

CNA

August 2020



Artificial Intelligence in Russia Issue 9, August 28, 2020

The Russia Studies Program

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.
Cleared for public release.

DOP-2020-U-027966-Final

Abstract

This report, the ninth in a series of biweekly updates, is part of an effort by CNA to provide timely, accurate, and relevant information and analysis of the field of civilian and military artificial intelligence (AI) in Russia and, in particular, how Russia is applying AI to its military capabilities. It relies on Russian-language open source material.

CNA's Occasional Paper series is published by CNA, but the opinions expressed are those of the author(s) and do not necessarily reflect the views of CNA or the Department of the Navy.

Distribution

DISTRIBUTION STATEMENT A. Approved for public release: distribution unlimited.

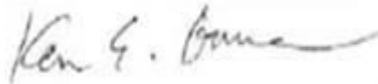
8/28/2020

This work was performed under Federal Government Contract No. N00014-16-D-5003.

Cover image credit: "Su-35," Sukhoi, <https://www.sukhoi.org/products/samolety/256/>, accessed August 27, 2020.

Approved by:

August 2020



Ken E. Gause, Research Program Director
Adversary Analytics Program
Strategy, Policy, Plans, and Programs Division

Request additional copies of this document through inquiries@cna.org.

Contents

Governance and Legal Developments	1
1. Funding cuts planned to AI federal project	1
2. Officials shed light on experimental legal regime operations.....	1
3. Government seeks to reduce privacy as citizen trust in AI declines.....	3
4. Russian government seeks to defend against fakes, even as experts shrug	4
5. Safe City programs advance with new decrees.....	4
Military and Security Developments	7
6. MOD drills with an automated control system for missile command	7
7. Unmanned helicopter flies autonomously in the Arctic	7
8. ERA Technopolis hosts military robotics conference.....	8
9. Rostec company develops urban infrastructure control system.....	10
Corporate and Market Developments	11
10. Russian company testing driverless cars in Michigan.....	11
11. Russian company using AI for perimeter surveillance	11
12. Russian English-language app enters Latin American market	12
13. Russian banks increase NTI investments	12
14. ALRII seeks to simplify private sector AI efforts	13
Education and Training Developments	14
15. Ural Federal University, MIPT, and Ural Center for Security Systems to create joint master’s program in IT security.....	14
16. Neural networks used to detect cheating on annual state exam.....	14
17. Gazprom increases R&D with universities.....	15
18. AI competitions supported by state and industry continue.....	16
Article: AI for Munitions Storage.....	18
Spotlight: AI in Russian Manned Aircraft – the Su-35S.....	20
In Brief: Russian Government Agencies Announce Initiatives Utilizing AI.....	21

This page intentionally left blank.

Governance and Legal Developments

1. Funding cuts planned to AI federal project

The newspaper *Kommersant* reported on August 17 that the Ministry of Communications planned a significant reduction in funding to the AI federal project. In early 2020, the plan was to spend 125 billion rubles (\$1,675 million), including 89,7 billion from the federal budget, through 2024, but now the plan is to spend 27,7 billion rubles (\$371 million), of which 22,4 billion are from the federal budget. The cuts have to do with reductions in federal budget spending due to the COVID-19 pandemic. While government officials wouldn't go on record to confirm the numbers of the budget, which are yet to be finalized, unnamed sources noted that this may not be a reduction in practice because efforts were likely to be financed from budgets of other federal efforts focused on digitization. Some cautioned that there could be further cuts to budgets focused on digitization due to the lingering impacts of the COVID-19 pandemic on the Russian economy. Others noted that the government's interest in AI could be cyclical and, due to the pandemic, the focus could shift toward biotechnologies and related areas. Still others posited that, even in an environment of spending cuts, the government needed to focus on stimulating demand, investing in education efforts, and removing regulatory limits on employment of large user datasets. According to a KPMG Russia representative, government subsidies could slow down development efforts because they stimulate "not AI technologies, but technologies of receiving government subsidies." *Please see past issues of AI in Russia on discussions of the AI federal project, including its potential merger into the Digital Economy effort.*

Source: Dmitry Shestoporov, "Artificially inflated intellect" [Искусственно раздутый интеллект], *Kommersant*, Aug. 17, 2020, <https://www.kommersant.ru/doc/4457564>.

2. Officials shed light on experimental legal regime operations

At an online conference on the new digital legal sandboxes organized by the *Kommersant* newspaper on August 11, the deputy minister of economic development, Vladislav Fedulov, gave details of how the government will apply the experimental legal regime when it comes into force. The steps of the process as he formulated them are as follows:

- A legal entity or independent entrepreneur conceptualizes an experimental legal regime and sends documents justifying its feasibility, explaining how the regime will be useful for consumers.
- The Ministry of Economic Development then checks the plan for several factors, including the background of those in the company's management to see whether they have ever been sued, the finances of the company to see whether it has any debts, and any other grounds included in the law.
- If the regime passes this check, the Ministry of Economic Development sends the plan to the sectoral ministry relevant to the subject matter of the proposed regime and to the "organization of the business community."
- If the sectoral ministry does not raise any objections, the Ministry of Economic Development prepares a draft governmental decree on approval of the regime, which indicates its period of validity, its participants, and the date of its introduction. In addition, in the future, by decree of the sectoral ministry, other companies could also join this regime.
- Fedulov also stated that, in the case of experimental legal regimes in the areas of control and supervision, public services, and finance, the state will act as the initiator of the potential regimes and the central bank will review the proposals. The Ministry of Economic Development is in the process of preparing 17 by-laws on the implementation of the law, and plans to adopt them by the beginning of fall.

At the same online conference, the chairman of the Skolkovo Board, Igor Drozdov, said that Skolkovo, a Russian innovation center, is interested in using an experimental legal regime to develop unmanned vehicles and telemedicine. The organization hopes that, under the regime, it can test unmanned vehicles within a limited area, and solve issues in telemedicine, as full-fledged telemedicine is not yet operable within Russia. Drozdov highlighted the importance of introducing the sandboxes in the near future so that testing can begin on certain technologies, and stated that sandboxes are important for experimenting in a limited capacity with technologies that arouse suspicion in citizens.

