

# Technological Apocalypse with Jason Reza Jorjani

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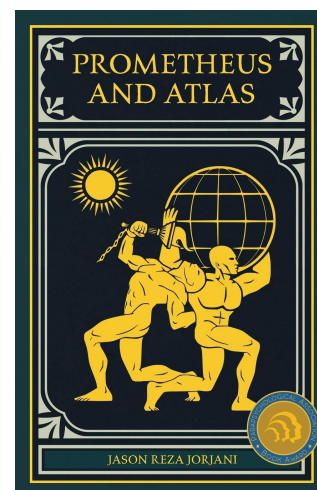
(00:21) **JM:** Hello and welcome, I'm Jeffrey Mishlove. We are going to explore converging technologies and the possibility of a technological apocalypse. With me is Dr. Jason Reza Jorjani, who is on the faculty of the New Jersey Institute of Technology in Philosophy. He is also the author of *Prometheus and Atlas*, a book that won the 2016 Book Award from the Parapsychological Association. Welcome, Jason.

(00:53) **JRJ:** It's a pleasure to be with you, Jeffrey.

(00:55) **JM:** Likewise, it's a real pleasure to be with you. And congratulations on the book award.

(01:01) **JRJ:** Thank you.

(01:03) **JM:** When we talk about a technological apocalypse, it has almost biblical overtones. Let's define precisely what you mean by apocalypse.



(01:15) **JRJ:** Well, apocalypse, in its Greek sense, which is how it was used in the Bible initially, means revelation. And so, what I'm suggesting is that certain convergent advancements in technology offer the opportunity of revealing something profound about human existence.

(01:30) **JM:** And I'm guessing that profound revelation has to do with the possibilities of humans to control their own evolution and for the human species to modify ourselves in ways that may be even unpredictable.

(01:50) **JRJ:** Exactly. Biotechnology, robotics and virtual reality force us to ask questions about our own form of embodiment, how we might be able to modify that, as well as our sense of reality, how in fact we know we're living in the real world.

(02:05) **JM:** Well, there have been enormous changes in my lifetime. I can look back over the last half century, and see things that we take for granted today, like handheld computers were unthinkable

when I was a teenager. So, I can only imagine that in the next 50 years the change and the progress in technology is simply going to accelerate.

(02:31) **JRJ:** Yes, and it's not just an incremental change, the concept that I'm developing of a technological apocalypse is in a sense a theory of a singularity, that these convergent, mutually reinforcing advancements in technology will affect a qualitative change in our way of being.

(02:48) **JM:** Well, let's start with biotechnology, for example.

(02:52) **JRJ:** Right, well, biotechnology offers us all kinds of potentials to promote human flourishing. Using embryo selection, which is an augmented process of in vitro fertilization, where you are able to profile the embryos that are then reinserted for development in the womb, it's possible to eliminate hereditary diseases from one generation to another. It's also known that there's about a 15-point range in IQ between, let's say, the brightest child you could have and the one that will have the hardest time studying various disciplines. So, you can actually increase IQ by about 15 points per generation using embryo selection alone, without modifying the genetic structure of the embryo.

(03:40) **JM:** In other words, you can test the IQ of an embryo?

(03:44) **JRJ:** Yes, you can profile embryos and identify both hereditary diseases and the child that you would have that would have the highest IQ based on the contribution between the mother and the father, and the one with the lowest IQ. And you can consistently choose the children who would have the highest intelligence. Of course, intelligence is a very fuzzy term, but there are certain factors of intelligence that have to do with, say, ability to learn physics, manipulate complex mathematics, that have very strong genetic correlates.

(04:18) **JM:** So, it's conceivable that an entire population of humans could increase their collective intelligence by maybe 15 points every generation.

(04:30) **JRJ:** That's right, which is one of the reasons why it's very important that we establish some kind of consensus for how this technology is going to be used. Because, if we were to have a 15 point IQ increase per generation, in only one country or one culture, this would introduce a very dangerous destabilizing imbalance of power.

