



Artificial Intelligence in Russia Issue 5, July 1, 2020

The Russia Studies Program

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Abstract

This report 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.

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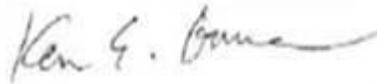
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July 2020



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Contents

Governance and Legal Developments	1
1. “Digital Economy” national program continues to evolve.....	1
2. Communications ministry withdraws big data bill amid citizen and business concerns.	2
3. PwC Russia predicts introduction of AI tax	3
4. Russia and Japan discuss innovation, roadmap for high-tech cooperation	4
Military and Security Developments	6
5. AI in military manufacturing and automated control systems.....	6
6. AI to be used in development of Russian AI space debris monitoring satellite.....	7
Corporate and Market Developments	8
7. Russia’s industry to provide AI solutions to improve government-citizens interactions	8
8. Facial recognition technologies spreading across Russia.....	9
9. Skoltech discusses barriers to Russian neurotechnology development	10
10. AI-enabled channel appears on Telegram.....	11
Education and Training Developments	12
11. URTK and Huawei offer new AI training course.....	12
12. FEFU students’ traffic regulation app places in Russian hackathon competition.....	13
13. Tyumen Programming School to offer new neural networks course	13
14. MIPT professor discusses digital education	14
Spotlight: Advanced Research Foundation.....	16

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Governance and Legal Developments

1. “Digital Economy” national program continues to evolve

According to reports, in early June, Russia’s Ministry of Communications informed Russia’s regions about potential changes in the indicators, goals, and tasks of the “Digital Economy” national program that could take effect as early as September 2020. *(See issues 3 and 4 of AI in Russia for past coverage of the “Digital Economy” national program.)* The changes first need to be considered and approved by the presidential council on strategic development and national projects before they are communicated to the regions. Proposed changes related to AI include the following:

- An expansion of the “AI” federal project into an “AI and digital technologies” project. A new goal for that project may also include “the creation of regulatory, financial, and technological conditions for development and speedier incorporation of Russian goods, services, solutions on the basis of digital technologies, including AI, in the economy and social sphere.”
- The addition of seven new indicators to “AI and digital technologies”: “number of software applications in the register of Russian software (per year); volume of external investors involved in projects, financed by state venture funds in the information technology sphere (in billions of rubles); number of IT solutions prototyped and IT solutions implemented, developed by companies (including small businesses) that have received support in the context of high-technology development; growth of the volume of sales of Russian software (per year); share of medium and large companies utilizing AI-based solutions (percentage); creation of innovative digital technologies, including AI, largely based on Russian developments; and a complex system of financing projects in development and (or) implementation of digital technologies and platform-based solutions, including venture financing and other development institutions.”

A June 23 report in *Rossiyskaya Gazeta* estimated the national program’s 2020 budget to be 498.2 million rubles (over 7 million USD). It also noted concern by some industry representatives, who provide input into program development through a specially created coordinating body, that the national project has been rewritten too often. For instance, the head of the “Information Security” working group, Natalia Kasperskaya, was quoted as saying

that “if you keep changing priorities, goals, tasks, milestones, and activities, it will be difficult to achieve anything.” She also posited that successful implementation of the national program would require more funding.

Sources: “Национальную программу «Цифровая экономика» ждут значительные изменения” [Significant changes await “Digital Economy” national program], D-Russia.ru, June 16, 2020, <http://d-russia.ru/nacionalnuju-programmu-cifrovaja-jekonomika-zhdut-znachitelnye-izmenenija.html>; Ирина Алпатова, “Удаленный доступ” [Access from far away], *Rossiiskaia gazeta*, June 23, 2020, <https://dlib.eastview.com/browse/doc/60103467>; Евгения Крючкова, Юлия Тишина, “«Суперсервисы» торопят в Белый дом” [Superservices are speeding to the White House], *Kommersant*, No. 106, June 18, 2020, <https://dlib.eastview.com/browse/doc/60007013>.