Source: "How the law on digital sandboxes will work – Deputy Minister of Economic Development" [Как будет работать закон о «цифровых песочницах» – замминистра экономического развития], D-Russia.ru, Aug. 11, 2020, <https://d-russia.ru/kak-budet-rabotat-zakon-o-cifrovyh-pesochnicah-zamministra-jekonomicheskogo-razvitija.html>; "The law on 'digital sandboxes' will allow Skolkovo to develop telemedicines and drones" [Закон о "цифровых песочницах" позволит "Сколково" развивать телемедицину и беспилотники], Aug. 11, 2020, <https://futererussia.gov.ru/nacionalnye-proekty/zakon-o-cifrovyh-pesocnicah-pozvolit-skolkovo-razvivat-telemedicinu-i-bespilotniki-1>.

3. Government seeks to reduce privacy as citizen trust in AI declines

On July 21, the Russian Ministry of Economic Development introduced an initiative to temporarily abrogate citizens' rights to privacy of correspondence, telephone conversations, and medical records, as an experiment aimed at removing barriers to the development of digital technologies, including AI systems. In addition, Russia may also rescind the mandatory written permission required for processing personal data. The bill is currently in the approval state, with possible approval from the State Duma soon. Several Russian organizations hold a stake in the passage of this project. For example, the National Medical Knowledge Base and Innopraktika Foundation want to rescind the medical privacy requirements in order to utilize AI when diagnosing patients, analyzing their conditions, and deciding on a course of action. The big data associations desire the abolition of the right to privacy in correspondence and telephone conversations so they can utilize banking, subscriber, and other data that would permit them to give more precise advice to entrepreneurs.

Separately, a recent study conducted by Synergy.Online, a platform of Synergy University (a Moscow university specializing in industry and finance), found that a greater number of Russians have developed a negative attitude toward AI in recent months, partly because of the coronavirus pandemic. According to the data, 20 percent of respondents said they had a negative attitude toward AI due to a number of concerns, such as the leakage of personal information and the potential violation of personal space, which have only become more acute with the pandemic. They also worry about technical failures and the unpredictability of AI development. This number is up 8 points from the 12 percent of respondents who reported a negative attitude toward AI in January 2020. However, the majority of respondents (42 percent) still reported having a positive attitude toward AI, in addition to the 27 percent who had a neutral attitude and 11 percent who did not have an opinion. Sergei Nikolenko, the director of scientific research at Neuromation (a distributed synthetic data platform for deep learning applications), stated that it is natural for people to be wary about AI, because all new technology invokes doubt. He also emphasized that, while AI will never be perfect, the point is rather to compare it to the situation today and try to improve on the situation as it stands now, rather than trying to get AI to a point where there are zero accidents.

Source: Lilik Mi, "There is a proposal in Russia to make phone correspondence less private" [В России предложили отменить тайну переписки и разговоров по телефону], *Ferra.ru*, July 21, 2020, <https://www.ferra.ru/news/techlife/v-rossii-predlozhili-otmenit-tainu-perepiski-i-razgovorov-po-telefonu-21-07-2020.htm>; "Survey: Russians began to trust AI less because of the pandemic" [Опрос: россияне стали меньше доверять искусственному интеллекту из-за пандемии], *Financial Newspaper* [Финансовая Газета], Aug. 11, 2020, <https://fingazeta.ru/events/meropriyatiya/464641>; Neuromation, <https://neuromation.io/>.

4. Russian government seeks to defend against fakes, even as experts shrug

In July, the Russian government announced that, in order to prevent what it deems false information about Russia from spreading online, it will develop a program to combat the creation of falsities and distortions of Russian national history. Accordingly, the Ministry of Financial Development will allocate funds for the publication of archival documents and their distribution among domestic and foreign audiences.

Rospechat, a company that specializes in the distribution of periodicals and similar products and offers a range of subscription services, proposed to create an aggregator for tracking fake news with the use of AI. This service would supposedly be able to compare the facts of the situation against the message and point out the false parts. When checking a source, the aggregator would look at the authority of the source, the time of publication, and any attached media. According to the company, this service would assist in automating the fight against disinformation publishers and increase the response speed for countering fake stories. The service will be available to private users and companies, as well as supervisory agencies. Overall, Rospechat plans to spend 94 million rubles through 2023 to develop the aggregator.

However, Russian experts did not express much enthusiasm for Rospechat's plan. Alexander Malkevich, first deputy chairman of the Commission for the Development of the Information Society of the Russian Public Chamber, said that, while the project is worthwhile, the disinformation problem is already acute in 2020 and the timeline needs to be sped up accordingly. Yekaterina Mizulina, a member of the Russian Public Chamber, also praised state bodies for beginning to think about the destructive power of disinformation, but identified several problems with the Rospechat proposal, including the fact that there is still little information in the database from which the aggregator can pull and there are continued questions of determining what constitutes a fake.

Sources: Anton Timofeev, "Against lies: Russia is looking for ways to protect against fakes" [Против вранья: Россия ищет способы защиты от фейков], *Gazeta.ru*, *Газета.ru*], July 8, 2020, https://www.gazeta.ru/tech/2020/08/07_a_13185337.shtml; Rospechat [Роспечать], <http://www.rosp/ru>.

5. Safe City programs advance with new decrees

On August 3, the Russian government published a decree that orders video surveillance systems across the country to be connected to the Safe City facial recognition system. The decree amended a previous resolution from the Cabinet of Ministers, nominally dealing with

antiterrorist activities by the National Guard, “On the Approval of Requirements for Anti-Terrorist Security in Places of Mass Gatherings and Objects (Territories) Subject to the Mandatory Protection of the National Guard of the Russian Federation, and Forms of Security Passports for Such Places and Objects (Territories).”

Safe City is a hybrid automated system that integrates CCTV video surveillance, security and fire systems, geolocated public data, emergency communications systems, public utilities data, transport systems, and other automated municipal functions in a centralized information hub that is being deployed across many Russian cities. The system is currently being expanded to connect data from across regions as well as to integrate the use of facial recognition software into video and security surveillance systems that currently exist or are under development. Currently, Safe City is most highly developed in Moscow, where surveillance infrastructure is centralized, extensive, and integrated into advanced facial recognition software.