(04:54) **JM:** In other words, if some societies may decide they can't tolerate this sort of genetic manipulation. Potentially what you're suggesting is the destruction of embryos that are regarded as unsuitable.

(05:10) **JRJ:** Yeah, for example, because of the history that eugenics has in the western world, views about using this technology for what are essentially neo-eugenic purposes in the West, are largely

negative. By comparison, the Chinese academic, scientific and political establishment is almost 100% in favor of using emerging biotechnology, to enhance, say the IQ of its population. And the specific factors of intelligence that can be manipulated by this process are the very ones that lead to engineering breakthroughs, which historically, unfortunately found their first manifestation in military technology.

(05:45) **JM:** So, it's possible that a country like China, or Japan, or India, if it so chose, or the United States, if it so chose, could develop a race of super intelligent people.

(06:01) **JRJ:** Yes, and even within a single country. If only the wealthy have access to this kind of technology, you can see class disparity, class distinctions, turn into real cast distinctions, between genetic aristocracy and others who are not so genetically fortunate.

(06:21) **JM:** So, on the one hand it looks like this is an incredibly positive development, but on the other hand there are some frightening societal implications.

(06:30) **JRJ:** And the societal implications are even more significant when we think about genetic engineering, which actually does modify the genetic structure of an embryo. And with that we can also, let's say, lengthen lifespan. It's been found that mice who have been genetically engineered for a longer lifespan also have compressed morbidity, meaning that at the end of their lives, they decline very quickly. They don't go through a prolonged, you know, aging process. And, we would also be able to enhance physique. The same techniques that were initially developed to treat Lou Gehrig's Disease, have been applied for boosting muscle mass, and decreasing chances of obesity. Then, in terms of cognitive functioning you also have genetic engineering techniques that were developed initially to treat Alzheimer's, that have now been used to boost memory capacity by 2 or 3 times.

(07:37) **JM:** 2 or 3 times? That's extraordinary.

(07:41) **JRJ:** Yes.

(07:42) **JM:** So, when you think about increasing intelligence, increasing memory, increasing lifespan, increasing muscle mass, the potential is to... well, it sounds as if what you are saying, let us say 100 years from now, human beings will be very different than they are today.

(08:02) **JRJ:** Yes, and those particular enhancements, if you consider those enhancements, sound very positive. But genetic engineering also gives us the capability of splicing human and animal genes, and we really ought to ask ourselves whether we really want to create a hybrid species. And I think that's not a decision that ought not to be left to one country or culture, let alone a corporation operating in the global free market.

(08:27) **JM:** Well, you're suggesting that there needs to be some sort of international cooperation.

(08:32) **JRJ:** Or a global regulatory mechanism, that's right.

(08:36) **JM:** So, in other words, this technology that's already in the pipeline is going to force new kinds of international regulatory processes.

(08:53) **JRJ:** Yes, and it's not only biotechnology that forces us to ask those questions. Although, before we move on to any other type of technology that does that, let me just mention one of the most controversial biotechnology is human cloning. And even if we were to have a fairly wide spread consensus that human cloning for the reproduction of identical persons, in other words, creations of large numbers of twins, is not a great idea. Human cloning is implicitly part of, lets say, embryo selection because its often the case that when you insert an optimal embryo, it doesn't take the first time and you need to insert another one. So, if you've already found an optimal embryo, the idea is that if you could clone that a number of times you could have repeated attempts at implantation. So, cloning is going to be part of embryo selection, and then there's no telling how else it might be used, since it's being developed as a process to augment that perhaps more acceptable form of biotechnology.

(09:54) **JM:** Well, it raises enormous questions about the legal status of clones. If I create multiple clones of myself, are they my children, are they my slaves, are they independent, autonomous persons?

(10:11) **JRJ:** That's right.

(10:12) **JM:** And there are societies today that have quasi slavery, very much akin to real slavery.

(10:23) **JRJ:** Well, the worst thing that may happen with biotechnology, which also brings us into the domain of robotics, or cybernetics, is that we might decide, or some country or culture might unilaterally decide to genetically engineer a race of slaves, in other words, biomechanical robots, who they somehow justify as not being human beings, and therefore not qualified to have human rights.

