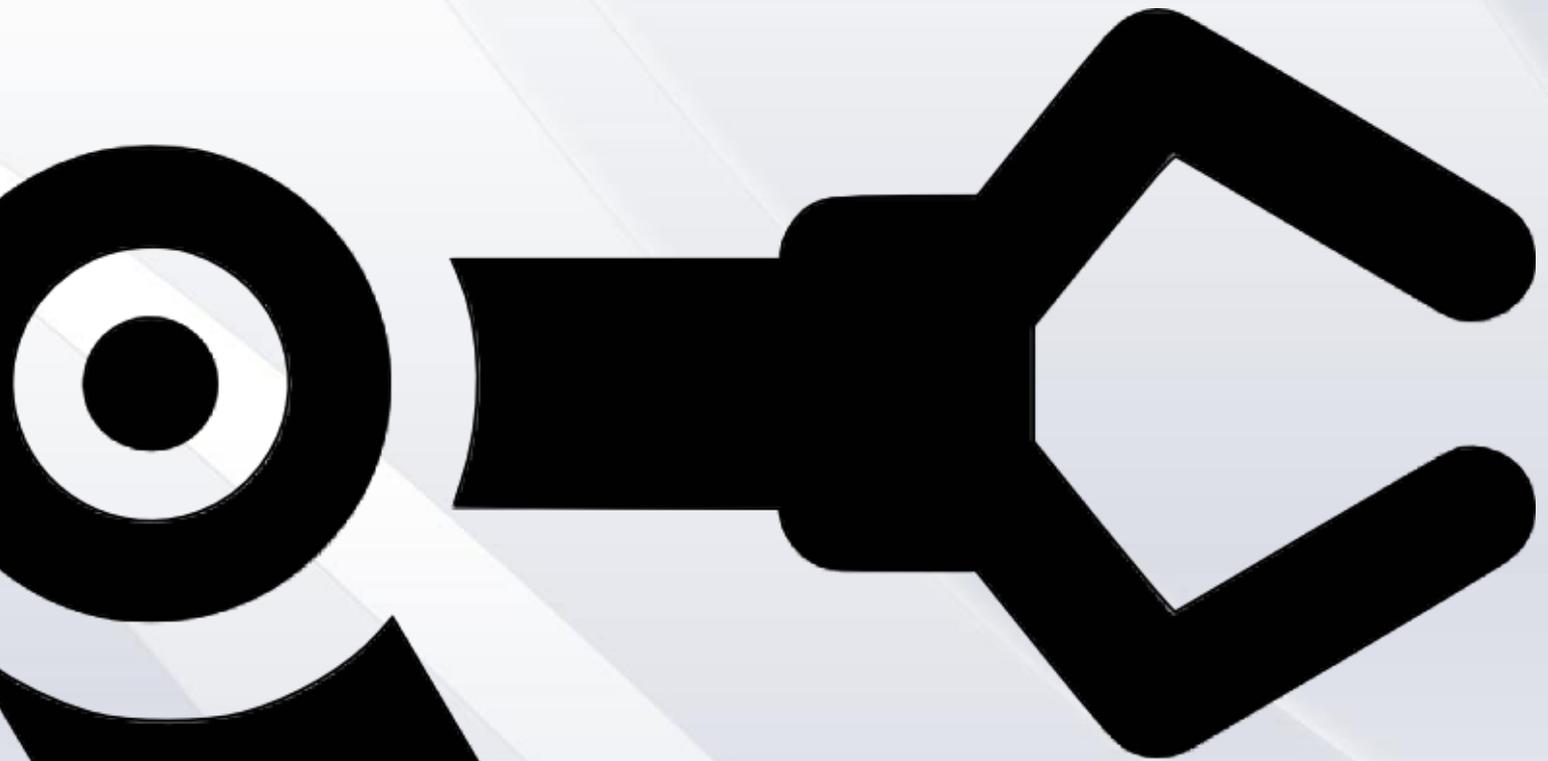


# THE VENUS PROJECT

Beyond Politics, Poverty & War

The Magazine 07



**ESSAY ABOUT THE VENUS PROJECT**

**TVP SPACE  
TECHNOLOGY**

**IS THE VENUS PROJECT A UTOPIA ?**

**HOW CAN WE DEAL WITH  
ABUNDANCE ?**

**AA WORLD:  
CONSTRUCTION**

# The Venus Project essay

by Jacque Fresco

The Venus Project is an organization that is founded on the ideas, designs, and direction presented here. It represents many years of research and dedication on the part of its originator and Project Director, Jacque Fresco. Its 25-acre research and design center is located in Venus, Florida where the future is taking shape today. The function of The Venus Project is to design, develop, and prepare plans for the construction of an experimental city based on the -principles outlined above. Here we have constructed nine experimental buildings, are developing alternative energy systems, city designs, transportation, manufacturing systems, and more. In support of this research we are creating blueprints, renderings, and models, holding seminars, producing books, videos, and other written material to introduce people to the aims of The Venus Project.

The Venus Project is in the process of introducing a set of values and procedures that may enable us to achieve social transformation. The Venus Project will provide the designs and blueprints for a prototype community to test the validity of its social proposals and to establish a permanent planning center that could be used for future short-term and long-term project planning. It also proposes a relevant orientation for people to be able to adapt intellectually and emotionally to our new technological age. Anything short of overall social design would be inappropriate and far less effective. Our proposals will be submitted to the general public and all educational institutions, and we invite their participation.

If enough people find the proposals acceptable and choose to join with us in this new advocacy, this could help to form the nucleus of an organization to further the aims of The Venus Project. The circular configurations of the new cities as proposed by The Venus Project are not merely stylized architectural conceptualizations, but are the results of years of research to provide an environment that would best serve the needs of the occupants in an efficient and economical manner. Without sufficient knowledge of the symbiotic interrelationship between humanity and the environment, it would be extremely difficult to develop workable solutions to our many problems. In the planning of this new city The Venus Project has taken this and many other factors into careful consideration and study.



**This new experimental city would be devoted to working towards the aims and goals of The Venus Project, which are:**

1. Conserving all the world's resources as the common heritage of all of the Earth's people.
2. Transcending all of the artificial boundaries that separate people.
3. Evolving from a monetary-based economy to a resource-based world economy.
4. Reclaiming and restoring the natural environment to the best of our ability.
5. Redesigning our cities, transportation systems, and agricultural and industrial plants so that they are energy efficient, clean, and conveniently serve the needs of all people.
6. Evolving towards a cybernated society that can gradually outgrow the need for all political local, national, and supra-national governments as a means of social management.
7. Sharing and applying all of the new technologies for the benefit of all nations.
8. Using clean, renewable energy sources such as wind, solar, geothermal, and tidal power, etc.
9. Ultimately utilizing the highest quality products for the benefit of all the world's people.

10. Requiring environmental impact studies prior to construction of any mega-projects.

11. Encouraging the widest range of creativity and incentive toward constructive endeavor.

12. Assisting in stabilizing the world's population through education and voluntary birth-control to conform to the carrying capacity of the earth.

13. Outgrowing nationalism, bigotry and prejudice through education.

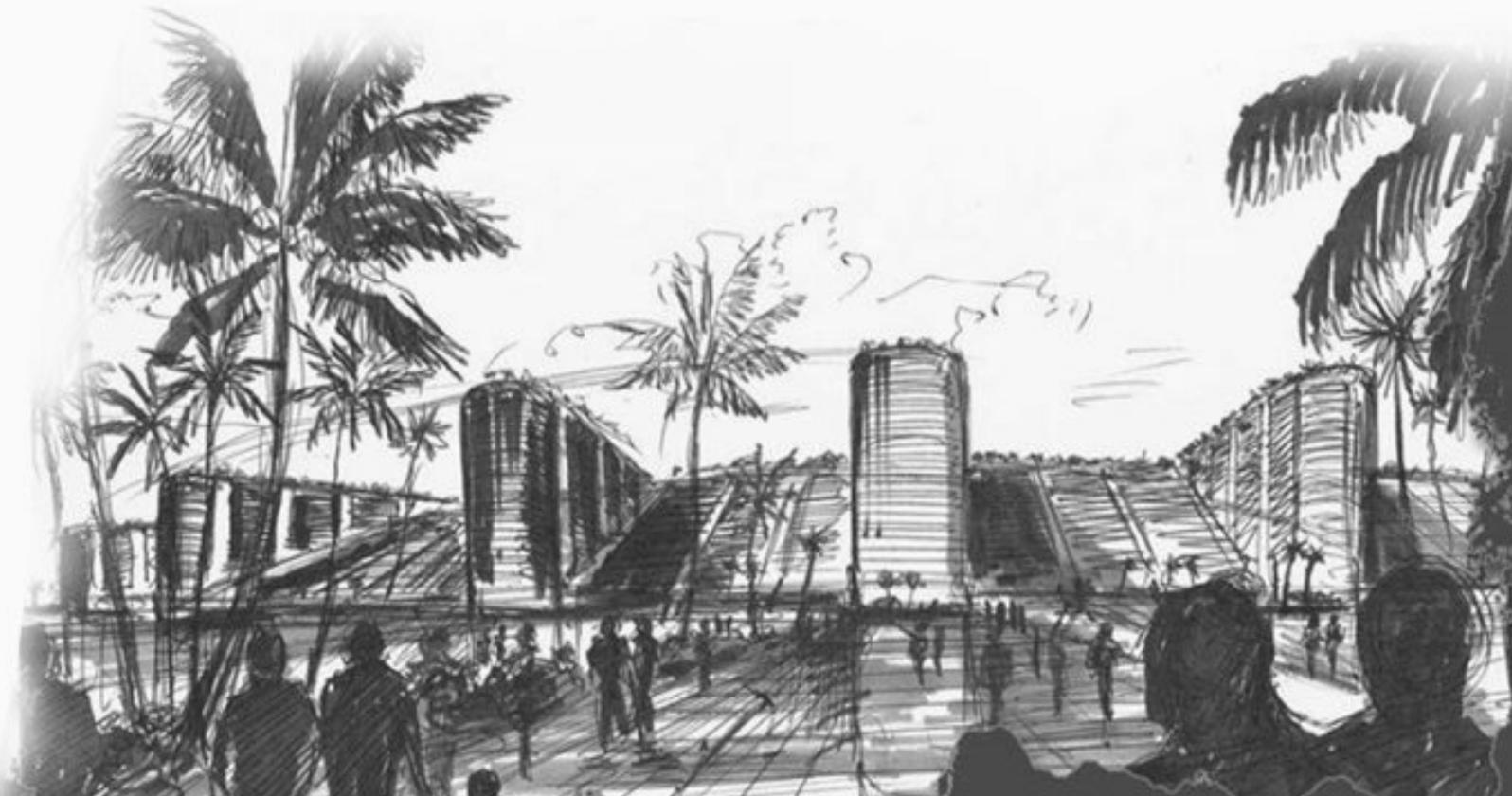
14. Eliminating any type of elitism, technical or otherwise.