The decree envisions connecting existing video surveillance across the country to the Safe City system pioneered in Moscow, which will allow for the transmission of video data in real time, include archived videos, and allow for surveillance system processing that will then be used for facial recognition and identification purposes. Moscow has been the leading city using the Safe City system with video surveillance, and the head of the Main Directorate of the Ministry of Internal Affairs in Moscow noted that in 2019, around 4,000 crimes were solved thanks to the system, which also helped in the detention of eight wanted people.

Video surveillance systems have been increasingly installed in Russian cities, with significant purchases of CCTV cameras in the last decade. Most systems are contracted to entities such as Rostelecom, with facial recognition systems developed by MaximaTelecom in Moscow using NtechLab technology. MaximaTelecom also runs the Moscow Metro’s wifi and surveillance apparatus on its metro carriages. The government wants to integrate video surveillance systems nationwide with the centralized “Safe City” system for facial recognition purposes, especially given concerns about monitoring COVID-19 quarantine efforts and contact tracing. Previously, Safe City facial recognition software was used for criminal investigations and public space cleanliness, and not public health issues. Moscow’s video surveillance network has been integrated into facial recognition software since 2017; the rest of the country lags behind, with the exception of a much smaller network covering Saint-Petersburg.

Sources: “Video cameras in places with large gatherings of people are included in ‘Safe City’” [Видеокамеры в местах массового пребывания людей в РФ подключат к ‘Безопасному городу’], *Future Russia*, Aug. 3, 2020, <https://futuraerussia.gov.ru/nacionalnye-proekty/videokamery-v-mestah-massovogo-prebyvaniya-ludej-v-rf-podklucat-k-bezopasnomu-gorodu>; “Systems of Video Surveillance in Places with Large Gatherings of People are included in ‘Safe City’” [Системы видеонаблюдения в местах массового пребывания людей подключат к АПК «Безопасный город»], TAdviser.ru, Aug. 4, 2020, <https://www.tadviser.ru>; “Facial Recognition System in Moscow Metro Carriages Deployed by MaximaTelecom” [Систему распознавания лиц в вагонах московского метро развернет «Максимателеком»], *Vedomosti*, Aug. 4, 2020, <https://www.vedomosti.ru/technology/articles/2020/08/04/835976-sistemu-raspoznavaniya>; Felix Light, “Coronavirus Outbreak is Major Test for Russia’s Facial Recognition Network,” *Moscow Times*, Mar. 25, 2020, <https://www.themoscowtimes.com/2020/03/25/coronavirus-outbreak-is-major-test-for-russias-facial-recognition-network-a69736>; “Megapolis-Wide Security” [“Безопасность в масштабах мегаполиса”], АххонSoft, https://www.itv.ru/verticals/homeland_security/; “АПК Safe City” [“АПК Безопасный город”], Center for Strategic Development of Information Resources and Government Systems, <https://csr43.ru/directions/apc-safe-city/>.

Military and Security Developments

6. MOD drills with an automated control system for missile command

In August 2020 drills, the Ministry of Defense (MOD) tested an automated control system (ACS) that combined the command and control for Tornado-S and Iskander-M long-range missile systems and their high-precision munitions. According to the MOD, the new ACS combines missile forces' and artillery's command and control into a combined reconnaissance and firing system. With the additional information input from drones and radars, this ACS is able to independently detect, and then quickly determine, best methods for neutralizing the targets by selecting the optimal armament and the missile type for a given strike. According to the MOD, the ACS makes it possible to hit targets within minutes of their detection. Currently, this ACS functions via human operator. The MOD thinks that in the future, this automated control system will be equipped with artificial intelligence in order to independently detect potential targets and distribute missile strikes without human intervention.

This is one of many Russian MOD tests involving automated control systems. Previous trials in 2018 and 2019 combined radar, missile defense, and different aerial and maritime assets into a single automated control system with “elements of Artificial Intelligence” for target detection and decision-making. The Russian military is seeking to gain a competitive edge in detecting and neutralizing Western precision-guided munitions (PGMs) that MOD assesses constitute a significant threat to its forces and high-profile targets—and using AI may be the edge it seeks. *For more on the MOD's thoughts about the Russian military's introduction of AI, please see issue 8 of AI in Russia.*

Source: “Double calculation: “Tornado” and “Iskander” are part of a single combat contour” [Двойной расчет: «Торнадо» и «Искандер» замкнули в единый контур], Izvestia.Ru, Aug. 10, 2020, <https://iz.ru/1046036/anton-lavrov-roman-kretcul/dvoynoi-raschet-tornado-i-iskander-zamknuli-v-edinyi-kontur>.

7. Unmanned helicopter flies autonomously in the Arctic

Russian engineers have developed an R-2200 unmanned helicopter, capable of carrying up to 80 kg over distances of up to 200 km in the Russian Far North. The developers claim that the drone will land on a rocking ship deck at sea, or on a moving cargo platform. The developers

also claim that the drone's automatic control system enables the UAV to fly the entire route independently, from takeoff to landing. The developers plan to use this autonomous vehicle for reconnaissance, such as drawing up a preliminary map of mineral deposits or obtaining information about the ice at sea—the drone will be able to carry highly sensitive geophysical scanners. This drone utilizes a human-in-the-loop approach, and, if necessary, the operator can correct the UAV orders and flight path. This development opens up opportunities for widespread use of high-precision remote sensing in areas where this practice was previously very difficult or completely impossible.

With the Russian MOD investing a lot of resources into autonomous/unmanned RDT&E, many civilian developments such as the R-2200 are also on the military's radar. Currently, the MOD is developing several maritime helicopter-type drones, and one of the biggest issues to overcome is landing this UAV on a vessel at sea, taking into account the waves, the temperature, and the wind. If R-2200 solves this problem ahead of the MOD, this drone's technologies and algorithms would find their way to the Russian military.

Source: "Tricky rotor: unmanned heavy-duty helicopter created for the Arctic" [Хитрый винт: создан беспилотный вертолет-тяжеловоз для Арктики], Izvestia.ru, Aug. 13, 2020, <https://iz.ru/1046490/olga-kolentcova-aleksandr-bulanov/khitryi-vint-sozdan-bespilotnyi-vertolet-tiazhelovoz-dlia-arktiki>.