CNA Commentary: Russia’s national AI development is part of the “Digital Economy” national project. As discussed in issues 3 and 4 of *AI in Russia*, “Digital Economy” will face a reduction in funding in 2020. However, the program will now include new indicators for both the development and the performance of AI in the federal, regional, public, and private sector bodies. Earlier, the Russian government hinted that, because of the ongoing economic slowdown caused by the COVID-19 pandemic, the national program implementation performance metrics set earlier were not being met. This is causing the government to change how it is going to evaluate national AI implementation going forward. Look for an in-brief on the “Digital Economy” national program in the future issues of *AI in Russia*.

2. Communications ministry withdraws big data bill amid citizen and business concerns

On June 9, 2020, the Russian Ministry of Communications withdrew a draft law titled “On Information, Information Technologies, and Information Protection,” which introduced new laws for handling big data, in order to continue developing it. The ministry introduced the bill in February 2020, causing a wide outcry, including among representatives of the public and the business sector.

According to Alexander Shokhin, president of the Russian Union of Industrialists and Entrepreneurs (RSPP), several of the group’s committees sent a letter to the Ministry of Communications in March detailing the ways in which the bill does not meet the needs of businesses. Among other shortfalls, it does not create guarantees for entrepreneurial activity that creates and uses large volumes of data and it inadequately protects intellectual property rights. The committees also asserted that the bill is harmful for society because it does not contain restrictions on the circulation of citizen data or possibilities for applying antitrust measures to aggregators of such data. Further shortcomings cited include the fact that virtually any information collected, regardless of the source or method of its collection in the category

of “big data,” has a high potential for corruption. In addition, the problem of access to data collected by government agencies while carrying out their public functions remains unresolved. According to Shokhin, “The approach taken in the bill can cause irreparable damage to the development of the digital economy ... and generally does not comply with the National Strategy for the Development of AI for the Period Until 2030.”

Source: Vladimir Bahur, “The Ministry of Communications withdraws a bill on big data regulation,” [Минкомсвязь отозвала для доработки законопроект о больших данных] C-News, June 15, 2020, https://www.cnews.ru/news/line/2020-06-15_minkomsvyazi_otozvalo_zakonoproekt, <http://d-russia.ru/minkomsvjaz-otozvala-dlja-dorabotki-zakonoproekt-o-bolshih-dannyh.html>.

CNA Commentary: As the Russian government struggles with the role of AI and Big Data in society, there is a growing tendency in both the public and private sectors not only to offer input on government decisions and plans, but also to offer critiques where appropriate.

3. PwC Russia predicts introduction of AI tax

PricewaterhouseCoopers (PwC) in Russia, along with partners IDC, KROK, and the networking platform Digital Leader, recently completed a survey of 160 executives and IT managers across Russia, which revealed a widely held notion among the group that a tax or license for the use of AI may appear in Russia by 2030. Most respondents believe that AI and machine learning will lead to the greatest changes in companies over the next decade. According to Aleksey Sidorin, the community manager for Digital Leader, AI has major implications for the falsification of video and photos, the manipulation of personal data, etc. Therefore, he believes it is logical that, in the future, governments increasingly pay attention to the regulation of AI, asking companies to get licenses or certificates for its development, and may then eventually introduce a tax on organizations using the technology, especially if they are using it to replace their employees. He said that the state could then redistribute the money to employees who have lost their jobs, so that they can learn other skills.

Evgeniy Kolesnikov, the director of the Machine Learning Center at Jet Infosystems, also considers the introduction of a tax, to support those who lose their jobs due to the introduction of AI technologies, to be a likely scenario. He stated that the ethical issues surrounding machine learning require regulation at the state level, and suggested that, in addition to a tax, a fine on use or non-use of AI in companies may also appear.

One leader surveyed who did not agree with the majority was Maxim Eremenko, the senior managing director of the Competence Development Department for Data Research at Sberbank. Eremenko considers the introduction of a tax on AI unrealistic, stating that, if it is thought of as a resource that can be mined, then a tax on its production is possible, but that it makes no sense to introduce a tax on the use of this technology in goods and services. He explained that the introduction of an AI tax would increase the cost of developing the

technology, which could interfere with its mass introduction. He then expounds on the idea that AI and machine learning have substantially transformed business over the last 10 years, and his belief that, though it is now time to create a regulatory framework for this area, a tax is unlikely. Rather, he believes that the ability to share models and data for training AI will accelerate the development of the industry and the widespread introduction of innovations.