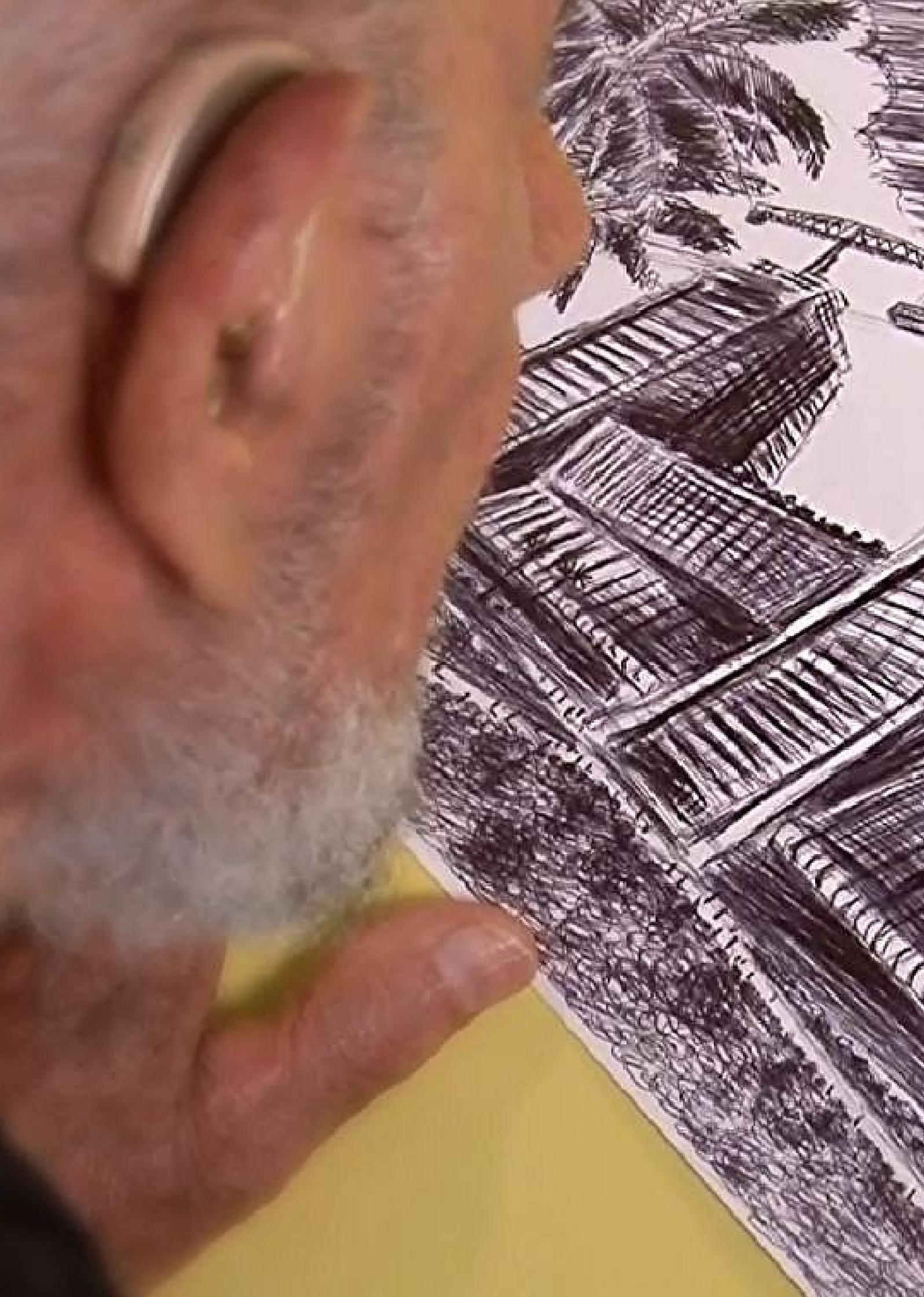
15. Arriving at methodologies by careful research rather than random opinions.

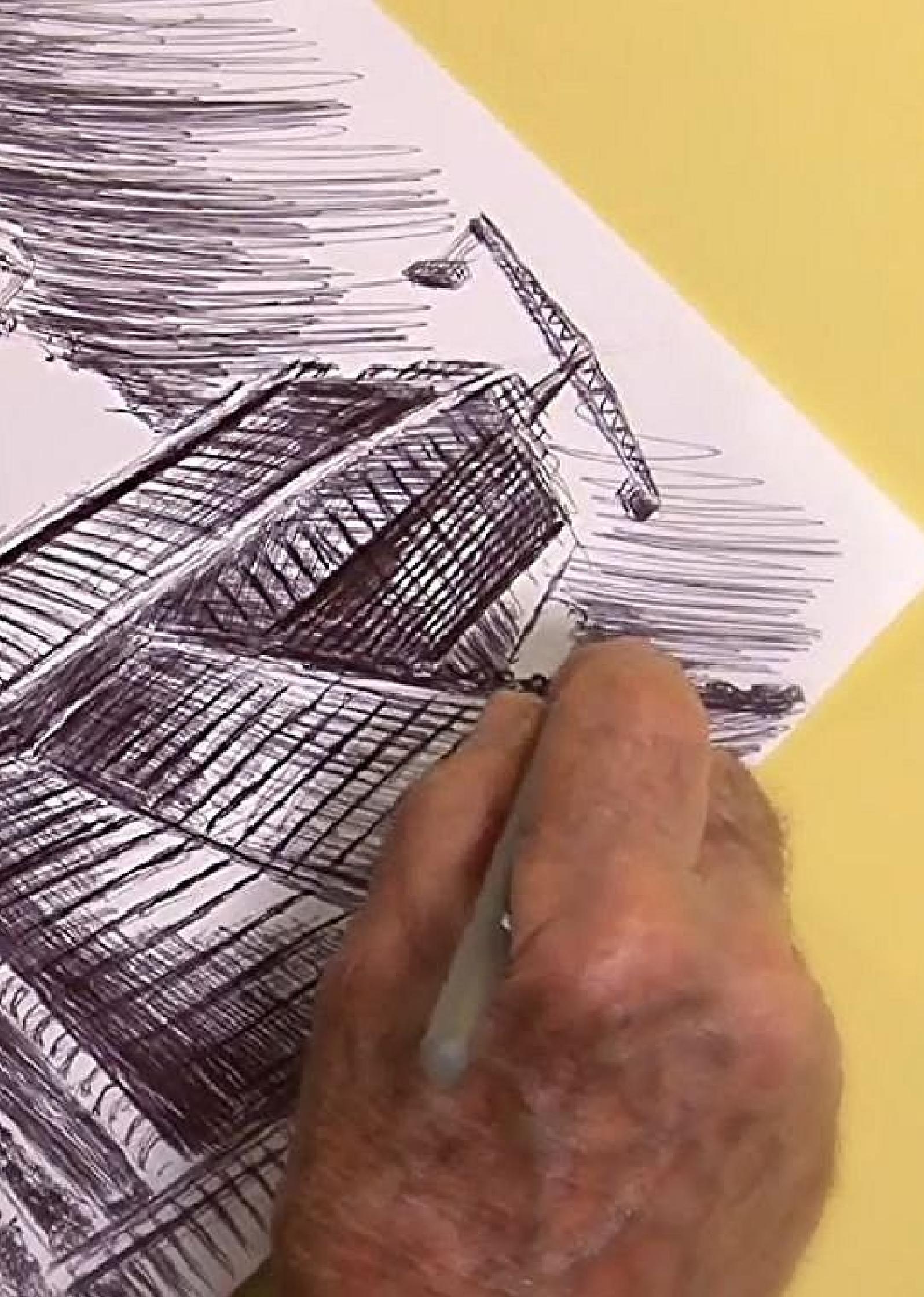
16. Enhancing communication in the new schools so that our language and education is relevant to the physical conditions of the world around us.

17. Providing not only the necessities of life but also offering challenges that stimulate the mind, emphasizing individuality rather than uniformity.

18. Finally, preparing people intellectually and emotionally for the possible changes that lie ahead.







Like all other innovative social proposals, it starts out with a few devoted people that dedicate their time to informing others of the humane benefits of this new direction. People are invited to participate in whatever capacity they can to help carry out the initial design phases of this new experimental city. An interdisciplinary team of systems engineers, computer programmers, architects, city planners, sociologists, psychologists, educators and the like would also be needed. The design of The Venus Project does not regard environmental conditions as fixed or static. We must allow for adaptation and change within the system as a continuous process. This would avoid the tendency to perpetuate temporary arrangements beyond their period of usefulness.

The circular city proposed by The Venus Project would be a transitional phase and could evolve from a semi-cooperative money-oriented society to a full resource-based economy. This could be the prototype for a series of new cities to be constructed in various places throughout the world. The rate of progression will depend upon the availability of funds raised during the early stages and the people who identify, participate, and support the aims and direction of The Venus Project. As these new communities develop and become more widely accepted, they may very well form the basis of a new civilization, preferably through the process of evolution rather than revolution. We are well aware that no one can actually foretell the shape of the future. We can only extrapolate on present information and trends. Population growth, technological change, worldwide environmental conditions, and available resources are the primary criteria for future projections. We are also aware that there is no single philosophy or point of view -- religious, political, scientific, or ideological -- that someone would not take issue with. We feel certain, however, that the only aspects of The Venus Project that may appear threatening are those that others project into it.

The Venus Project is neither Utopian, nor Orwellian, nor does it reflect the dreams of impractical idealists. Instead, it presents attainable goals requiring only the intelligent application of what we already know. The only limitations are those we impose upon ourselves.

The Venus Project does not advocate dissolving the existing free-enterprise system. We believe it will eventually evolve towards a resource-based society of common heritage in due course. All that The Venus Project offers is an alternative approach for your consideration.

**It is not possible in this short writing to present the precise methodology and operation of a global resource-based economy.**

**We encourage you to become better informed about the proposals of this project through our books, videos, lectures and seminars.**

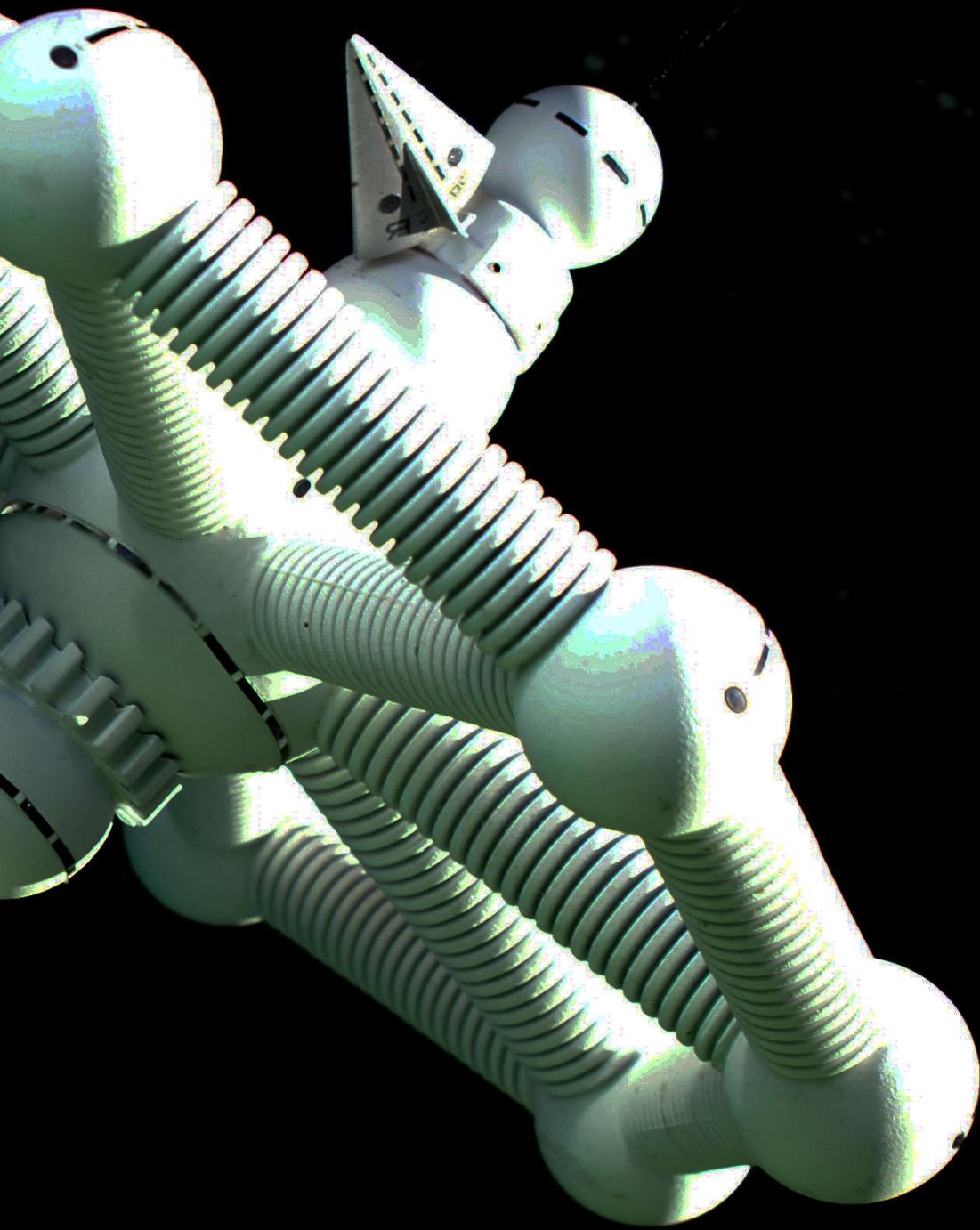
**If you identify with this direction, we welcome you to join with us and work towards its realization.**