(10:47) **JM:** Yeah, I can well imagine you might find a way to minimize the capacity of an individual to exercise their own free will.

(10:59) **JRJ:** And to incorporate elements from the genome of other animals to make it possible for these humanoids to work under adverse environmental conditions that would be difficult for humans to tolerate.

(11:10) **JM:** I mean, these are the kinds of things that science fiction writers have been speculating about for generations. And you're suggesting we're about to enter into an era where we have to confront the reality...

(11:25) **JRJ:** That's the challenge of my generation.

(11:28) **JM:** Well, let's talk about some of the other technologies, such as artificial intelligence and robotics, that may converge with biotechnology.

(11:41) **JRJ:** Well, in terms of computer technology, I think the most challenging development is going to be virtual reality. We've had various primitive virtual reality systems or attempts at virtual reality. Within my generation, I think we are going to have fully immersive virtual worlds that we won't be able to tell apart from the real one. And, given how significant of a problem online addiction is, right now, and given how the age ceiling is rising amongst people who participate in say, the world of Warcraft, these immersive simulacrums...

(12:20) **JM:** Today, you have to wear goggles, or some sort of apparatus to immerse yourself.

(12:25) **JRJ:** Right, these may become very lightweight glasses, or even contact lenses, and haptic suits may be developed that give full body tactile feedback. So, you can imagine large segments of a developed society checking out of reality and losing touch with people and losing themselves in virtual worlds. It could become the most addictive drugs there's ever been in human history.

(12:49) **JM:** Well, that's very interesting, especially if society allows these people to somehow get by financially.

(12:59) **JRJ:** Right, and of course, again, it's a dual use technology. There are all kinds of positive applications for virtual reality. It allows any surgeon to be, to have a telepresence at a surgery for which he is uniquely qualified to give his expertise. It would allow, let's say, in the context of long distance space exploration, people to be able to tolerate those voyages much better than they can now. Virtual reality would allow, for example, for miners on the moon to be able to endure that long-term isolation.

(13:33) **JM:** I see, it would break up the monotony.

(13:34) **JRJ:** Absolutely. I mean they can effectively transport themselves to any environment that they wish. So, there are positive applications of virtual reality all the way down to mundane ones like architectural planning, which is the most common use today. But then there are these dangers of addiction. On a more metaphysical level, the fact that we've had all these films that call into question whether we're living in the actual world, or whether we're living in a simulacrum...

(14:02) **JM:** *The Matrix...*

(14:03) **JRJ:** Yeah, *Matrix*, *The Thirteenth Floor*, you know all of these films that we had around the turn of the millennium. I think they are portents of a civilizational crisis. If you have a whole society that begins to question whether it's living in the real world, I think that society becomes vulnerable in comparison to others that are more grounded.

(14:22) **JM:** Well, all of this technology is new. I mean, human beings evolved in a completely different environment, we were part of the animal kingdom in our earliest generations. Now it seems as if human civilization has separated itself a good deal already from our fundamental nature.

(14:47) **JRJ:** Yeah, and you can see this at various stages in the development of simulacra. For example, when the first cinema films were developed, the people who sat in theaters where black and white films were projected on the screen and saw, say, an oncoming train, actually fled toward the exit because they were afraid of being run over. So, our minds slowly adjusted to the sophistication of these simulacra, to the point that we are now going to be able to evoke realities that are indistinguishable from our ordinary experience.

(15:20) **JM:** Another area that seems to offer some promise is the idea that we will be able to implant computer chips and other sort of bionic devices inside our bodies.

(15:32) **JRJ:** Yeah, and this is a way in which a virtual reality, or the technology of simulations, converges with robotics. You have this proliferation of drones, especially in the context of warfare now. One of the technologies that the Pentagon is developing under DARPA, is the ability to project a pilot's mind into a drone through virtual reality, so that they really feel like they are flying in whatever environment the drone is patrolling. And, through a haptic suit, they get tactile feedback from the airframe of the drone, so this begins to give the drone operator a different sense of embodiment than a human being ordinarily has.