8. ERA Technopolis hosts military robotics conference

On July 29-30, 2020, the ERA (Russia Military Elite) Military Innovative Technopolis hosted the 5th Military-Scientific Conference, titled "The Robotization of the Russian Armed Forces." The conference's main objectives included determining the use of military robotics in the Russian armed forces; and the development of approaches for testing such robotic systems for special, military, and dual-use applications. The conference participants, who numbered over 300, exchanged information on new scientific and technical developments in military robotics, discussed the development of military autonomy in the nation's scientific schools, and developed technical and research partnerships. The annual "Robotization of the Russian Armed Forces" conference was launched in 2016, and serves as a platform for bringing together the MOD leadership, the warfighters, the military academia, and the defense-industrial sector for discussions on the military robotics research, development, testing, and evaluation (RDT&E). One of the conference's main goals is to come up with common standards for the domestic development and testing of combat robotics.

The conference was divided into three sections and two roundtables. The first section was titled “The military, dual and special-purpose robotic systems testing: requirements for the experimental and testing base.” The second was titled “The state of scientific and technical groundwork for the creation of military, dual and special-purpose robotic systems: current problems and solutions.” The third was titled “Existing legal and regulatory framework for the creation, development and use of military, dual and special-purpose robotic systems: current problems and solutions.”

The main presenters included the ERA staff and researchers, as well as representatives from the MOD’s 46th Central Research Institute. Currently, the 46th Institute is the MOD’s overarching research organization for armaments development, and for the methodology formation for the State Armament Program. The institute also develops the MOD proposals for defense acquisition, as well as for military standardization and cataloging of supplies. Additionally, the 46th Central Research Institute is the leading MOD scientific organization for the development of the domestic technological base, the implementation of science-intensive projects in the defense industry, and the preparation of proposals and decisions on the advancements of Russian technologies and scientific achievements.

The event’s roundtables included the discussions on the development of the robotic systems’ technical vision, and the review of robotic systems’ current military uses and applications, organized by the 46th Central Research Institute.

At the conference, the MOD leadership was also presented with samples of aerial, maritime, and land-based unmanned systems for the military and civilian markets. Specifically, they examined underwater robotics and drones that will soon take part in a military-technical experiment to test the underwater monitoring system in the Black Sea. The experiment will be conducted by the Advanced Research Foundation (ARF, Russia’s “DARPA”), and the Russian Navy’s Main Scientific Committee. During the experiment, unmanned systems will demonstrate their capabilities to detect and transmit information about small objects under water in real-time mode. The Russian Navy thinks that using direct data transmission from the underwater drones will significantly increase the speed of response to maritime threats.

The ERA Technopolis (“Tech City”) was launched in 2018 as the MOD R&D and S&T institution, where young military officers can work alongside the non-military and civilian high-tech and defense firms to develop breakthrough technologies for the country’s armed forces. In 2019, the MOD designated ERA as the military’s main AI RDT&E hub. The staff and researchers at ERA are also cooperating with the Advanced Research Foundation to test and evaluate robotic technologies, including swarm applications. *For more on the ARF, please see issue 5 of AI in Russia.*

Sources: "V Military Scientific Conference "Robotization of the Russian Armed Forces"" [V Военно-научная конференция "Роботизация Вооруженных Сил Российской Федерации"], Official website of the ERA Technopolis, accessed Aug. 9, 2020, <https://www.era-tehnopolis.ru/events/v-voenno-nauchnaya-konferentsiya-robotizatsiya-vooruzhennykh-sil-rossii/>; "ERA Technopolis showcased latest underwater robotics" [В технополисе «Эра» показали новейшие подводные беспилотники], Official website of the ERA Technopolis, accessed Aug. 9, 2020, <https://www.era-tehnopolis.ru/news/mass-media/v-tehnopolise-era-pokazali-noveyshie-podvodnye-bespilotniki/>; "Prospects for the development of robotics were discussed at the ERA Technopolis" [В технополисе «ЭРА» обсудили перспективы развития робототехники], TVZvezda.ru, July 30, 2020, <https://tvzvezda.ru/news/forces/content/2020731429-fWKcQ.html>; ERA Technopolis, Official ERA website, accessed Aug. 9, 2020, <https://www.era-tehnopolis.ru/>.

9. Rostec company develops urban infrastructure control system

The IX Forum on the Digitalization of the Russian Defense Industrial Complex (ИТОПК-2020) took place on August 11-13 in Kaluga. The Avtomatika Concern, a part of the Rostec State Corporation, presented a new hardware and software system called "Pelena" ["Shroud"] that will increase monitoring, control, and surveillance capabilities in Russian cities through integration into the so-called "Internet of Things" (IoT). The Pelena system, when fully developed, should enable the remote control of urban infrastructure systems, including engineering systems, and direct equipment control. The system is being developed by two companies within the Avtomatika Concern, the Kalugapribor Joint Stock Company and the KEMZ Joint Stock Company. According to the general director of Avtomatika, Vladimir Kabanov, the Pelena system uses existing street lamps on the street lighting grids as the physical locations for deploying networks of equipment that can monitor traffic, environmental conditions, and other public utility information. According to reports, the system's development is entirely Russian in origin and relies on Russian-produced software and operating protocols, thus is qualified for the current state import substitution policy's benefits.

Source: "The 'Avtomatika' Concern Presented an Internet of Things-based Solution for City Infrastructure at the ИТОПК-2020 Forum" [Концерн «Автоматика» представил решение на базе IoT для городской инфраструктуры на форуме «ИТОПК-2020»], CNews.ru, Aug. 17, 2020, https://www.cnews.ru/news/line/2020-08-17_kontsern_avtomatika_predstavil.