# THE VENUS PROJECT TECHNOLOGY

# SPACE

*Text and Designs by Jacque Fresco*

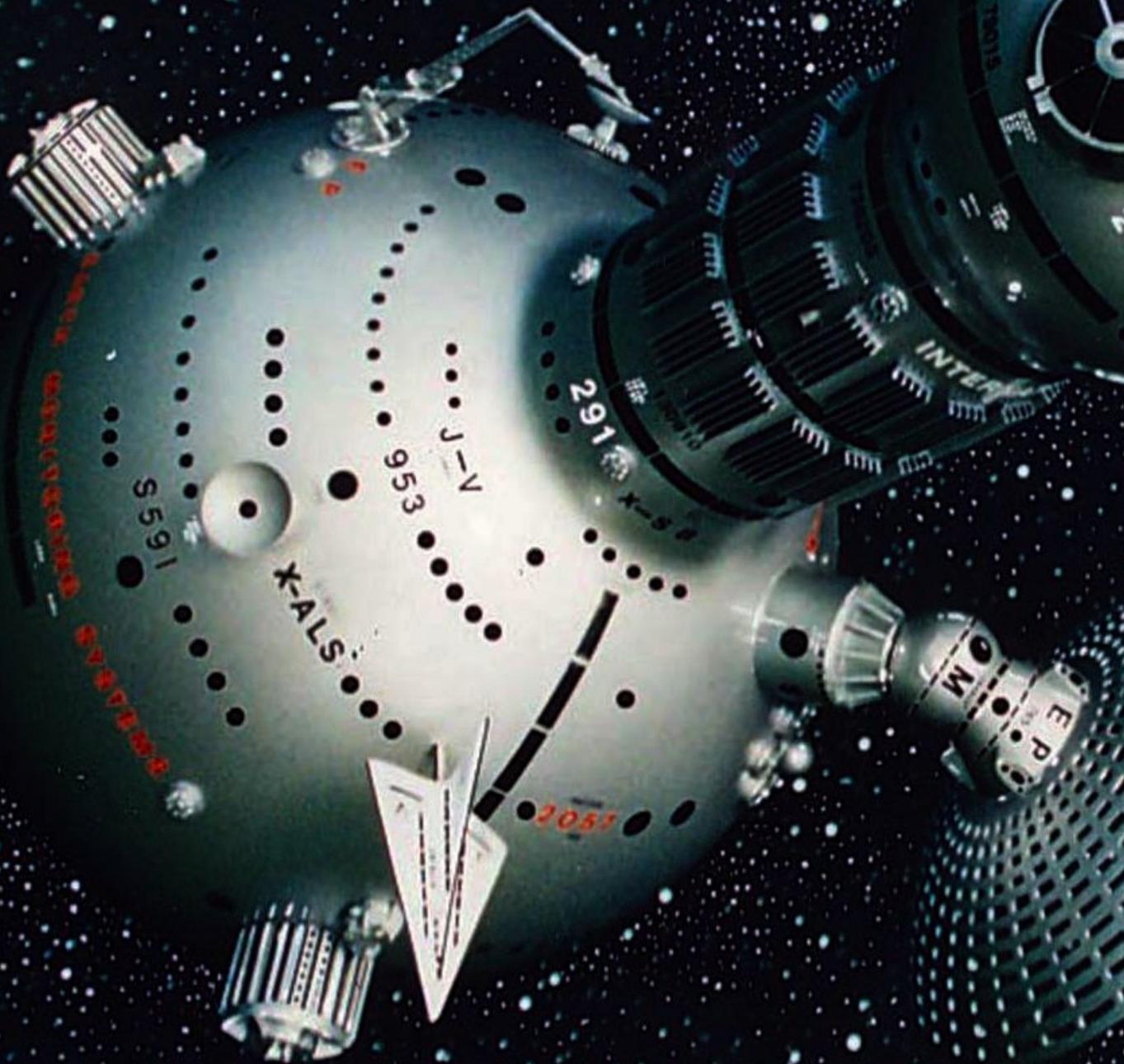


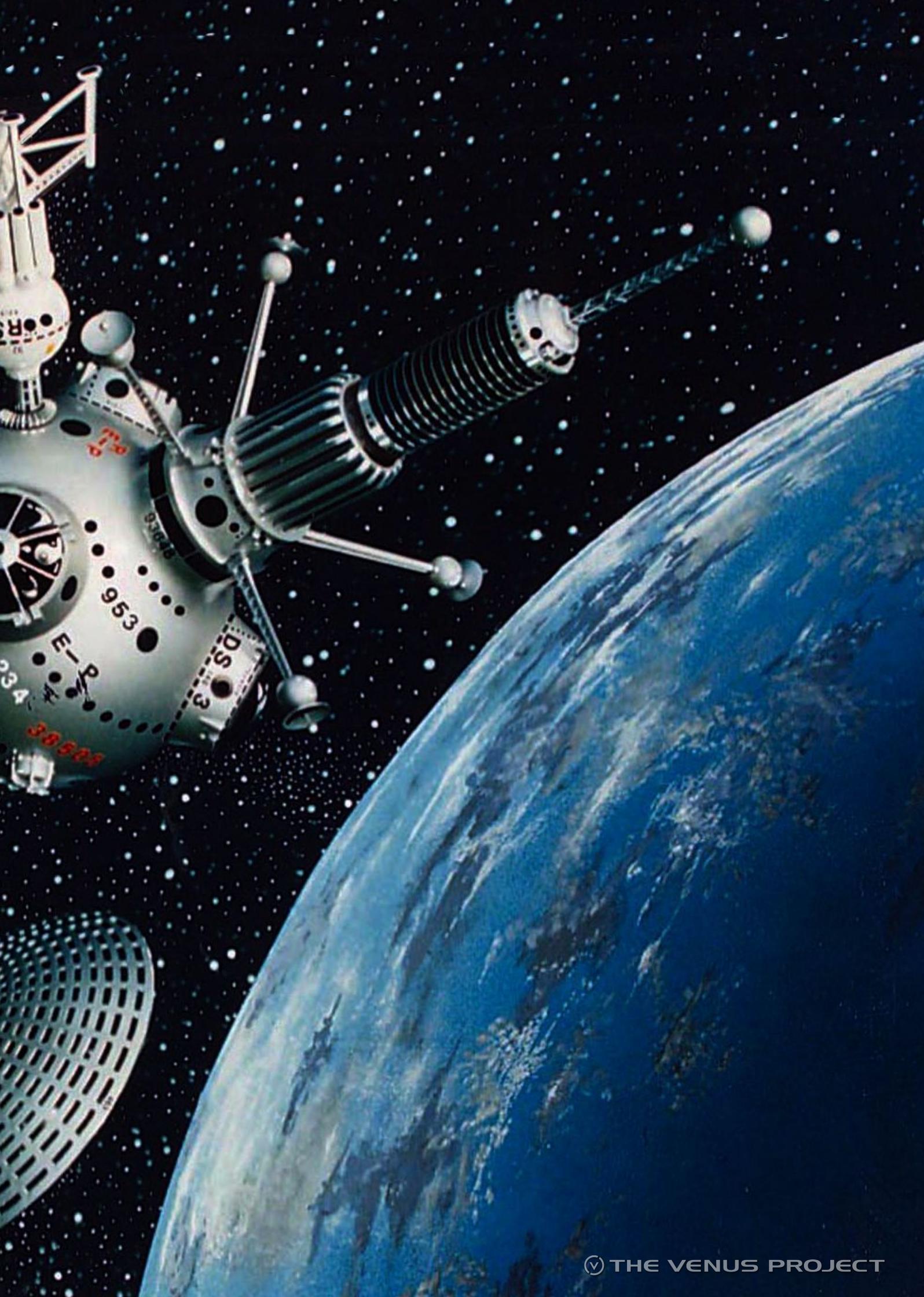


[video introduction](#)



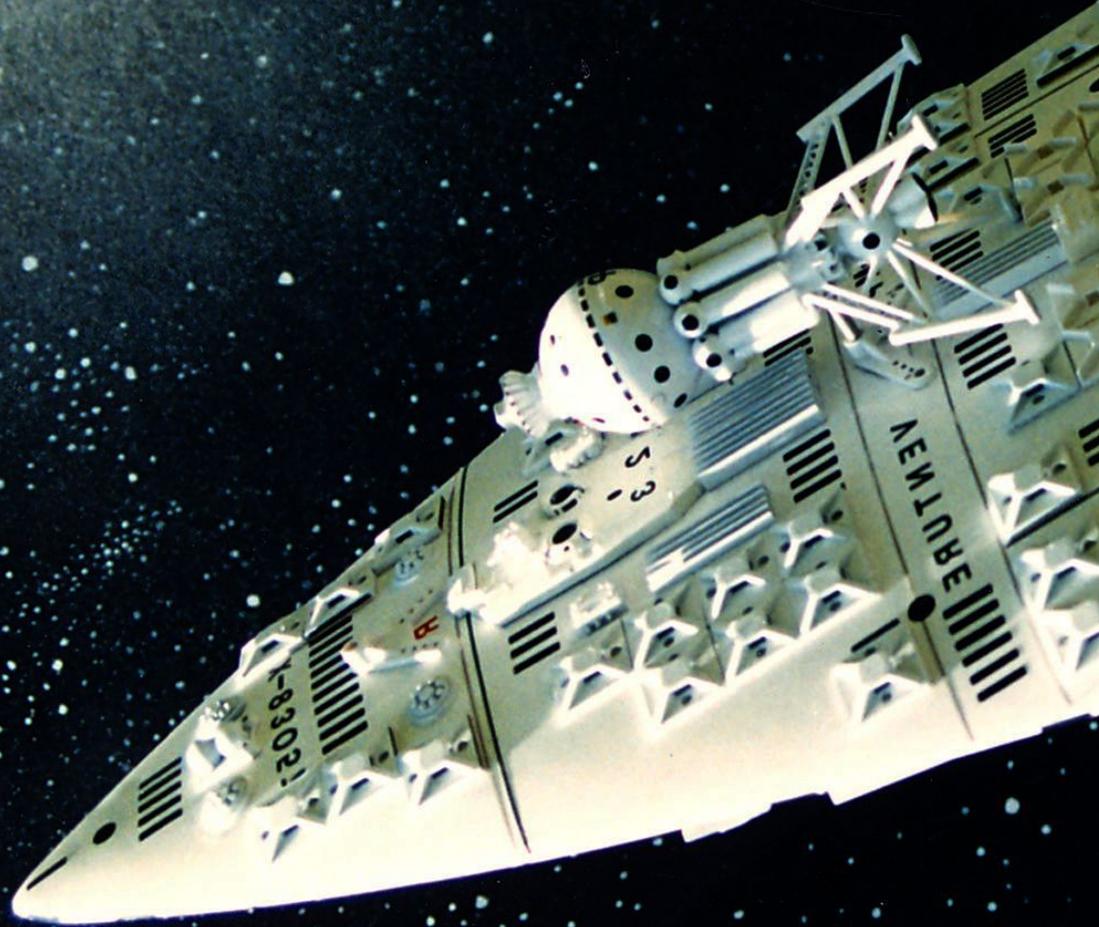
Space stations provide the advantages of a gravity-free research environment. They can be entirely automated and self-contained to permit maintenance and self-repair without human intervention. These space stations would be able to monitor the earth's resources, as well as facilitate further research in the fields of meteorology and astronomy, work that is often difficult on Earth due to atmospheric interference.