Source: “PwC predicts the introduction of an artificial intelligence tax,” [В PwC предсказали введение налога на искусственный интеллект] RBC, June 19, 2020, https://www.rbc.ru/technology_and_media/19/06/2020/5eeb5bda9a7947386c779ebd.

CNA Commentary: Russian executives and CEOs who are starting to incorporate AI-related technologies seem confident that AI will lead to lasting changes in their companies. They are also discussing the possibility that, in the future, governments will increasingly focus on the regulation of artificial intelligence, forcing the companies to obtain licenses or certificates for the development or operation of AI. They are also speculating that an AI tax could be collected from those organizations that use this technology to replace their human employees.

4. Russia and Japan discuss innovation, roadmap for high-tech cooperation

On June 11, 2020, Oksana Tarasenko, the Russian deputy minister of economic development, met with Keita Nishiyama, the director general of the Department of Trade and Information Policy of the Japanese Ministry of Economy, Trade, and Industry, to discuss innovation initiatives. During the meeting, Russian representatives presented developments and projects in fields including AI, medicine, biotechnology, and quantum technologies. As Tarasenko noted, it was not the first time Russia had presented initiatives to Japan, which would serve as a precondition for increased trade between the countries in the future. At the meeting, Tarasenko also proposed the creation of a “roadmap” for high-tech cooperation, stating that IT is among the most active fields of Russian-Japanese cooperation and expressing a readiness for expanded work together in that sphere, including in the construction of a digital economy and the development of AI. In addition, the two sides touched on the topic of cooperation between innovative technology parks, innovative regions, foundations, development institutions, and research universities, with the aim of promoting a deeper merger of science and technology with industry and the environment in order to optimize the innovation ecosystems of both countries.

Source: “The deputy head of the Ministry of Economic Development proposed the creation of a ‘road map’ of high-tech cooperation with Japan” [Замглавы Минэкономразвития предложила создать "дорожную карту" взаимодействия с Японией в сфере высоких технологий], The Ministry of Economic Development of Russia, June 11, 2020, https://www.economy.gov.ru/material/news/zamglavy_minekonomrazvitiya_predlozhila_sozdat_dorozhnuyu_kartu_vzaimod_eystviya_s_yaponiey_v_sfere_vysokih_tehnologiy.html.

CNA Commentary: Russia is seeking to diversify its high-tech partnership arrangements through efforts such as this initiative with Japan.

Military and Security Developments

5. AI in military manufacturing and automated control systems

Russian companies have reportedly used AI to streamline military manufacturing processes and as an analytical and decision-making tool in the national military automated control system. According to reports, Russia's Rostec State Corporation joined with Zyfra, one of Russia's leading companies building AI for industrial uses, to develop the Industrial Internet of Things Platform that uses AI to manufacture engines for the Yak-130 military jet trainer. The proposed system will monitor the manufacture of engines and will make it possible to simulate testing in a virtual environment. This process will reduce the number of real tests, improve the quality of the final product, and speed up the production process. The AI-based system determines how the characteristics of the engine details affect the quality of the engine, and builds a mathematical model of the tests. Information about the new components of the engine and conditions for its assembly is uploaded into this model, and a digital "twin" of the end product is created. AI analyzes the data and predicts the success of the real tests on an engine made of these components in given conditions.

Separately, in an *Izvestiya* newspaper analysis of a proposed plan for the Ka-52M helicopters to control aerial drones in manned-unmanned teaming (MUM-T), Russian military experts discuss a "unified intelligence and information space" that combines intelligence and automated command systems (ACU) and would include airborne forces and ground-based air defense systems. The Ka-52 MUM-T with the UAVs could be part of this network. According to the proposal, all targeting data would flow into a unified ACU, which uses elements of artificial intelligence to allocate forces and means adapted to solve a particular combat task.

Source: "К производству двигателей для Як-130 подключили искусственный интеллект" [AI will assist Yak-130 jet production], *Voennoe.rf*, June 17, 2020 <https://xn--b1aga5aadd.xn--p1ai/2020/%D0%A0%D0%BE%D1%81%D1%82%D0%B5%D1%85/>; "От винта до дрона: российские вертолеты будут управлять беспилотниками" [From propeller to drone: Russian helicopters will control UAVs], *Izvestiya*, June 17, 2020, <https://iz.ru/1023859/anton-lavrov-bogdan-stepovoi/ot-vinta-do-drona-rossiiskie-vertolety-budut-upravliat-besplotnikami>.

