patients with cybernetic agents.

Book II – AIDS: Theory, Forecasts of Catastrophic Development and Information War with the Epidemic AIDS / Book II builds the mathematical theory of the AIDS epidemic, compares its development scenarios, predicts its disastrous demographic consequences, and suggests practical measures to buy and suppress the AIDS epidemic.

(Величенко В.В. ВИЧ & СПИД – КРАСНЫЕ КНИГИ ЧЕЛОВЕЧЕСТВА? Москва, Алгоритм, 2017, 272 стр.)