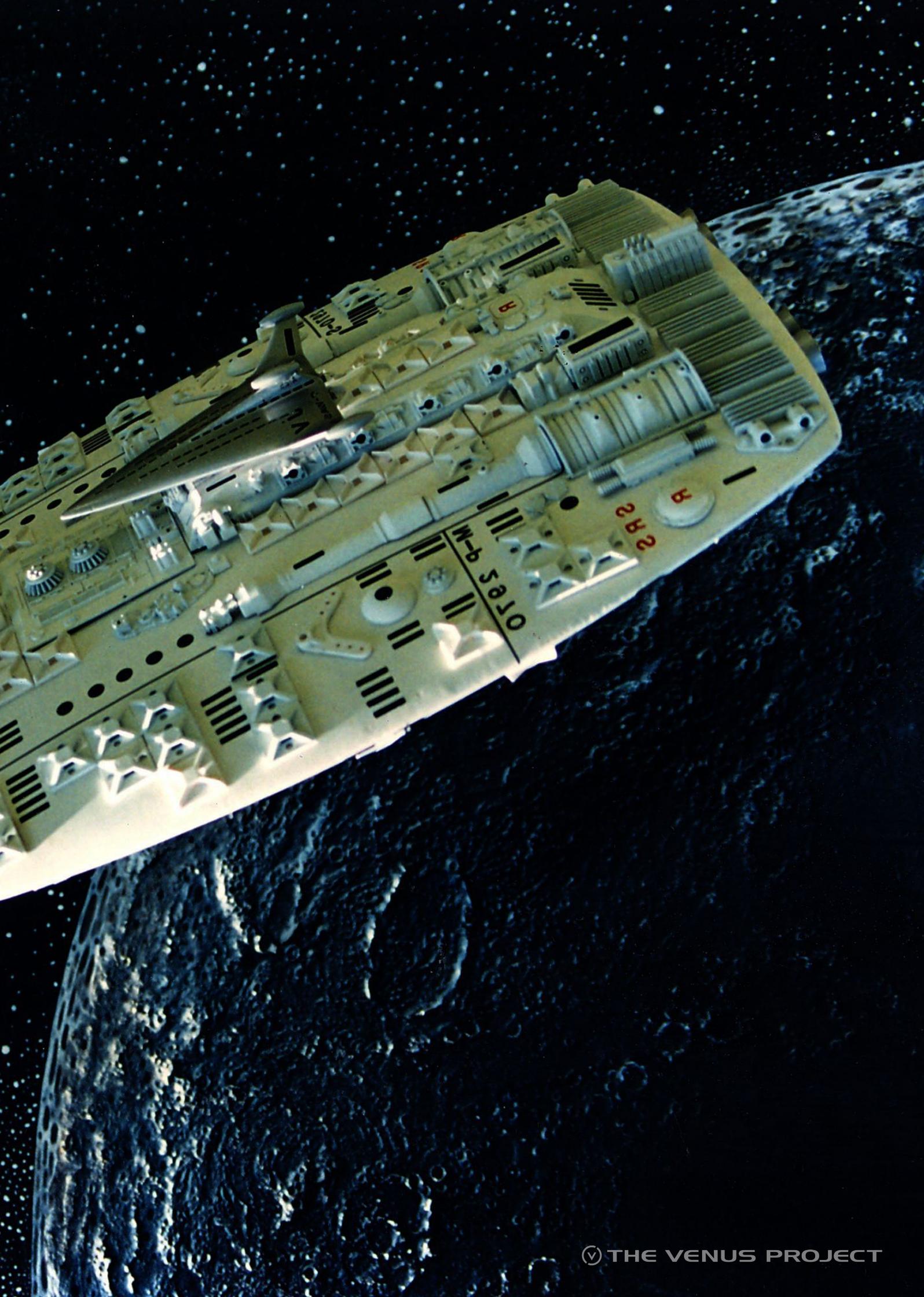




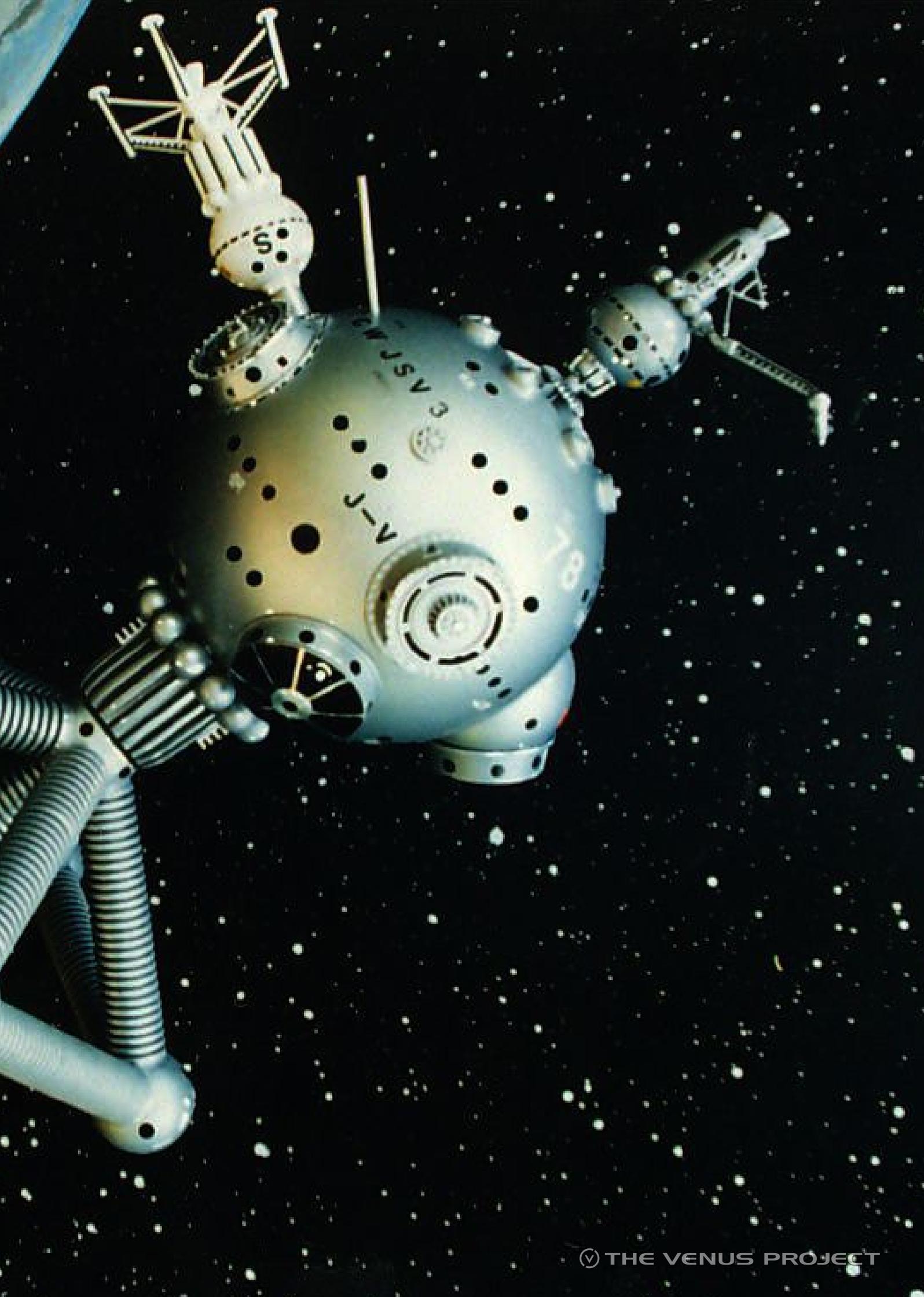
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Many other experiments can be accomplished in a gravity-free environment, particularly in the areas of medicine, chemistry, and metallurgy. In addition, these space stations would serve as nodes in a worldwide telecommunications system, providing up-to-date information on the Earth's ecosystems, the position of ships and airliners, and other information pertinent to the inhabitants of the cybernated world.











# FAQ

with Jacque Fresco

# Is The Venus Project a Utopian society?

The Venus Project is not a Utopian concept. We do not believe in the erroneous notion of a utopian society. There is no such thing. Societies are always in a state of transition. We propose an alternative direction, which addresses the causes of many of our problems.

There are no final frontiers for human and technological achievement - it will always undergo change. Even if we can design a society having all of the modifications to improve the lives of people and protect the environment we will still be at the beginning of the next phase. We are always in transition and learning new things.

The survival of any social system ultimately depends upon its ability to allow for appropriate change to improve society as a whole. The patterns we choose determine whether or not there is intelligent life on earth. In closing, to achieve this new social design, it will require much voluntary, unselfish participation for its realization. The future does not depend solely on The Venus Project. We only propose a direction. Our future depends on the decisions we make today.

## **How do you think people react to your proposals, that I would label "virtual proposals", about the future of the world, and what is your relationship with them? How important is fulfilment in terms of credibility and concrete experience?**

I do not depend on present day values, language, and customs since they were designed centuries ago. Nor am I affected by what the majority of people believe. At one time the majority of people believed the earth was flat. They believed in many different gods and demons who they thought were responsible for their predicaments.

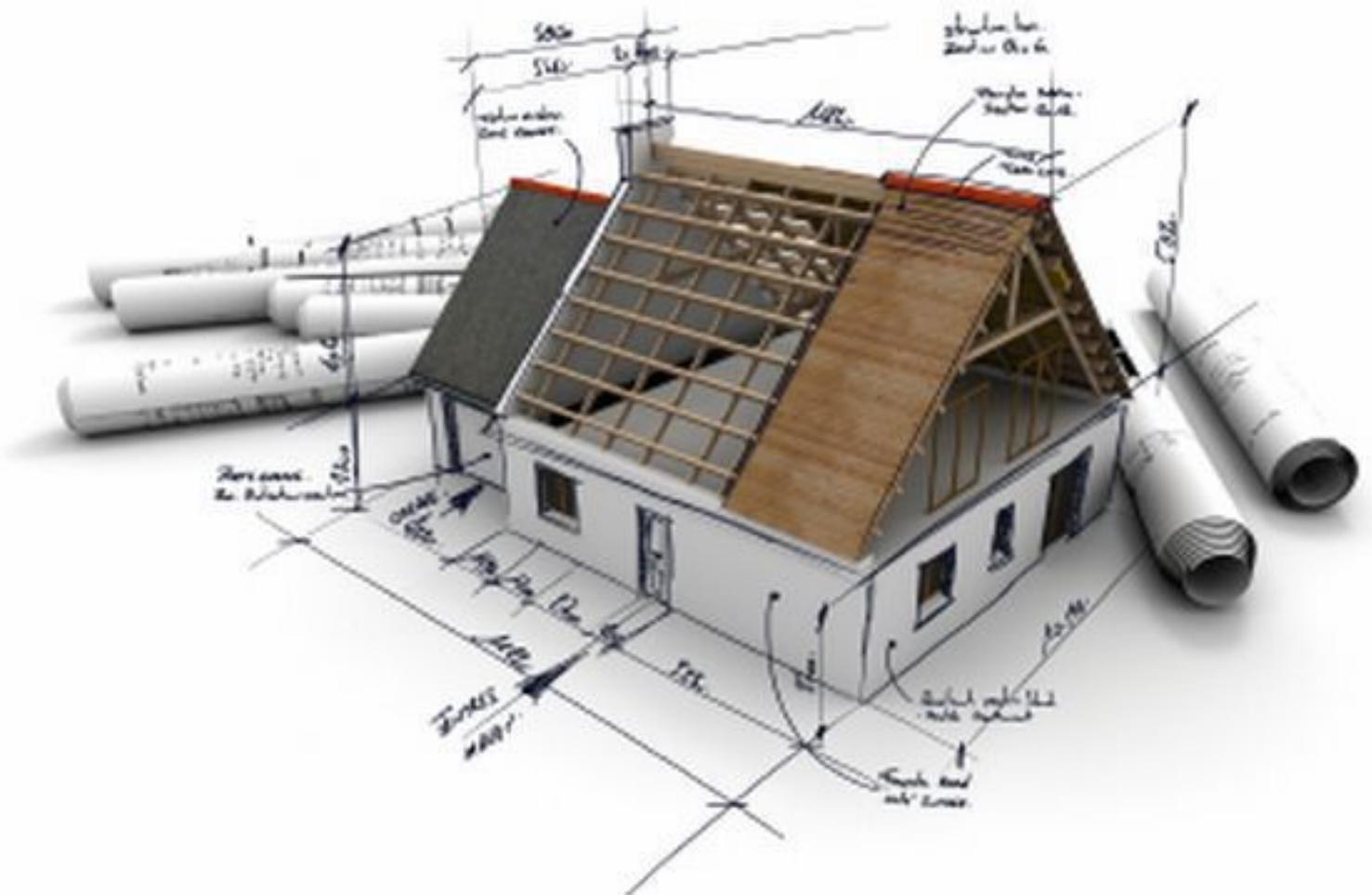
I also disagree with the concept that humans actually communicate with one another. This would not be possible unless they have common backgrounds in technology and science. In most instances, people talk at each other rather than to each another. When stating this, I always try to explain in simple terms the positive gains of the social directions that I propose. To clarify these concepts of a possible sustainable future for all of the world's people, we produce videos and books available on our website at [www.TheVenusProject.com](http://www.TheVenusProject.com)

There is no question of credibility. If we continue in the direction we are going we will destroy the environment and one another.