Corporate and Market Developments

10. Russian company testing driverless cars in Michigan

Yandex announced that it has begun testing driverless cars in Ann Arbor, Michigan. The choice of location is the result of a confluence of factors, including looser legal requirements in Michigan that allow companies to test driverless cars without an engineer onboard the vehicle. Yandex had originally brought the vehicles to Michigan to showcase them with public test drives at the North American International Auto Show in Detroit. After the show was cancelled because of the COVID-19 pandemic, Yandex decided to take advantage of the state's legal regime to find a location at which to perform long-term testing on the vehicles in a different environment in terms of road conditions and rules of the road. It eventually settled on Ann Arbor, because it is a relatively large city with many research and engineering facilities and is near the automotive hub city of Detroit. The vehicles are fourth-generation driverless cars, made in partnership with Hyundai Motors and based on the Sonata model. Yandex has previously tested its vehicles in Skolkovo, Russia, and in Tel Aviv. It has a fleet of 100 cars of this model and another 100 based on the Toyota Prius. Its goal is to build an automated car that can perform at human level by 2024, though this timetable may be delayed because of the coronavirus.

Sources: "Yandex testing unmanned vehicles in the USA" [«Яндекс» тестирует беспилотные автомобили в США], Aug. 6, 2020, https://www.cnews.ru/news/top/2020-08-06_yandeks_pristupil_k_testirovaniyu; "Yandex launches testing of unmanned systems in USA" [Яндекс" запустил тестирование беспилотных автомобилей в США], RIA-Novosti, Aug. 6, 2020 <https://ria.ru/20200806/1575446847.html>; Greg Gardner, "Yandex, Uber's Russian Partner, Kicks Off Self-Driving Car Tests In Ann Arbor," Forbes, Aug. 6, 2020, <https://www.forbes.com/sites/greggardner/2020/08/06/yandex-the-russian-partner-of-uber-begins-testing-avs-in-ann-arbor/#3b03c2d96471>.

11. Russian company using AI for perimeter surveillance

The company Diagnostika-M, based at the Technopolis Moscow special economic zone in Skolkovo, has begun testing the Radar-IQ security system that uses AI for surveillance of secure zones. The AI software enables the system to detect potential attacks on the secure zone before they occur, identifying the number and movement vectors of potential violators. This system

can allow security personnel to be alerted earlier than they would be with regular security systems, and can reduce the number of personnel needed to supervise any given area. It can be used in facilities such as ports, airports, power stations, and prisons. The system is available for export, and customers in Slovakia have reportedly purchased components for testing.

Source: “Technopolis Moskva developed AI-enabled perimeter defense system” [Резидент ОЭЗ «Технополис Москва» разработал систему охраны периметра с применением искусственного интеллекта], Aug. 17, 2020, https://safe.cnews.ru/news/line/2020-08-17_rezident_oez_tehnopolis.

12. Russian English-language app enters Latin American market

According to reports, Russian AI companies are beginning to penetrate the potentially highly lucrative Latin American market, with the top entry being a language learning app designed to help native Spanish speakers learn English. The MyBuddy app’s key innovation is the use of an AI-based voice assistant that enables users to engage in hours of conversational practice. The app design is game based in order to appeal to children from 4 to 10 years old. The app has been test launched in Mexico and Chile, with initial results showing a high level of demand: 4 million were downloaded during the three-month testing period. The app was made available for regular purchase in August 2020. It was developed with extensive financial support from the Leta Capital venture capital fund, which invested \$1 million in the software. Leta Capital is investing in several other educational technology ventures as well, as this represents one of the main investment directions for the fund. MyBuddy has partnered with the California company Edwin to use AI technology to help address the lack of qualified foreign-language teachers around the world.

Source: “Buddy app is being sold in Spanish-speaking countries” [Старт продаж приложения Buddy в испаноязычных странах Латинской Америки], T-Adviser, Aug. 12, 2020, <https://www.tadviser.ru/>.

13. Russian banks increase NTI investments

The Rossiya Bank has announced an investment of 875 million rubles in the National Technology Initiative venture capital fund, making it the second-largest investor in the fund, which now has a total size of 3.5 billion rubles (\$47 million). The largest investor remains Infrafund RVK, with an investment of 1.5 billion rubles (\$20 million). The venture fund was established in 2018 to support innovative technological projects such as AI, big data analysis and storage, blockchain, quantum technology, and new energy sources. Its goal is to support young Russian developers and businesspersons at the seed funding stage.

As previously discussed in other issues of *AI in Russia*, NTI is a government-run initiative that seeks to create and support special infrastructure and technical competence centers that aim to bring together Russia's high-tech community and enable this community with logistical and financial support.

Source: "Russia bank is NTI venture fund investor" [Банк «Россия» стал инвестором Венчурного фонда Национальной технологической инициативы], Aug. 13, 2020, <https://www.finanz.ru/novosti/aktsii/bank-rossiya-stal-investorom-venchurnogo-fondacionalnnoy-tekhnologicheskoy-iniciativy-1029499807>.

14. ALRII seeks to simplify private sector AI efforts

On August 3, the Association of Artificial Intelligence Laboratories (ALRII) announced its recent proposal to the Russian government to expand the list of OKVED codes in an effort to simplify access to measures supporting AI development. "OKVED" stands for the "All-Russian Classifier of Types of Economic Activities" and allows for the classification of all relevant activities by numerical codes, which are divided into classes, subclasses, etc. Companies choose the correct code according to the main type of activity in which they are engaged, and the choice affects a number of things, including their insurance premium rate and whether they can transition to a special tax regime.

ALRII is proposing the addition of several OKVED codes to aid companies developing AI in choosing the most appropriate code for their work. In particular, the group wants to add a new class for work in developing software and hardware-software complexes using AI, as well as several subsections related to specific types of AI (i.e., machine learning, deep learning, and machine vision). ALRII says these new codes are needed for several reasons: AI development activities are much broader than what is currently provided for in the existing OKVED codes; the addition of codes would allow for the gathering of more accurate statistics related to national AI development; and the initiative will generally assist in the implementation of Russia's goals related to AI. The chairman of ALRII's supervisory board, Alexey Frolov, stated that this project will give greater support to companies involved in AI development and will also make it possible to identify tax incentives for organizations working in this space.

