

AI Development in Russia — Part 1 (<https://mindmatters.ai/podcast/ep103>)

Robert J. Marks:

What are American adversaries doing with artificial intelligence? That's the topic today on Mind Matters News.

Announcer:

Welcome to Mind Matters News, where artificial and natural intelligence meet head on. Here's your host, Robert J. Marks.

Robert J. Marks:

Greetings. Let's talk about Russia and their artificial intelligence research and development. In 2017, Russia's leader, Vladimir Putin said, "Whoever becomes the leader in artificial intelligence will become the ruler of the world." This probably means both economically and militarily. How have his words taken root in Russia? We have a perfect guest to talk about this today. Our guest is Samuel Bendett. He is an advisor with the CNA Adversary Analysis Group, where he is a member of the Russia Studies Program. He is also an adjunct senior fellow at the Center for a New American Security. His work involves research on Russian defense and technology developments. He is also a member of CNA's Center for Autonomy and Artificial Intelligence. There's more info in the podcast notes about CNA and CNA's Center for Autonomy and Artificial Intelligence. So we have the perfect guest because he has one leg in the area of Russia, he has another leg in the area of artificial intelligence and we're going to talk about the intersection of those two specialties. Sam, welcome.

Samuel Bendett:

Thanks for having me on your podcast.

Robert J. Marks:

We're delighted to have you. I noticed that you're natively fluent in Russian.

Samuel Bendett:

That's correct.

Robert J. Marks:

So if you go to Russia and you talk there, they won't think you have an accent?

Samuel Bendett:

They won't but I was born there.

Robert J. Marks:

Oh, you were born in Russia?

Samuel Bendett:

That's correct.

Robert J. Marks:

Okay. So you spent your youth there. That's the best way to get a language. And how long did you live there? Where are you from in Russia?

Samuel Bendett:

So I was born in Moscow and I lived there until I was about 14 years of age. And then my family brought me to the United States.

Robert J. Marks:

So is English an acquired language or did you learn that also?

Samuel Bendett:

It's technically an acquired language, but it is also a second native language.

Robert J. Marks:

What I want to talk about today is the civilian Russian artificial intelligence development. What is going on in Russia in terms of development of artificial intelligence in, I can't say the private sector. I don't know if Russia has a private sector. But in things which are not military. What is the emerging AI ecosystem in Russia right now?

Samuel Bendett:

You made a very good point about drawing attention to what private sector is or isn't in Russia. Right now, the state, the Russian state, the Russian government is probably the biggest investor in the nation's high tech development. In other words, investments in military companies and organizations and military enterprises and many industrial enterprises are actually done by the state. The private sector also depends, to a certain point, on the investment from the Russian government and Russian government institutions designed to offer financial support to high tech projects. So the state has an overwhelming share in the development of high tech in general. Certainly that's the case for artificial intelligence as well. Until recently, probably until maybe five or six or seven years ago, we didn't really hear much about what Russia is doing with artificial intelligence. By the admission of the Russian government, there wasn't really an ecosystem in Russia to support a lot of the efforts and a lot of the projects that we're hearing about today.

Samuel Bendett:

A lot of young entrepreneurs, a lot of bright young people chose to immigrate or at least work overseas for some time because they couldn't really bring their projects to fruition in Russia. They couldn't get the same level of funding, investment, they couldn't get the same level of support. In other words, they couldn't get what the Silicon Valley's providing or what, for example, the Israeli high tech community's providing or what high tech communities can acquire from their funders and sponsors in the West. And so today, the government is engaged in trying to develop this support ecosystem almost from scratch. So the Russian government is launching initiatives designed to bolster and support the high tech community, designed to offer financial support, professional support, logistics, legal support. Essentially,

they're trying to create what Silicon Valley investors, and angel investors and venture capital firms have been offering to the willing parties for decades.

Samuel Bendett:

And so there are multiple projects launched by the Russian government and backed by the Russian government that offer support to the entrepreneurs, as well as to the academia that is engaged in high tech development. So one such organization is called The National Technologies Initiative. It is supporting multiple projects and high tech development, including artificial intelligence. NTI, or National Technology Initiatives, is part of the Agency for Strategic Initiatives, a government institution that was stood up to help develop the ecosystem. Another organization is the Russian direct investment corporation and its subsidiary, the Russian venture capital firm, the RVK. RVK also funds artificial intelligence support and so on and so forth. So there are multiple projects and multiple organizations that are now supposed to convince a lot of Russians that they can in fact, get the same level of support and backing in Russia proper, that they could potentially get overseas if they chose to leave.

Robert J. Marks:

Well this is very interesting. I think in the United States, there's something similar. I don't see in the United States, a lot of financial backing of private businesses. There are certain programs called SBIRs, for example, that are given to small businesses, but most of the US backing is through grants to universities and such, I think we'll be talking about that later.