# AA WORLD

AA World : Automated - Autonomous World is a series of articles about the current state of Automated and Autonomous technology to try to demonstrate how The Venus Project concepts can be feasible even with today's technology.

**by Tio**



If you are familiar with The Venus Project then you have heard the word “automation” many times. You already know that The Venus Project’s technology relies heavily on automated and autonomous systems to properly work. But how far can such technologies go today? Can we design complex production/delivery systems to be fully automated and autonomous (AA)? What about transportation, security, and research? Can these fields rely on such systems?

In this series of articles, I will try to show you what AA can do today and what they may do in the near future.

## **What is automation ?**

*“ Automation or automatic control, is the use of various control systems for operating equipment such as machinery, processes in factories, boilers and heat treating ovens, switching in telephone networks, steering and stabilization of ships or aircraft and other applications with minimal or reduced human intervention.*

*The biggest benefit of automation is that it saves labor, however, it is also used to save energy and materials and to improve quality, accuracy and precision.*

*Automation has been achieved by various means including mechanical, hydraulic, pneumatic, electrical, electronic and computers, usually in combination. Complicated systems, such as modern factories, airplanes and ships typically use all these combined techniques. ” -Wikipedia*

## **What is autonomous technology ?**

Autonomous technology refers to machines that act independently of humans. They behave in ways that mimic humans and free people from repetitive, unstimulating jobs.

Most advanced aircraft are almost entirely autonomous, in the sense that they can take off, fly, obey air traffic control, avoid other aircraft, and land, all without human intervention, except in plotting a destination.

So for this article think about automated technology as machines that function with little, if any, human control.

**CONSTRUCTION**

But before we continue, you have to understand that today's AA technologies are engulfed in the monetary system and not fully expressed. For the sake of demonstration, let's say someone wanted to build an automated restaurant, although possible from a technical perspective, its development and deployment would be limited by the financial system. That is why you probably don't see many AA restaurants today. It is because of the impediments in our social system, not technological limitations. The technologies you will find below, however, are considered not for their financial worth, but rather for their technical worth.

Construction techniques are essential to build any structure, be it a home, hospital, or airport. I will show you how automated and autonomous technologies can mechanize the construction process, making it faster, safer, and better able to build complex forms.

## Let's think about construction in terms of :



**COMPLEXITY AND AGILITY**



**INTELLIGENCE AND RELIABILITY**



**EFFICIENCY AND DURABILITY**



## Contour Crafting

technology has great potential for automating the construction of whole structures as well as sub-components. Using this process, a single house or an entire colony of houses, each with possibly a different design, may be automatically constructed in a single run. Embedded in each house would be all the conduits for electrical systems, plumbing, and air-conditioning. The potential applications of this technology are far reaching. (source)

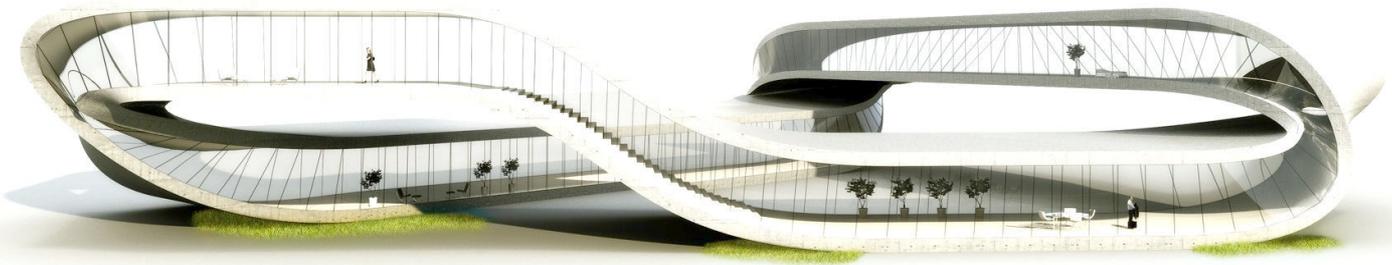




# D-Shape

Other similar technologies are using 3D printers like D-Shape to eventually build full houses. The D-Shape building process is similar to the "printing" process because the system operates by straining a binder on a sand layer. This is similar to what an ink-jet printer does on a sheet of paper. This principle allows the architect to design fantastically complex architectural structures.

For instance, the 'Landscape House' is an ambitious plan to build a full house using this technology. (read more)



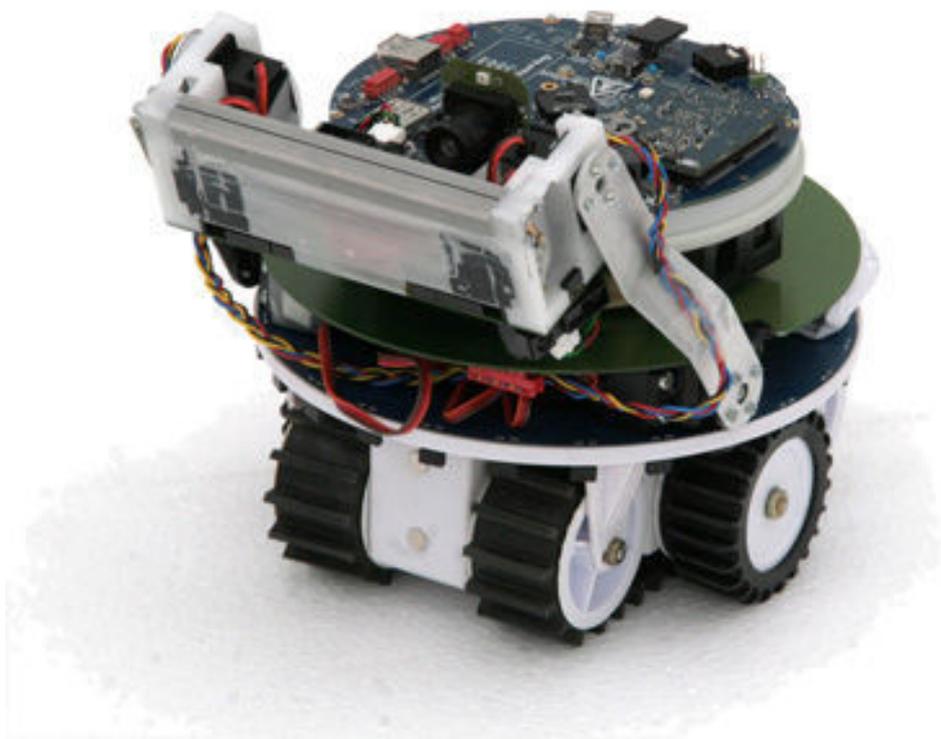


But where such 3D printing-like technologies cannot be deployed, multiple autonomous robots can build complex structures with little or no help from humans.

However, we need to consider that autonomous construction is challenging for robotics both at the mechatronic and at the control levels. At the mechatronic level, robots require manipulators with many degrees of freedom. At the control level, autonomous construction mixes complex low-level actions, such as adding new elements to a structure, with a high-level cognitive behaviour, such as reasoning on a course of action to avoid situations that prevent the completion of the structure.

## The marXbot

robot is well-suited tools for autonomous construction. As it is modular, it has many different manipulation capabilities. Moreover, as the robot is small, neither the robot nor the built structures are dangerous. This allows marXbot to efficiently explore different construction modalities. (source)



But robots don't necessarily have to be confined to the ground. Some can also fly, thus helping to make construction faster. ( video 1) ( video 2)

Other autonomous robots can climb tall buildings while carrying heavy parts, mounting them on their route. ( video )





The agility of these robots comes not only from their ability to move and communicate with each other, but also from their specialized arms, which are getting more and more complex. These arms offer robots an expanding range of achievable tasks: from picking up a variety of shapes and materials, to manipulating these objects, or even using tools built for the human hand, and more.

We all know there's a plethora of such complex grippers that manipulate objects from their microscopic size to large construction materials.

Here are 3 examples of such arms:

## 1. 3-Finger Adaptive Robot Gripper

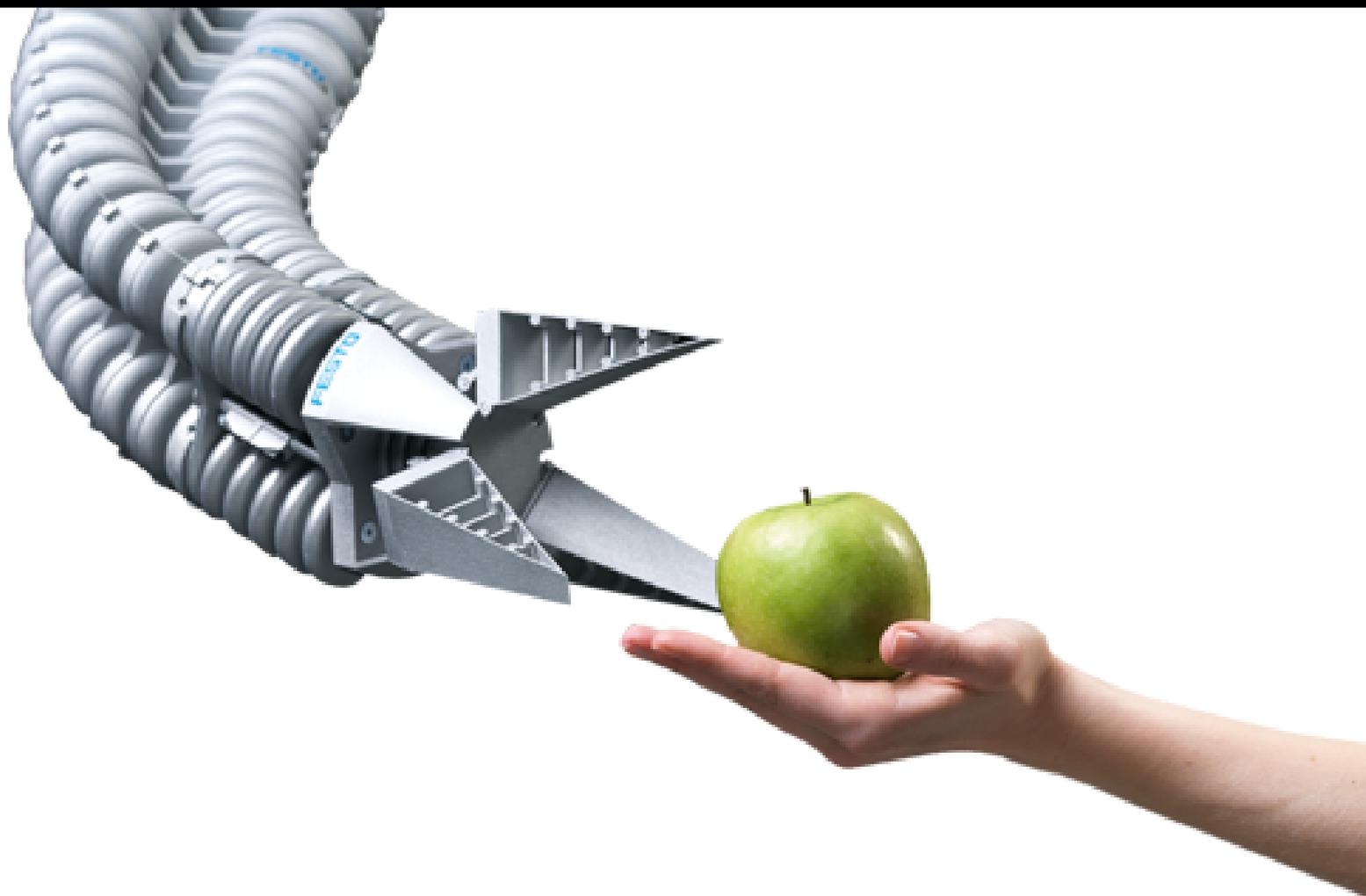
Designed for applications dealing with a wide variety of parts, this 3-Finger Adaptive Robot Gripper represents a solution to improve process flexibility and consistency.