(16:17) **JM:** In other words, they might be able to feel the air pressure, the wind...

(16:22) **JRJ:** Exactly, and on top of that there are brain interfaces being devised to allow the pilot to control the movements of the drone without any explicit commands, in other words by thought alone. The aim there is to improve reaction time in aerial dog fights, lets say. If you combine that with fully immersive virtual reality, including tactile feedback from the airframe of the drone, is that really a human being anymore? Will these drone pilots begin to dream of themselves as some other type of creature?

(16:59) **JM:** Well, it seems to me likely that as people become specialized, we might even breed a certain variety of humans for the purpose of operating a drone or engaging in undersea explorations, or various specialized purposes. The possibilities are almost endless and this is where the notion of apocalypse becomes frightening perhaps.

(17:28) **JRJ:** Let me give you one other example from robotics that's rather frightening. One of the recent advancements in robotics research is biomimetic design, the idea that we should look to insects and other nonhuman creatures for inspiration, for engineering and robotics. In particular, they've developed robotic spiders and robotic flies that would be ideal for surveillance. These can crawl underneath your door or fly in through your window. They look like a real insect, and yet they're providing surveillance.

(18:03) **JM:** Involving nanotechnology, for example.

(18:06) **JRJ:** Yeah, highly miniaturized components. So, what kind of a world would this be where you don't know if the insects you're trying to swat inside your home are actually surveillance drones. Another development that's related to this is work on transformers, robots that can shapeshift. This is going on at Carnegie Mellon, I believe, where you could have a biomimetic insect robot that changes from being a spider into being a fly. It reorganizes its structure. So, you think you've gotten rid of the spider, or it's gone off, you know, wherever it wants to, yet the fly is the same robot that's transformed itself and it's continuing to offer surveillance footage to whoever is controlling it.

(18:50) **JM:** Well, Jason, since you've recently won an award from the Parapsychological Association, I suppose it's appropriate to consider what are the psychological, the psychic, and the spiritual implications for humanity.

(19:05) **JRJ:** Well, one way in which these developments in more material technologies are related to psi research, is the question of privacy. If we were to have robotic insects all over the place, collecting intelligence, then essentially, we live in a world where there's no longer privacy. Well, those are the same dimensions of the question of telepathy or clairvoyance that I think, subconsciously, have terrified people for so long. The idea that you might not be alone in your private spaces. So, if we're confronted with that prospect through more material technological developments, it's also possible that it will, for better or for worse, open people's minds to clairvoyance and...

(19:48) **JM:** I see, it might create the kind of a world where people are forced to confront aspects of themselves they'd rather keep hidden.

(19:57) **JRJ:** We're already living in a world without privacy anyway, so what harm could clairvoyance do on top of this. The robotic spiders are a more serious threat to our privacy. Now of course, what this

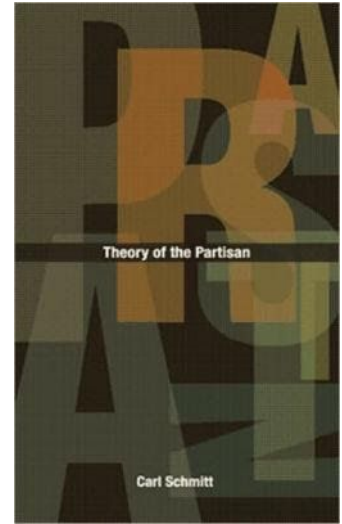
means though is that we need to move towards a maximal trust society. These kinds of developments can't take place unless we have more faith in our fellow human beings than we do right now.

(20:20) **JM:** Well, we seem to be living in an era of distrust where the major institutions in our culture across the planet are being called into question by the masses of people.

(20:32) **JRJ:** Yeah, the German legal theorist and political philosopher, Carl Schmitt, once advanced the thesis that there could never be a unified government of humanity, because the constitution of any given people is always defined by an external enemy. Toward the very end of his life he reconsidered this with a view to the question of technological advancements. He postulated, in the *Theory of the Partisan*, his very last book, that convergent advancements in technology could represent a kind of universal threat to humanity, and so therefore they could also serve as the basis for the unification of humanity.