Source: "ALRII Proposed the Expansion of the List of OKVED Codes to Simplify Access to Measures Supporting AI Development" [АЛРИИ предложила расширить перечень кодов ОКВЭД для упрощения доступа к мерам поддержки субъектов развития ИИ], T-Adviser, Aug. 3, 2020, <https://www.tadviser.ru> ; "Association of Artificial Intelligence Laboratories (ALRII)," Ассоциация лабораторий по развитию искусственного интеллекта (АЛРИИ), T-Adviser, <https://www.tadviser.ru/> ; "What are OKVED codes and how to choose them" [Что такое коды ОКВЭД и как их выбрать], Sberbank, Сбербанк, <https://www.sberbank.ru/>

Education and Training Developments

15. Ural Federal University, MIPT, and Ural Center for Security Systems to create joint master's program in IT security

According to an article in the August 13 edition of *Future Russia*, the Ural Federal University (UrFU) will begin offering a master's program in IT security in 2021. The university's press release states that the program will consist of 22 disciplines, including "legal aspects of information security, organization of secure network communications, and methods and tools for analyzing big data." Experts from both the Moscow Institute of Physics and Technology (MIPT) and the Ural Center for Security Systems will be assisting in the training program. The program is being created in line with an initiative of the Ministry of Higher Education and Science to develop and advance higher education programs that are ranked in the top 200 globally.

Sources: "UrFU will launch training in information security in 2021 with MIPT and an IT company" [УрФУ запустит подготовку кадров по защите информации в 2021 году с МФТИ и IT-компанией], Aug. 13, 2020, <https://futuresrussia.gov.ru/nacionalnye-proekty/urfu-zapustit-podgotovku-kadrov-po-zasite-informacii-v-2021-godu-s-mfti-i-it-kompaniej>; "Recruitment-2021: University and MIPT launch a new IT program" [Набор-2021: вуз и МФТИ запускают новую IT-программу] UrFU, Aug. 18, 2020, <https://urfu.ru/ru/news/32873/>.

16. Neural networks used to detect cheating on annual state exam

Reportedly this year, Russia's Unified State Examination (USE) was successfully monitored using video surveillance technology from Rostelekom, a major state-owned digital services provider. The USE is an examination that students must take after completing secondary education and before entering a university. Between June 29 and August 8, Rostelekom technology monitored more than 60,000 groups at 4,500 examination points, or about 96 percent of exam participants. Though data centers have been involved in monitoring the USE in the past, this was the first time that AI had been used to track subjects' behavior. According to the article, a new artificial intelligence application that uses a neural network to identify suspicious behavior in real time was used to process more than 160,000 hours of streamed

video data. The online surveillance portal also reportedly was successful in defending against a number of distributed denial of service (DDoS) attacks.

Source: "Rostelecom's neural network revealed half of all violations at the exam-2020" [Нейросеть «Ростелекома» выявила половину всех нарушений на ЕГЭ-2020], CNews, Aug. 14, 2020, https://www.cnews.ru/news/line/2020-08-14_nejroset_rosteleкома.

17. Gazprom increases R&D with universities

Gazprom Neft has reportedly invested over 750 million rubles in joint research and development with universities in 2019; this is more than 2.5 times the amount it had invested during the previous year. Gazprom Neft is one of the founding partners of the St. Petersburg-based Artificial Intelligence in Industry educational and training center, which works with universities including ITMO, LETI, HSE SPb, SUAI, SPbSU, and SPbPU to develop solutions in the fields of AI and automation in line with the "Digital Economy" national project. Gazprom Neft is also working jointly with fellow members of the Alliance for the Development of Artificial Intelligence (including Sberbank, MTS, Yandex, Mail.ru Group, and the Russian Direct Investment Fund) to create a joint training program for students, teachers, and young professionals. Additionally, Gazprom Neft is working with Tyumen State University and Novosibirsk University to establish scientific and educational centers in line with the "Science" national project. As discussed in past issues of *AI in Russia*, Gazprom Neft has engaged in wide-ranging collaboration with Russian education centers.

Sources: "Gazprom Neft increases investments in research projects by 2.5 times" [Газпром нефть в 2.5 раза увеличила инвестиции в научные проекты], АК&М, Aug. 10, 2020, https://www.akm.ru/news/gazprom_neft_v_2_5_raza_uvelichila_investitsii_v_nauchnye_proekt_y/; "Gazprom Neft becomes the first industrial company in the Alliance for the Development of Artificial Intelligence" [Газпром нефть стала первой промышленной компанией в Альянсе по развитию искусственного интеллекта], Gazprom Neft, Nov. 9, 2019, https://www.gazprom-neft.ru/press-center/news/gazprom_neft_stala_pervoy_promyshlennoy_kompaniey_v_alyanse_po_razvitiyu_iskusstvennogo_intellekta/; "St. Petersburg State Electrotechnical University "LETI" actively participated in the development of the REC "Artificial Intelligence in Industry"" [Санкт-Петербургский государственный электротехнический университет «ЛЭТИ» активно включился в развитие НОЦ «Искусственный интеллект в промышленности], SPB.Ru, Oct. 7, 2019, https://www.gov.spb.ru/gov/otrasl/c_science/news/174867/.

18. AI competitions supported by state and industry continue

As we have reported in past issues of *AI in Russia*, organizations continue to host large competitions with the dual goals of developing tech solutions and training the next generation of Russian specialists. These competitions are typically supported by the Russian government and by a number of businesses in the tech industry.

The first competition, the spring cycle of the all-Russian “UMNIK-Digital Russia” competition, concluded on August 12 with the announcement of 230 awardees. In this competition, students and young professionals between the ages of 18 and 30 develop and present their plans to create a commercial product in one of the following sectors: AI; VR/AR; IoT; robotics; 5G communication technology; satellite connection; distributed ledger systems; or quantum computing, communications, sensing, and metrology. Awardees each receive a 500,000 ruble grant (roughly \$6,775), which is attached to terms, including licensing and the ownership of the intellectual property. According to the program website, the fall cycle of the competition will begin soon, with applications accepted until September 14. The competitions are organized under the framework of the national “Digital Economy of the Russian Federation” program. The competitions are paid for and administered by the Innovation Promotion Fund, a state non-profit organization and budgetary institution, established in 1994.

The second event is an intensive AI and algorithmic programming training festival, which will take place between August 31 and October 4. The event is hosted by RuCode and a host of other partners, including the Presidential Grant Foundation, Yandex, MegaFon, MIPT, and the Analytical Center of the Government of the Russian Federation. According to RuCode’s website, the first part of the online festival will consist of three free training courses: “Quick Start to Recreational Programming,” “C / C ++ Fundamentals for Sports Programming,” and “Fast Start to Artificial Intelligence.” At the end of the program, participants will present projects that solve real modern-day problems using AI, and compete in an algorithmic programming championship.