This robotic hand gives "hand-like" capabilities to robot arms in advanced robotic applications and industrial automation such as robotic welding, machine loading/unloading, bin picking and research.

Put a tool designed for the human hand in this gripper and it will definitely know how to use it.







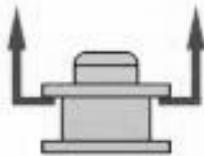
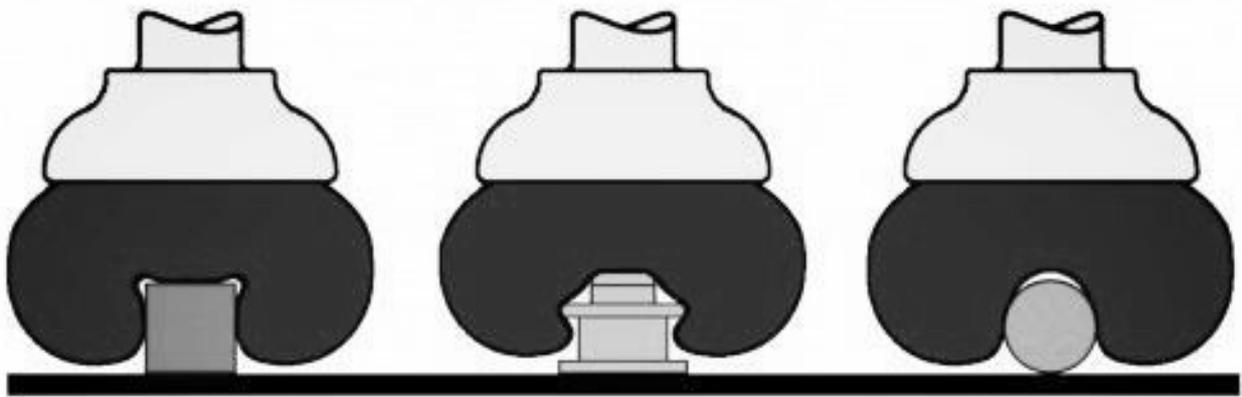
## 2. Festo - Bionic Handling Assistant

Now what about a similar 3-finger design, but inspired by the Elephant trunk? It may seem to be the same technology, but it's not. This arm, designed by a company in Germany, possesses great dexterity, flexibility, and strength; it operates with smooth, yet firm, motions and can pick up and move any kind of object from one place to another.

The arm itself is significantly more flexible than other similar concepts, allowing it to perform tasks that require a great deal of accuracy. (their YouTube channel)







### 3. Jamming Gripper

And lastly, this arm's technology is perhaps the most innovative way of dealing with complexity. The fingers seen in the previous two designs are entirely replaced by a bag of granular material.

This granular material flows around an object and, when compressed, solidifies to secure the object in place. Such an innovative, simple design makes manufacturing and programming this mechanism very easy. Read more about it here.

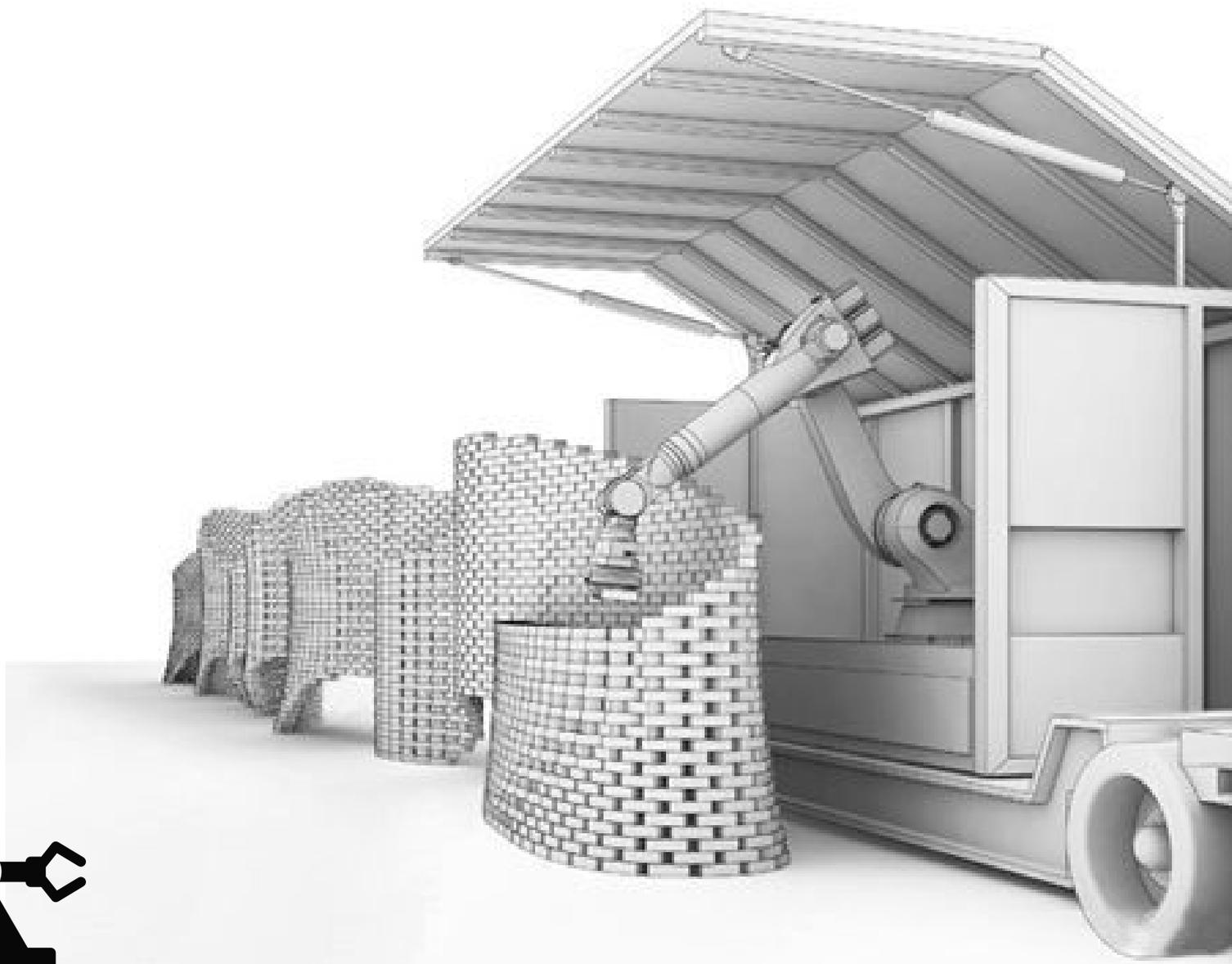




These 3 elegant robotic arm technologies are a proof of how complex grippers can be, thus demonstrating how this kind of technology can take on complex and varied construction tasks.

## R-O-B Unit

Some industrial robots with prominent robotic arm technologies are, in fact, being used in present-day construction projects. For example the Gantenbein Winery, in Fläsch, Switzerland, has been the prototype for an entirely new approach to bricklaying: using modified industrial robots. Traditionally, the promise of industrial robots has been that they would replace the human workforce. But these projects, led by the Architecture and Digital Fabrication laboratory at ETH Zürich, demonstrate a different result: architects are free to create designs and patterns of a precision that simply could not be achieved by hand. (source)





Imagine AI robots using different kinds of materials, prefabricated construction parts, and multiple construction techniques to build infinitely complex structures. We already showed how multiple robots can work autonomously to construct complex buildings, but construction techniques don't necessarily have to be limited to 3D printing or these intelligent robots. They can also be embedded directly into prefabricated materials. Imagine a flat piece of material that can self-assemble itself into a house. Seems like science fiction?

## Sjet

We'll look at Sjet, because they are rapidly developing this technology and even have some small scale prototypes. Without external machinery to manipulate them, individually coded building elements can organize and assemble themselves through applied energy sources.

Designer, computer scientist, and lecturer at MIT's Department of Architecture, Skylar Tibbits is a leading innovator on the subject. His research focuses on developing self-assembly technologies for large-scale structures. Energy sources could be in the form of sound waves, wind, or kinetic sources. Imagine buildings that could self-correct, adapt, or repair through energy transmitted by seismic energy. Energy applied from ground shaking provides energy to built-in elements that allows them to adapt and respond and change state, a huge application in western California and other parts of the seismically active world.





# Real World Simulation

One simple way to think about making construction a smart process, from start to finish, is to first map the real world (from structures to terrain and climate) and then use complex 3D software to generate new building designs. This way you can test a building with high degree of accuracy even before you start building it.

There are plenty of methods today to scan the world and render it in 3D (link2), or to map the weather and simulate real environments and scenarios.

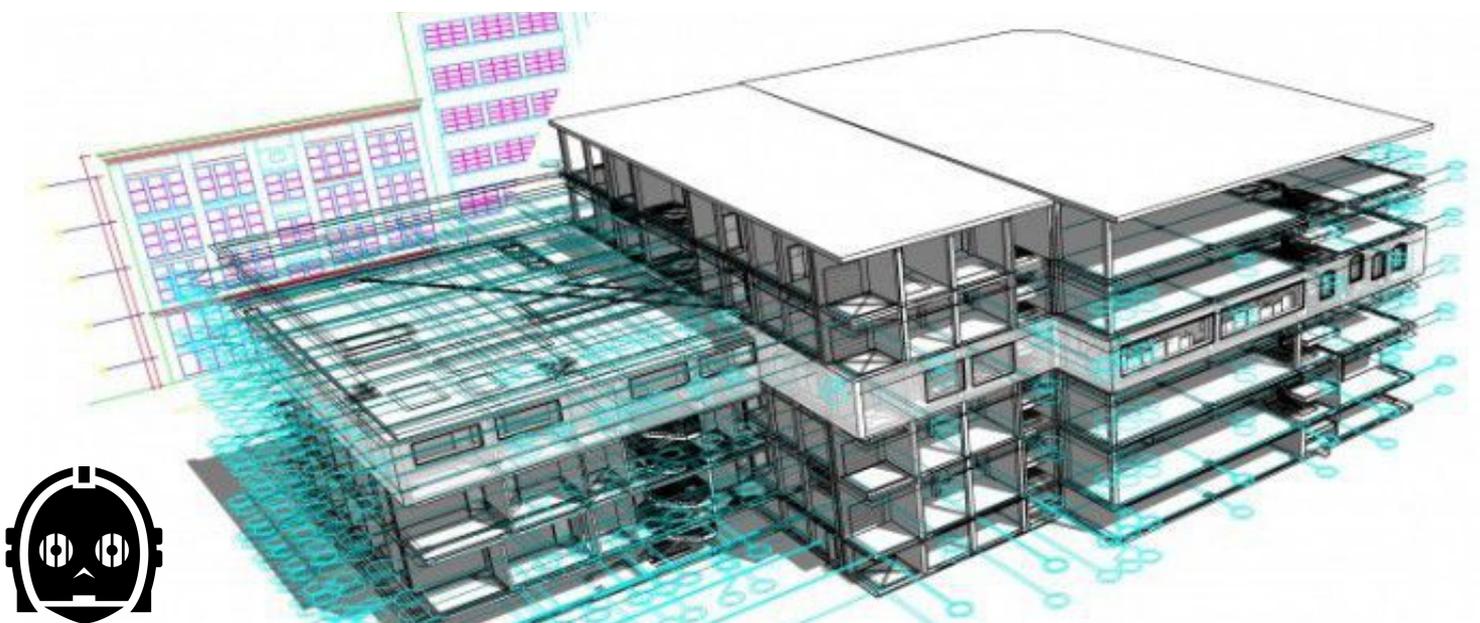
And using BIM (Building Information Modeling) can ensure a reliable 3D model that best fits the environment. Read "The future of construction: Meet BIM (or else)" and our article from the July issue to understand how BIM works and why it is so important.