Samuel Bendett:

That's because in the United States, the private sector backing is very developed and very mature. So we're talking about the investment firms, investment corporations, venture capital firms, and this entire kind of financial/logistical infrastructure that exists to support an idea that could be taken from its inception to market capitalization. So an organization, a team in the United States can travel to the Silicon Valley to pitch their ideas to venture capital and to angel investors who can then take it upon themselves to back and support this project through and through. We're referring to that type of infrastructure. In Russia until recently, that infrastructure really was at the very nascent level or was absent altogether. In other words, for many entrepreneurs, for many ideas, especially when it comes to artificial intelligence and machine learning, there weren't that many outlets that they could go to in order to get their idea funded and supported. And that is what the government has recognized and that is what it is trying to mitigate right now. To develop an ecosystem almost from scratch.

Robert J. Marks:

So they're trying to jumpstart the financial backing that already exists in the United States then?

Samuel Bendett:

That's part of it. Yes. And that comes on a recognition that Russian STEM talent or a Russian talent in science, technology, engineering and mathematics has been strong consistently for many decades. Even after the end of The Cold War, the Russian STEM education has been very strong. In fact, that was recognized by the Russian President when he spoke about AI development in his country last year. But a lot of these bright young people who have great education in math or physics and other STEM sciences, again, they couldn't quite get the same level of support in the private sector, which really wasn't there, or the government sector when it came to getting funding and support for their high-tech ideas, including artificial intelligence development. I'll give you an example.

Samuel Bendett:

One of the most famous Russian artificial intelligence companies is NTech Lab. They develop facial recognition software and they are a globally recognized brand. And their solutions are actually some of the best in the world. So the NTech Lab founder basically argued against the concern over the brain drain by saying, "Give people the money, give them the support." So his company received backing and for three months, the founder and his colleagues were basically just locked away in their basement, tinkering away with a program and they were left alone. But they were given money and support. And once they had the product, that product was taken sort of to the market. Russia until recently wasn't quite the market for facial recognition that it has become now with the COVID and other restrictions that were imposed on the population. But this high tech entrepreneur, this private sector success story basically said, look, government has to act like a Silicon Valley venture capital firm, support the ideas. And most importantly, take risks. In fact, this is something that is probably uniquely Russian.

Samuel Bendett:

When we think about high-tech development, when we talk about high tech products like AI and machine learning, there's a certain level of risk involved. Not every high tech idea makes it through. So venture capital firm, when it funds, let's say a dozen projects has to recognize that, oh, those dozen projects, maybe one, two, maximum three will actually make it. Other ideas will not make it, the project will fold. And so that type of risk taking is part and parcel of the Western, and in some parts of Asia venture capital, or financial support mechanism for high tech investment.

Samuel Bendett:

In Russia, until recently there was a lot of fear of failure. So let's say, a lot of financial firms were afraid to fund the projects because they weren't sure if they were going to succeed. A lot of entrepreneurs were also afraid to get funding because they weren't sure if their idea would succeed. So the President of the country and the government spoke recently about the need to incorporate risk taking in bagging high tech projects, because that type of risk taking is part and parcel of the very process of developing high tech products.

Robert J. Marks:

Yes, absolutely. Yeah. I think that entrepreneurship requires high risks in order to be successful. Do I get the sense from you, Sam, that Russia is turning the corner and starting to embrace free enterprise and capitalism, at least in an indirect sense?

Samuel Bendett:

Well, I wouldn't take it that far. But they are actually turning the corner when it comes to certain parts of private sector or even government sector development, and specifically talking about high tech development. Meaning in order to back high tech projects, you need to take risks, you need to have financial backing, you need to have institutions in place that can not just back an idea financially, but walk them through all the logistics, to provide them with an environment where entrepreneurship and idea generation can thrive. And so the National Technologies Initiative that I mentioned earlier is one such institution, one such initiative that is national in scope, and is supposed to provide support to the Russian high tech community. Of course, on paper, everything looks very positive. Reality would be very different as more and more NTI efforts are rolled out across the country. Again, private sector in Russia is still very small. A lot of private sector is state dependent. And so I would label it as state and non-state efforts.

Robert J. Marks:

Let's talk about the initiative of these people that are doing the research. And I want to return to the idea of capitalism. Are they guaranteed in some sense that they are going to harvest some of the fruits of their work if successful? Do they get to keep the money or does all of it go back to the government? I'm wondering this because I think that keeping the money is a big incentive for entrepreneurship.

Samuel Bendett:

That's a very good point. And certainly based on the previous private sector experience in Russia, one would be completely correct in expressing that concern. Until recently, there was a lot of concern amongst the private sector, whether they could keep the fruits of their labor. But again, there's a recognition, the Russian government, and a lot of the institutions that manage high tech development, that they must allow entrepreneurs and idea generators to keep the fruits of their labor, at least up to a certain point. Otherwise people will simply immigrate. And so a lot of high tech entrepreneurs, a lot of very bright young people left Russia in the 90s and early 2000s precisely for that reason. Because they weren't sure if they were to develop a high tech product, they weren't sure if they would be allowed to keep it and to enjoy the financial landfall from it. Now, again, there's a recognition, the government that it must support entrepreneurs at all levels. And especially when it comes to high tech development, it must assure the young people that the fruits of their labor are theirs to keep.