The third competition, “Digital Breakthrough,” previously discussed in issues 4 and 7 of *AI in Russia*, has advanced to the semifinal round, which takes place from August to October. According to an article in Finanz.Ru on August 14, contestants have developed more than 4,700 product solutions for problems in the fields of education, infrastructure and communications, digitalization of production, and big data and AI. The finals will take place in December. The “Digital Breakthrough” IT competition is hosted by the autonomous non-profit organization (ANO) “Россия – страна возможностей” (“Russia—Country of Opportunity”). Partners include Rostelecom, the Federal Tax Service, Rosstat, PJSC Gazprom Neft, Rosatom State Corporation, MTS, and Megafon.

Sources: "Projects of the Irkutsk Polytechnic Institute became winners of the All-Russian competition "UMNIK - Digital Russia"" [Проекты Иркутского политеха стали победителями Всероссийского конкурса «УМНИК – Цифровая Россия»], Kuzbas, Aug. 14, 2020, <http://kuzbas.ru/news/economy/60055.html>; "Acceptance of applications for a new cycle of competition Smartyants-Digital Russia" [ПРИЕМ ЗАЯВОК НА НОВЫЙ ЦИКЛ КОНКУРСА «УМНИК-ЦИФРОВАЯ РОССИЯ»], *The Innovation Promotion Fund: Fund News* [Фонда содействия инновациям: Новости Фонда], May 6, 2020, <http://fasie.ru/press/fund/umnik-digitalrussia-2/>; "RuCode festival on programming and artificial intelligence starts" [Стартует фестиваль по программированию и искусственному интеллекту RuCode], Rusbase, Aug. 17, 2020, <https://rb.ru/young/rucode-fest-2020/>; "Second All-Russian Educational Online Festival on Algorithmic Programming and Artificial Intelligence" [Второй всероссийский учебный онлайн фестиваль по алгоритмическому программированию и искусственному интеллекту], RuCode, <https://rucode.net/#/>; "More than 4.7 thousand IT solutions were created by teams at the first stage of the Digital Breakthrough competition" [Более 4,7 тыс. IT-решений создали команды на первом этапе конкурса «Цифровой прорыв»], Finanz.Ru, Aug. 14, 2020, <https://www.finanz.ru/novosti/aktsii/bolee-4-7-tys-it-resheniy-sozdali-komandy-na-pervom-etape-konkursa-cifrovoy-proryv-1029504389>.

Article: AI for Munitions Storage

The Russian MOD is considering the application of AI across many services and units, both military and logistical. In an analysis published in the June 2020 issue of the military publication *Arsenal Otechetsva* (*The Fatherland's Arsenal*), two authors sketched out how an AI could be applied in a munitions warehouse for safer storage and retrieval and transfer. This may be prompted in part by a number of accidents in recent years at Russian ammunition depots.

Evgeny Losev of the N. G. Kuznetsov Naval Academy, and Aleksandr Kravtstov, argued that today, the traditional and standard manual stacking system using stackers and cranes has reached its limit. They contend that engineering technical solutions no longer meet modern requirements for the use of warehouse space, since the efficient use of warehouse space is not ensured. Moreover, they think that existing engineering and technical solutions do not meet the requirements of saving time for the selection of ammunition, or the safety requirements of the arsenal as a whole, because human operator errors can still occur. The authors posit that robotization of munitions arsenals and warehouses is the most modern and effective tool that would enable the military to optimize the operating costs of storing and maintaining ammunition in good condition, while increasing not only the safety of service personnel but also the density and processing speed of stored products.

The authors propose the development of a robotic warehouse system for the arsenal (RSKA in Russian) based on existing technologies, which will be able to provide reliable storage of weapons and ammunition in containers, and on racks, without personnel access. They sketch out a scenario in which the required type of weapons or ammunition can be transported by a stacker robot from the storage location to the required location.

The authors think that use of these robots would not require any special warehouse restructuring or modernization. The robots should be able to move stacked loads with ammunition weighing from 500 to 1,500 kg through the warehouse. They would be equipped with sensors, front and rear cameras, and onboard computers that would let them navigate the terrain and quickly respond to their surroundings. For example, they could avoid colliding with obstacles and with people, equipment, and other robots, and could plot the optimal route independently using their own navigation.

The authors envisioned such warehouse robotic systems functioning with image recognition based on built-in artificial intelligence (AI), the so-called “smart loaders.” Such a robotic warehouse complex can be controlled autonomously using a special processor based on artificial intelligence in order to create preferred routes, speed maps, and a work schedule

depending on the load—all with the help of a single operator, thereby increasing the arsenal throughput.

The authors propose that AI-based control systems can allow for the creation of an automated system that is capable of managing the loading and unloading of ammunition and registering documentation, freeing maintenance personnel from routine work and eliminating possible human errors. Risks such as shipping a customer unauthorized or expired weapons and ammunition can be avoided. This development opens up opportunities for managing data remotely over closed radio channels, with the required information about weapons and ammunition, orders, and deliveries generated stored and updated in the RSKA system.

Source: Evgeniy Losev and Aleksandr Kravtsov, “AI for munitions storage” [Искусственный интеллект для хранения боеприпасов], *Arsenal Otechestva*, no. 3 (47) 2020, pp. 32-25.

Spotlight: AI in Russian Manned Aircraft – the Su-35S

Consistent with the Russian military’s efforts at integrating elements of AI into its forces, the Russian Aerospace Forces have highlighted a number of areas in which they believe AI-related technologies can complement mission success from aircraft control to target acquisition and engagement. Russia’s Su-35S, a heavy long-range multirole fighter, is one example mentioned in media as incorporating AI. The Su-35S utilizes an onboard information and control system called IUS-35 (ИУС-35) that consists of several BAGET-53-31M computers.



The system combines many of the previously separate informational channels within the aircraft into a single system designed to combine and automate information and then streamline it to pilots in order to give them greater situational awareness. The system provides “intellectual support” for the pilot through its own target acquisition, orienting the aircraft relative to the target and preparing its weapons systems to engage.