A building can be designed in a 3D software program like Autodesk and then erected in the real world using one of those AA construction technologies.

The way construction can be fully AA is this: the real world would be simulated through powerful computers, 3D models of buildings can be made to accurately match the environment in the simulation, and then these buildings would be simulated and tested under extreme conditions like natural disasters. Once that is done and many tests are simulated to ensure the building is correctly represented in the 3D software, technologies like contour crafting, 3D or 4D printing, or other such autonomous technologies, can be deployed to build the real model.

I see a future where you can visit a website and select your desired house from a 3D-models catalogue. These 3D models can be created by experts and shared, updated incrementally, or directly created and updated by AA software itself and edited by you to fit your needs. You would simply order one and it would be built using one of the technologies I mentioned. And this entire process can be fully AA. And if you think about this concept a bit more, you would come to realise that such a virtual environment can be shared and improved by experts, and non experts (if the software is secure enough), from around the world. And with the help of AI's random simulations to test thousands or millions of scenarios and building models, we can truly have a smart construction plan for any kind of project.

This is the way I see construction being almost, or even completely, autonomous in all its' stages while continuously being improved and developed.

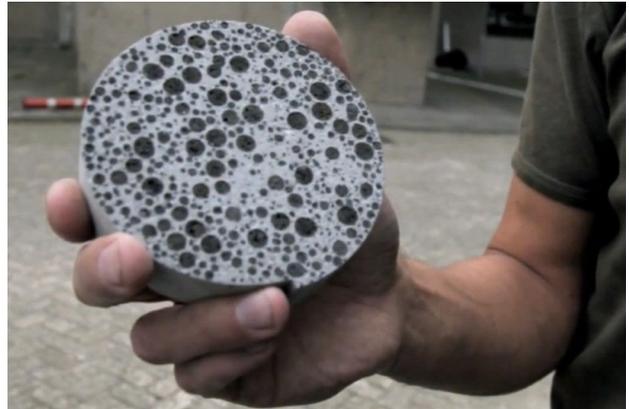
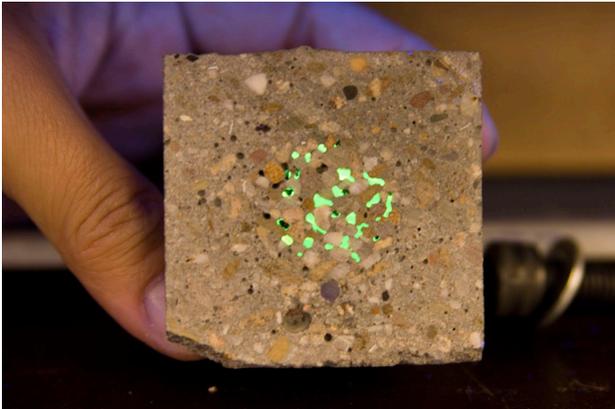




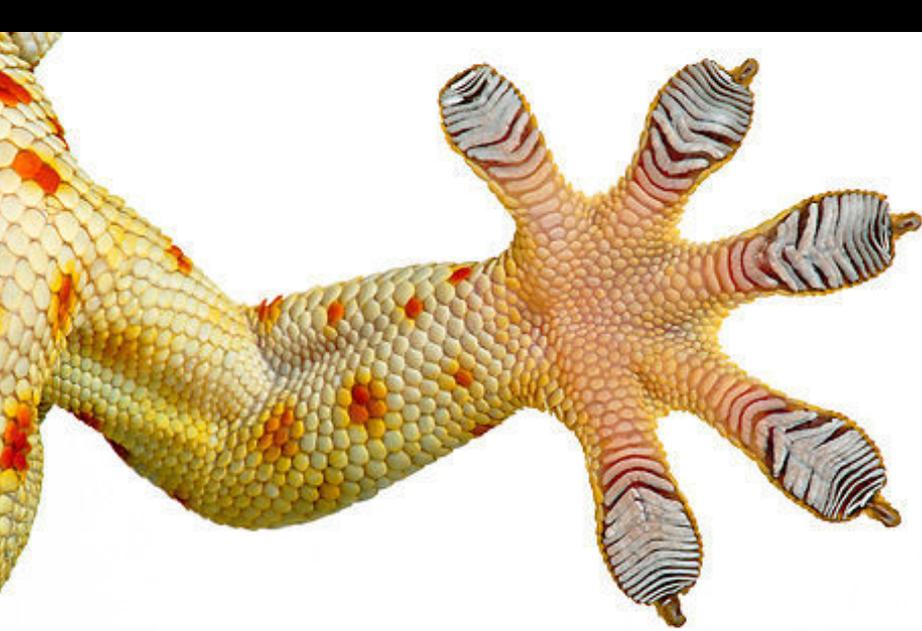
With the use of new materials, buildings can become maintenance free and smart enough to function efficiently through a system of feedback with the environment. These smart materials are designed materials that have one or more properties that can be significantly changed in a controlled fashion by external stimuli, such as stress, temperature, moisture, pH, electric or magnetic fields. For a list of such types of materials read this wikipedia article.

## Self-Healing Concrete

For instance self-healing-concrete uses bacteria to fill cracks and prevent decay and corrosion of rebar. (source) Or concrete can use sunlight to fix its own cracks. (source) Moreover, "super concrete", with its high strength and ductility, will make for a much more resilient constructing material which would be able to withstand the power of earthquakes and extreme loading much better than the concrete that is widely used today.



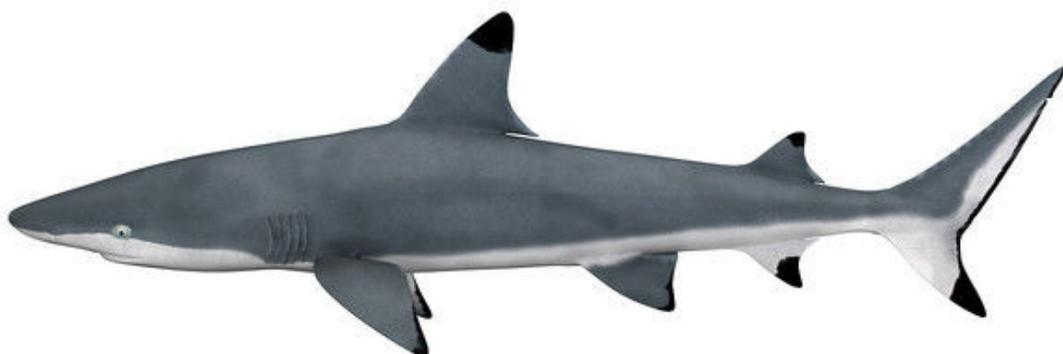




The Gecko foot is known for its super powerful stickiness and now scientists are able to replicate that property for the basis of a new type of super-sticky adhesive material. The lotus plant has an amazing way to stay clean. Each of its broad, round leaves is coated in a water-repellent wax. But that is not all. The surface of each leaf also has tiny bumps that raise particles and droplets away from the leaf, so that dirt and water barely make contact with the surface. This makes the leaf highly water-repellent. Dirt and water simply roll along the little bumps and off the leaf. The potential uses for this technology are vast and it is already being used in self-cleaning exterior paint.



Ancient elasmobranchs (sharks) avoid pesky algae and bacteria by way of an ingenious skin design. Microorganisms prefer flat surfaces, which allow them to form large colonies or biofilms. But unlike most other fish, sharks don't have flat scales. Instead, they have dermal denticles—ridged, tooth-like scales covering their body. These bumpy "teeth" create a rough surface that biofilms can't colonize or thrive on, which contributes to the shark's naturally bacteria-free status. Surfaces mimicking sharkskin are currently available for use in medical and hygienic settings. (source)



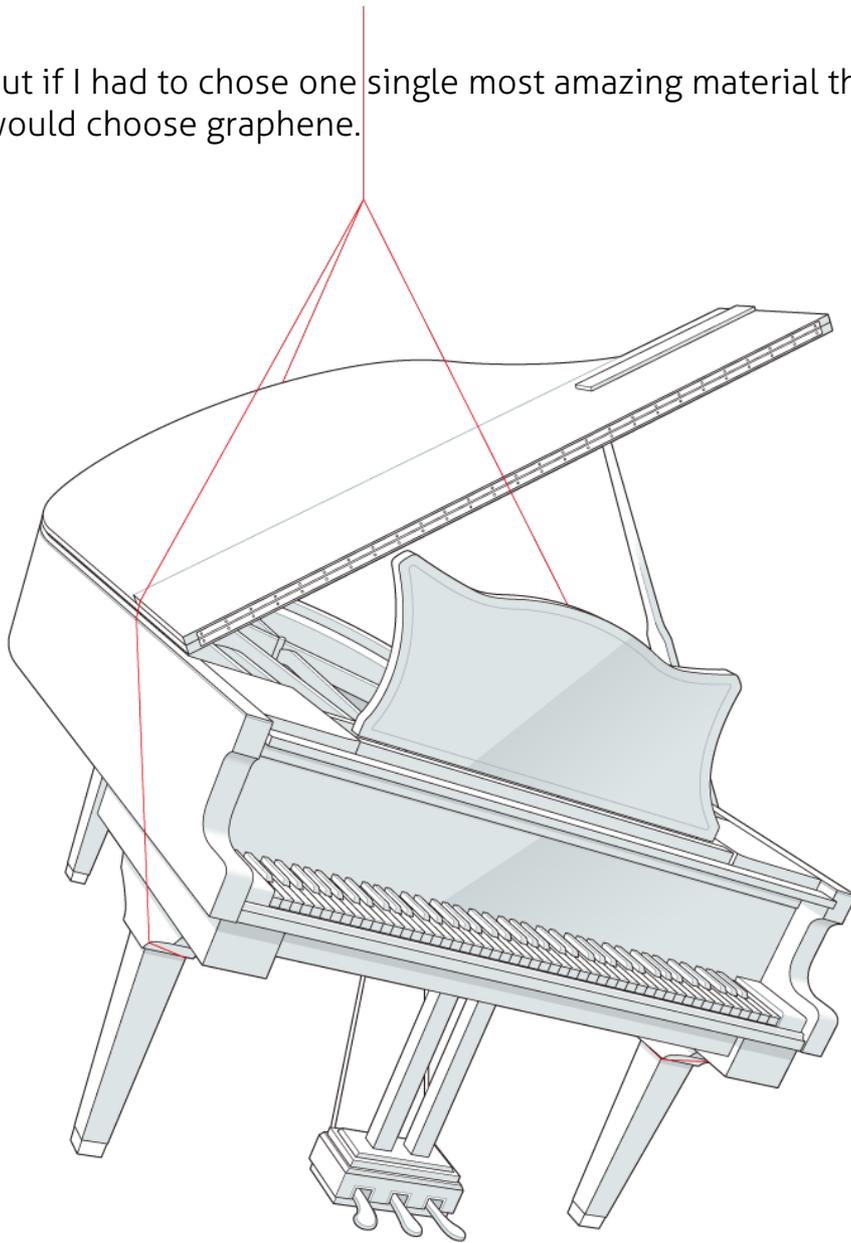


But if I had to choose one single most amazing material that seems to be out of this world, I would choose graphene.

## Graphene:

A human hair is almost a million times thicker than a layer of graphene. The material is made of a single layer of carbon atoms arranged in a honeycomb pattern. In theory, a string of graphene with a diameter of just one-tenth of a square millimeter—the size of a very sharp pencil point—could hold up a thousand-pound piano.

High-quality graphene is strong, light, nearly transparent and an excellent conductor of heat and electricity. Its interactions with other materials and with light and its inherently two-dimensional nature produce unique properties, such as the bipolar transistor effect, ballistic transport of charges, and large quantum oscillations. (source)



Other materials made out of similar carbon structures seem to possess super properties, too. Aerographite is a form of carbon with a sponge-like structure. It is water-repellent, highly resilient, and extremely light. Actually, it is the lightest material ever created. (source) Also, scientists crushed a naturally occurring kind of carbon called buckminsterfullerene (the molecules look like soccer balls) to create a material strong enough to dent diamonds. (source) Nanotechnology seems to provide a huge range of new materials with super properties. Materials that completely repel water or dust are no longer science fiction. Amazing insulation and conduction materials are a thing of the present. Nanotechnology, as shown in the case of graphene, will completely redefine the notion of "strong", thus making buildings extremely resistant to natural disasters. These examples are just a few of the many dynamic and amazing materials that exist today and will continue to be improved in the coming years. They are truly among the most durable and efficient substances in architecture and engineering.