(21:08) **JM:** I see, well that sounds like a reiteration of the Frankenstein myth, in effect.

(21:15) **JRJ:** Yeah, so this concept of technological apocalypse that I'm developing is in a way a continuation of the thesis of *Prometheus and Atlas*. So apocalypse or revelation, of the essence of technology would also be a revelation of the archetypes of Prometheus and Atlas, as I discussed them in that work. In other words, what could give us a higher trust society, a society deeply unified by a single ethos, is more attention to the specters or archetypes that have been driving technological development from the outset.



(21:48) **JM:** You seem to be hinting all along here, that the only way to really have some sort of wise development of these convergent technologies, is through some sort of a planetary government.

(22:03) **JRJ:** Yeah, I think that's true in all of these cases. It's harder to see with virtual reality, but there the question is, we need to come up with some kind of ontology, some kind of basic theoretical understanding of nature, that allows us to be sure we are living in reality, because otherwise, I think, it will have very destabilizing effects on society.

(22:26) **JM:** How can we possibly move towards the required wisdom to do this? It seems as if our technological development is outpacing our ability to grow inward?

(22:41) **JRJ:** Indeed, it does, and oftentimes things happen before you're ready for them. I think that if we are able to someday go out and explore the cosmos, if we make it past this technological apocalypse, we will find that this crisis has occurred in the histories of all intelligent species. That there comes a time when technologies are developed that call into question the very form of life of a certain



species and they have to grapple collectively, to come to a self-understanding, that allows them to use these technologies for the purposes of their flourishing rather than a degradation of their existence.

(23:20) **JM:** Well, it seems as if these days, if you were to look at human life on this planet, it seems to be driven largely by the profit motive. The wellbeing of people in general seems to be secondary.

(22:36) **JRJ:** Yes, so for example, in the case of biotechnology, I think, regardless of what people's opinions on it might be, there's no way to avoid a global caste system, or even possibly a speciation of humanity unless we move towards a socialist economic system that subsidizes whatever approved forms of biotechnology there are.

(24:00) **JM:** In other words, the technological advances may force certain kinds of social changes...

(24:08) **JRJ:** ... and economic ones...

(24:11) **JM:** ... economic changes, but if people aren't ready for those changes, surely there's going to be a great deal of resistance.

(24:17) **JRJ:** I think there will be. I think it will unfortunately be a violent process.

(24:20) **JM:** So, we may be, in spite of the enormous potential, the positive promise of these developments, you're suggesting the negative potential is at least equal if not greater.

(24:34) **JRJ:** This is the great cauldron of our history we're about to pass through.

(24:38) **JM:** Cauldron is an interesting word because it suggests lots of things are bubbling up and it could be quite chaotic.

(24:46) **JRJ:** Yes, it will be an alchemical transformation, I think.

(24:48) **JM:** And, who knows how long it will take for the human species to process all of this or if it will ever end, because there will undoubtedly be ongoing technological developments as far as we can see into the future.

(25:04) **JRJ:** There may be, but I really do think that this represents a kind of singularity. I think the period before it and the period after it will be incommensurate with one another, and in that sense, it's a classical catastrophe. I think this is a one-shot deal essentially. You can gain a very concrete projection of the timeframe that we have to get our act together. If you look at, say, computer processing advancements, that allow for more adequate gene sequencing, or if you look at the rate of

development in virtual reality technology, all of these seem to suggest that we have not more than another 30 years to develop some means of global regulation for these convergent technologies.

(25:45) **JM:** In other words, in the next 30 years or so the very meaning of what it means to be human is likely to change.

(25:54) **JRJ:** That's right. In the next generation.

(25:56) **JM:** Well, Dr. Jason Jorjani, this has been a very stimulating interview. Thank you so much for being with me.

(26:03) **JRJ:** It's been a pleasure being with you again, Jeffrey.

(26:05) **JM:** And, thank you for being with us.

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