Robert J. Marks:

Excellent. You mentioned NTech. Who are some of the other major players that have been successful in Russian development of artificial intelligence?

Samuel Bendett:

Well, there are multiple ... There's a company called ABBYY. There are a range of organizations, both kind of in the private sector, as well as in the academia. In fact, one of the focal points for Russian AI development in the academia is Moscow Institute of Physics and Technology MIPT or Phystech as it is known by the Russian acronym. And so Phystech/MIPT works with a lot of private sector companies, it works with other universities, it works with the state and government sector on developing artificial intelligence solutions.

Samuel Bendett:

But I mentioned NTech Lab because it is a very relevant success story. The facial recognition software they develop is in fact used right now in Russia to monitor the population because of the COVID restrictions, which are slowly being lifted. But at the same time, MIPT and another big organization, kind of a state defense contractor, a state defense enterprise called Rostec or Russian Technologies, a massive umbrella organization that has several hundred subsidiaries working on all kinds of industrial and high tech development. Rostec is also engaged in artificial intelligence development for the military and for the civilian. What the government has recognized is that there are a lot of interesting ideas in the civilian sector that are not necessarily used by the state. And so it has called for the private entrepreneurs and the private sector to work with the state. How that turns out still remains to be seen.

Robert J. Marks:

So what are some of the other products? You mentioned facial recognition, where are some other shining examples of Russian entrepreneurship?

Samuel Bendett:

Image recognition, speech recognition are some of the shining examples of Russian entrepreneurship. In fact, my CNA Russia team is compiling news and information on Russian AI development every two weeks. And we actually put out a newsletter on our CNA website, where you can read about the major developments in the civilian and the military sectors of Russian AI. And so I invite your listeners to check it out. And so our newsletter has recognized multiple projects. Again, a lot of them are coming out of universities and a lot of them are also coming from state bank entities. But speech and image recognition is something that the Russians are getting better and better at.

Robert J. Marks:

We will make available links to the CNA site on the podcast notes. I'm wondering, I still get back to this idea of free enterprise. This kind of intrigues me. The role of government, I guess, is to fund and vet these different projects. Is there ever going to be a case where, and is this allowable, where a company becomes so successful that they're allowed to seed other businesses?

Samuel Bendett:

I think so. I think that's where a lot of these efforts are actually heading. Russia doesn't want people to leave the country and basically use their talent to the benefit of let's say, United States and the Silicon Valley or other countries. It wants those young people to stay in Russia. And in order for the high tech community to thrive, which in many ways is a very different goal than allowing for example, industries or agriculture to thrive, it must allow for their people's creative elements to flourish and function unimpeded. It may be a difficult mental sort of challenge right now for a lot of Russian government officials and institutions because of the overwhelming role of the state in country's life for the past several decades, and obviously stretching all the way back to The Cold War. And so everyone is learning as they go. The entrepreneurs who are slowly starting to utilize the Russian high tech support ecosystem, the government institutions and ministries that are administering this assistance and other parts of this sort of ecosystem, which are supposed to function together.

Samuel Bendett:

Another element is that all of this is very new. So unlike the Silicon Valley, which had many decades to mature, unlike American financial sector, which also had many decades to kind of go through high tech support cycles and investment cycles, through booms and the busts. In Russia, all of this is less than five years old in total. And so a lot of the projects were launched, and we don't quite know how they are going to succeed, but the fact remains that they have been launched. Now, some of the private sector are skeptical and some of the government may be skeptical as well. And so everyone is kind of feeling through as they go along.

Robert J. Marks:

I wanted to talk about academia a little bit. I know that in Japan and Europe, universities are very closely linked with industry and most projects, which are going on, that I'm aware of in Japan and Europe are linked to private industry. It's much different in the United States. We are funded, university professors like me, are funded by private companies, but usually it's not very much money compared to what we can get from the US government, from The National Science Foundation, National Institutes of Health and The Department of Defense. Which side would you say that Russia is on, more the American side or more the European, Japanese side where they're tightly linked to industry?

Samuel Bendett:

So right now, all of the top Russian universities, the ones that make it into the national ratings, the MIPT, The Higher School of Economics, the Moscow State University, and many, many others are actually state funded. They have the name state or federal in their title. And so the government funds a very significant portion of the nation's best education. I wouldn't say that the universities are specifically tied to the industry, at least not yet. But the industry is recognizing the importance of high tech talent in the country's academia. And so more and more companies and corporations are starting to establish their own centers of excellence. So research and development efforts within Russian universities, but again, to reiterate the state supports most of Russia's top education and probably will do so for the foreseeable future.

Robert J. Marks:

Excellent. Excellent. Thank you. Thank you, Sam. We've been talking to Samuel Bendett. He's an advisor with the CNA's Adversary Analysis Group where he's a member of the Russia Studies Program, he is also a member of CNA's Center for Autonomy and Artificial Intelligence. And that wraps it up for this time for Mind Matters News. Until next time, be of good cheer.

Announcer:

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