We have shown how, when it comes to construction, 3D-like systems seem to be one of the most reliable, easiest, and fastest ways to build all kinds of buildings. Using wonder materials like self-healing concrete, graphene, or nanotube-like structures, these buildings can be made extremely resilient. Self-sufficient, smart, varied, complex, and reliable are all architectural traits attainable with today's technology.

AI systems, like flocks of robots, that can help with construction or maintain buildings are no longer in the realm of science fiction. And complex grippers can assure even the most delicate task can be achieved.

Such buildings can be built completely with their electrical, plumbing, and communication systems all at once, thus reducing the time of construction and improving the overall functionality of the structure. Plus, reducing waste and using recycled materials can greatly reduce the energy required to build all kinds of buildings. Simulating the real world will also greatly simplify the process of construction and allow incremental improvements, an easy interface for both experienced architects and inexperienced ones. This will ensure that each structure is based on a very high-quality blueprint.

# CONSTR

## AA WORLD

*It is a bit maverik to think we have covered even 1% of the technologies that exist today for automating construction. The realms of science will provide new, almost out of this world materials and methods for construction, while nanotechnology and more complex 3D printers can deliver infinitely complex structures that we cannot even imagine today.*

**The AA technologies of  
construction seems  
limitless: inspired by  
nature, imagined by  
humans, and perfected  
with AI.**

**CONSTRUCTION**

**by Tio**

*I hope that after having read this article you will look at TVP's construction technologies knowing that they have a solid base in reality, if you previously thought they didn't. I strongly encourage you to read more about TVP's construction technologies in one of our previous issues. In our next article from this series, we will discuss how entire cities can be built and how such cities can maintain themselves through intelligent systems that monitor every single inch of the city.*



Some people have a little difficulty understanding how The Venus Project will create an abundance of goods and services, and how people will react to living in a society like that.

**How will you use a service if it cannot serve all of its requests?**

Who is going to have that rare painting?

**How can you create an abundance of transplant organs when the world is in such a need of them?**

I will try to provide an idea of the impact of abundance and how it may be achieved using smart systems.

# fulfilling

# WANTS





First, we should not think of abundance in terms of gross quantity, but instead of its ability in fulfilling any request.

For instance: you don't need a separate Future by Design DVD for every person in the world. Instead, you need to have a streaming service that instantly serves that documentary to all of the people requesting it at any given moment. Algorithms can predict how much network traffic may be required for that particular documentary streaming, and then provide the needed resources (hardware, bandwidth) on demand. It is absurd to assume all the people in the world will stream that documentary at the same time, therefore, it may be useless to prepare for that.

This same idea of creating abundance applies to just about everything. Food will be created by the same algorithms, observing what people eat, request, take, resources available, etc..

So imagine it as a kind of rent-based system, but with no money needed in this society. Let's say we apply this to apartments. By observing what regions of the world people visit, an average of how long they stay and, of course, the available resources for all such areas, we can determine how many apartments need to exist for a specific region so it can cover the requests.

Then consider shopping carts. How many shopping carts are needed for a supermarket? Abundance means as many as are needed to cover all requests; not as many as there are people in that town or in the world.

It may be a bit risky to try saying this method will work for everything, but it seems to work quite elegantly in most situations and it also seems to be the best approach at our disposal for most things: analyze big data and return suggestions based on the techno-scientific approach.

## Wants not fulfilled:

Personally, I find it impossible to assume that every request to watch Future by Design on that particular streaming service will be able to do so flawlessly. Someone may occasionally find that the stream or delivery is not working properly or running slow. But, if overall, that service delivers well to most people with rare exceptions, it is a successful system.

This is not something new. You and I come across such “errors” all the time. For instance, if I have the money to buy a particular laptop but it’s not available for the next 14 days in the region I live in, although I have the power to buy it, I simply have to wait for that availability, as you also would. Sometimes I want to watch a YouTube documentary, but find the streaming service to be extremely slow. It often runs fine if I go back the next day to see it. Of course, those are rare exceptions and are only a symptom that the system will eventually improve. Within a global RBE, those improvements will not be delayed until there is ‘money’ available to fix it.

Within today’s monetary system, if you go to a restaurant on a very important day for you (let’s say it’s your birthday) but you do not find any available tables, what do you do? Your birthday is only once a year and this is your favorite restaurant, so you really want a table at that restaurant. You have same access level as anyone else, but that doesn’t help you when the restaurant is full. More than likely, you will disappointedly accept the situation and go to another restaurant. Your favorite restaurant couldn't fulfill all requests, but people are quite used to living with this situation in today’s monetary system.

I live near a beach where there are two football fields, and three volleyball fields. All are open to the public and anyone can use them anytime they want. Sometimes my friends and I use them, but we sometimes have had to wait when it’s busy; or we come back later on or the next day. On a couple of occasions, we joined in with the other people already using it.

Another example is that of the “rare painting”. People wonder, if no one owns anything in TVP and such paintings are unique, who will own that beautiful painting?

Well, who owns it today? The answer is the one who pays the most for it! Is that a fair deciding factor?

Maybe in TVP, people will be much more educated and come to understand that there is no value in keeping unique paintings for yourself, but there is much value in sharing them in expositions for all to see. And don't forget, a painting is something that can be digitized and seen by anyone, since it is a purely visual experience.

So, what do you do with things that cannot be digitized like, for instance, a dinosaur skeleton? Although you could 'see' a 3D representation of it, maybe the experience is more on experiencing it right in front of you.

Of course there will always be museums where such specimens can be shown, but maybe you want a specimen to do scientific research on it. As shown in this documentary, in today's world some people with money buy and hoard such unique specimens just for the sake of having them (prestige) and this hurts the scientific research of dinosaurs greatly. Thankfully, most that are “owned” are owned by museums, where all have access to or for scientific investigation, which is usually quite fair in its determinations of who can do research on a specific specimen.

But remember, we are talking about WANTS here; things that people's lives do not depend on.

So assuming that people will react violently and create chaos when their wants are not fulfilled is significantly flawed, although there are rare exceptions when this can happen. Simply put, the more educated people are and the saner society becomes, the smarter their responses will be.

Of course, that is something we have been dealing with for a long time within the current monetary and ego-based culture. In a TVP-like society, such cases will be very rare.

If the production of a particular item is not always able to fulfill all potential requests, but it is able to deliver to most people, then we may view it as successful. Needless to say, in a world where the prime motive is to continually improve society for everyone without exception, these rare occasions of light scarcity will be greatly analyzed and continually improved.

***Errors and exceptions may never fully be eradicated, but that's something that we humans are quite good at dealing with.***



# FURFILLING NEEDS





The word 'needs' refers to things that people must be able to access without delay. Fulfilling needs is different because people may react in a violent way when a request is not fulfilled, due to their urgent need.

If a public restroom is busy and you really need to use it, you either wait longer or pee in the bushes. So if there are too few public restrooms in a given area, it is insane for anyone to think that they can request that people pee less. It is a human need after all. But, there are also situations where the need is a must, a life and death scenario; organ transplant, for instance. We know that this is something scarce and, although recent developments in medicine suggest that this can become more accessible in just a few years, replacement organs may not become abundant for many years to come. Even if an abundance of transplant organs does manifest, similar scenarios could occur in other areas of society, so the example is still relevant.

So, if there is a continued scarcity of organs for transplants, what will we, as a society, do? Well, how do they handle it today?

They already have a computer-network system which gives priority base on scientific data such as: compatibility (genes, etc), age (younger, perhaps better chances), region (the closer the better), and so on.

And as the United Network for Organ Sharing (UNOS) says:  
“Specifics of waiting list rules vary by organ. General principles, such as a patient's medical urgency, blood, tissue and size match with the donor, time on the waiting list and proximity to the donor, guide the distribution of organs. Under certain circumstance, special allowances are made for children. For example, children under age 11 who need kidneys are automatically assigned additional points. Factors such as a patient's income, celebrity status, and race or ethnic background play no role in determining allocation of organs.” (source)

It seems like humans, again, found a solution to dealing with scarcity in a humane way. In a TVP society, I would imagine any corruption currently within such institutions will more than likely disappear altogether because there is no monetary profit to it.

This example is a proof that people are ingenious and they always come up with solutions, although the saner the society, the saner the solutions.

***That same scientific approach can be applied to any need that is scarce, until it is no longer scarce.***

**STUFF**





Can we really have an abundance of any goods? It seems a bit ludicrous to say YES when you use the word ALL. But the catch is in the examples I've shown with the fulfilling of requests. In other words, we do not need a smartphone for everyone; only for those who use one.

And instead of 100 different spoon and fork designs, just produce maybe two types. Things become designed ergonomically, without many differentiating, proprietary designs of the same item.

And such an approach works in harmony with another smart approach: incremental updates.

Lets imagine that, instead of making a new smartphone each 6 months, you can have a modular phone like the Phonebloks concept, where all parts of it can be replaced as needed to improve the overall phone. Or even better, imagine your smartphone, tablet, laptop, or any such device, streaming a complete Operating System, directly from the cloud. It would be like each of us having a supercomputer at our fingertips at all times, with such devices simply accessing its power and extensive abilities. Our devices will be like a window to this supercomputer, thus requiring way less resources to build such "windows-like-devices", and to upgrade them as technology continuously advances.

So you, I, and everyone else has the same smartphone, tablet, pc, as well as the same power and functionality powering it. And when we upgrade the supercomputer, we upgrade all of these devices at once. It is no longer necessary to individually replace every single one of them. Additionally, this supercomputer will work like any shared hosting platforms, distributing as much power as you need to fulfill your requests. It's not like any of us could use the entire power of the supercomputer, so the supercomputer can continuously fulfill each of our individual requests.

The same thing goes for cooking food. Instead of building a full-sized kitchen for every apartment, it is easier to have automated restaurants where people can eat or order automated delivery. Doing this, you greatly reduce the costs in terms of resources and energy.

There are many more such technologies that are greatly reducing the resources consumed by fulfilling more needs; doing more with less. 3D printing, for instance, is another good example. We can have a virtual store of plenty of 3D models, or we can create our own models on our computer and just print them at home as needed, instead of having factories producing such objects to sit on shelves collecting dust until someone has a need for it.

***This leads us to our next topic: SERVICES***

# SERVICES





I think services are much easier to fulfill than requests. For example, plenty of wearable medical gadgets can now continuously and unobtrusively analyze your health. Watch *Monitor Me*, a BBC documentary to find out more about this. These gadgets upload the data into the cloud, where it is then analyzed by doctors or, even better, by systems like IBM's Watson supercomputer, which can arrive at better conclusions about your health than any doctor can. There are even concepts for future 3D printers that will eventually print your own personal prescriptions.

Such services will, therefore, become increasingly personalized and automated. The assistance will be a marriage of AI and automated machinery (taking care of elders, fixing technical problems, etc).

As history has continually shown, there will always be plenty of people in the world who will want to work for free, motivated only by the purpose of the work, and who will continually help improve such systems and/or help other people directly. There will also be many people who will not see a problem when a "want" is not immediately fulfilled, and even some who will accept when their needs are not always met entirely.

While we should always strive to eliminate even rare cases of non-abundance, it seems that this should not pose a big problem, especially considering that such 'abundance' is massively better than the typical world-wide scarcity that people experience all the time in today's monetary-based society.

Aside:

I understand that it is "nuts" to try to think about all types of abundance and its effects, but I hope I delivered some good notions of how we can approach such scenarios.



# WE RECOMMEND



## The Origin of Species

On the Origin of Species, published on 24 November 1859, is a work of scientific literature by Charles Darwin which is considered to be the foundation of evolutionary biology. Darwin's book introduced the scientific theory that populations evolve over the course of generations through a process of natural selection. (source)



## Rise of Animals

David Attenborough embarks on an epic 500-million-year journey to unravel the incredible rise of the vertebrates. The evolution of animals with backbones is one of the greatest stories in natural history. To tell this story, David presents explosive new fossil evidence from China, a region he has long dreamt of exploring and the frontier of modern paleontological research. (source)



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