The addition of the system is credited with increasing the number of sorties the Su-35S was able to make in the Syrian conflict to 10 per day. It purportedly did so through the pre-flight preparation and higher pilot endurance resulting from the more intelligent information management.

Sources: Su-35, Sukhoi, <https://www.sukhoi.org/products/samolety/256/>; BMPD, “Information and control system IUS-35 of the Su-35S fighter” [Информационно-управляющая система ИУС-35 истребителя Су-35С], <https://bmpd.livejournal.com/3047341.html>.

In Brief: Russian Government Agencies Announce Initiatives Utilizing AI

Several Russian government agencies recently announced initiatives they are undertaking that utilize AI in order to carry out their work more efficiently. Those initiatives include the following:

- Rostrud, the federal labor service, is developing a smart recommendation service using AI and machine learning for its database of job vacancies titled “Work in Russia.” The service, on which Rostrud plans to spend 147.5 million rubles in 2021, will push relevant vacancies to job applicants and relevant candidates to employers. The initiative is just one part of the agency’s “Work in Russia” plan, on which Rostrud intends to spend 831 million rubles through 2024 to build out a number of aspects, including labor market analytics, functions for assessing qualifications, and competency reference books.
- Rosstat, the state statistics service, has undertaken an initiative to calculate the majority of the consumer price index using AI from 2021 onward. Experiments are already ongoing on the use of AI for this purpose, because, according to the head of Rosstat, the use of the technology can be helpful for structuring the large volumes of unstructured data it receives on the classification of goods from stores and cash points.
- Rosstat is developing a way to conduct the 2021 all-Russian census digitally. Although citizens are concerned about the leak of their private data submitted digitally, the head of Rosstat said there is no need to worry, because Rosstat only receives impersonal information that has been anonymized after its submission and does not store any personal data on its centralized databases.
- Roskomnadzor, the federal service for communications, information technology, and mass media, has undertaken efforts to use a neural network when searching for prohibited content on the Russian internet (Runet). According to agency head Andrei Lipov, this effort will contribute to a reduction in the quantity of manual labor required and increase the accuracy, speed, and coverage of searches (with hopes that it will increase the accuracy of searches for illegal information up to 85 percent). The agency’s searches for illegal materials largely focus on content promoting suicide, child pornography, drug trafficking, and, most prominently, extremist and terrorist organizations.
- Rosimushchestvo, the federal agency for property management, is creating a system powered by AI that would respond to citizen requests on accounting and federal

property management matters in chat rooms and on the phone. The cost of the project amounts to 202.5 million rubles from the federal budget through 2024, 90 million of which is required in 2021. In addition, the system would also utilize AI to determine the most effective management strategies for federal property and analyze the activities of state-owned companies, bringing the total cost of the agency's AI system and the databases it will utilize to 1.4 billion rubles.

- Rosfinmonitoring, the federal financial monitoring service, is creating an AI system named “Transparent Blockchain” that will analyze cryptocurrency transactions in order to help track the movement of digital assets and conduct investigations into the illegal transfer of bitcoins and other cryptocurrencies. In addition, the system, which comes with a 760 million ruble price tag through 2023, will allow the agency to search for terrorist fundraising information and find details on money laundering operations. The agency said that the users will be government authorities, the central bank, and other financial institutions.

Sources: Juliana Petrova, “Rostrud will create a smart employment system” [Роструд создаст умную систему трудоустройства], *Vedomosti*, Ведомости, Aug. 6, 2020, <https://vedomosti.ru/career/articles/2020/08/05/836044-rostrud-umnuyu>; “Rosstat will calculate most of the consumer price index using AI from 2021” [Росстат будет высчитывать большую часть индекса потребительских цен с помощью ИИ с 2021 год], TASS, Aug. 10, 2020, <https://futuresrussia.gov.ru/nacionalnye-proekty/rosstat-budet-vyscityvat-bolsuu-cast-indeksa-potrebitelskih-cen-s-pomосу-ii-s-2021-goda>; “The Head of Rosstat: The 2021 All-Russian Census Will be the Last Where Traditional Data is Used” [Глава Росстата: Всероссийская перепись 2021 года будет последней, где используются традиционные данные], TASS, Aug. 10, 2020, <https://futuresrussia.gov.ru/nacionalnye-proekty/glava-rosstata-vserossijskaa-perepis-2021-goda-budet-poslednej-gde-ispolzuitsa-tradicionnye-dannye>; “Roskomnadzor Will Search for Prohibited Internet Content With a Neural Network” [Роскомнадзор будет искать запрещенные интернет-контент нейросетью], TASS, Aug. 10, 2020, <https://tass.ru/obschestvo/9163581>; “Rosimushchestvo Wants to Connect AI to Respond to Citizens’ Requests” [В Росимуществе хотят подключить ИИ к ответу на запросы граждан], TASS, Aug. 11, 2020, <https://futuresrussia.gov.ru/nacionalnye-proekty/v-rosimusestve-hotat-podklucit-ii-k-otvetu-na-zaprosy-grazdan>; Evgeniya Chernyshova and Vladislav Skobelev, “Finrazvedka proposed a system for tracking bitcoin transactions” [Финразведка предложила систему для отслеживания сделок с биткоидами], RBC, Aug. 11, 2020, <https://www.rbc.ru/finances/11/08/2020/5f3171fd9a794756503cfcf4>.

This report was written by CNA's Strategy, Policy, Plans, and Programs Division (SP3).

SP3 provides strategic and political-military analysis informed by regional expertise to support operational and policy-level decision-makers across the Department of the Navy, the Office of the Secretary of Defense, the unified combatant commands, the intelligence community, and domestic agencies. The division leverages social science research methods, field research, regional expertise, primary language skills, Track 1.5 partnerships, and policy and operational experience to support senior decision-makers.

CNA is a not-for-profit research organization that serves the public interest by providing in-depth analysis and result-oriented solutions to help government leaders choose the best course of action in setting policy and managing operations.



Dedicated to the Safety and Security of the Nation

DOP-2020-U-027966-Final

3003 Washington Boulevard, Arlington, VA 22201

www.cna.org • 703-824-2000