CNA Commentary: The introduction of new AI technologies in military manufacturing aims to integrate disparate systems, as well as replace manual data entry and adjustments. AI streamlines key information into unified directories and creates master data sets. The same

digital processes are at play in plans for automated control systems (ACUs) that unite air, land, ground, and other assets into a single networked complex. AI capabilities serve as an analytical and decision-making tool in such systems, helping analyze the incoming SIGINT, HUMINT, and ELINT for decision by the human operator. At this point, such systems are still undergoing the RDT&E cycle; some tested starting in 2018.

6. AI to be used in development of Russian AI space debris monitoring satellite

Reports suggest that Russia will employ AI systems in the development of its forthcoming space debris monitoring and tracking satellite. The satellite, set to be launched in 2027, will be a component of the *Mlechnyi put'* [Milky way] system. AI will be used for “increasing the quality of processed data and will lower the inaccuracy in forecasting collision of objects at orbit.”

Source: “Через семь лет Россия запустит первый спутник системы мониторинга космического мусора” [Over seven years Russia will launch first satellite of space monitoring debris system], Astronews, May 29, 2020, <https://astronews.ru/cgi-bin/mng.cgi?page=news&news=20200529202517>.

CNA Commentary: This is not the first announcement of AI in service of space-based technologies. In 2019, Russia’s Advanced Research Foundation (see the “Spotlight” section in this issue) announced it will be using AI for decrypting space-based imagery for security and defense. Russia is also trying to position its space industry for the impending changes caused by the growing role of private companies such as SpaceX. Developing AI-enabled satellite technologies may also be a forward-leaning move to better position Russia in the growing market of private and state-launched satellites for earth-directed tech like GPS, or outward-oriented observation of deep space.

Corporate and Market Developments

7. Russia's industry to provide AI solutions to improve government-citizens interactions

Private Russian companies have proposed a variety of solutions to help the Russian government improve the quality of its interactions with citizens in various aspects of its functioning. On June 9, 2020, the Kaspersky Lab announced that it is working on improving electronic voting systems for the city of Moscow. Previous experiences with electronic voting in Moscow city elections have been problematic because of inadequate security and inadequate transparency caused by a lack of technical means to observe or review results. Security consultants noted that these gaps made falsification of results potentially easy to accomplish and virtually impossible to detect. Kaspersky Lab believes that blockchain technologies could help with both problematic issues. However, outside experts express doubts that blockchain can help with falsification.

Meanwhile, the Russian companies BFT and BSS have developed a chatbot system that can assist in responding to citizen requests for government services in areas such as employment and pension fund centers, property registration, medical centers, and universities. These bots are able to respond to requests for information, make appointments, issue reminders, and update users on the status of document requests. They understand both voice and text and can operate through both phone and proprietary chat systems, as well as through popular apps such as Telegram, WhatsApp, and Viber. The companies believe that chatbot systems can resolve 80 percent of user requests without human assistance.

Sources: "Разработчиком блокчейн-системы голосования по Конституции оказалась «Лаборатория Касперского»" [Kaspersky Lab has developed a blockchain system for Constitutional vote], TAdviser, June 9, 2020, <https://www.tadviser.ru/>; "БФТ и БСС представили диалогового робота для госсектора" [BFT and BSS have presented a chatbot for the state sector], CNews, June 11, 2020, https://www.cnews.ru/news/line/2020-06-11_bft_i_bss_predstavili_dialogovogo, BFT Press release, June 11, 2020, <https://bftcom.com/about/press/novost/dialogovyy-robot-sozдание-sistemy-effektivnogo-konsultirovaniya-grazhdan/>.

CNA Commentary: As Russia's private sector is starting to offer AI solutions to the federal, regional, and local governments, Russian Prime Minister Mishustin is driving the effort to digitize parts of the Russian government to make it more responsive to citizen needs, as well as to make it easier for regular people to request assistance and offer feedback on the government's performance. Although Kaspersky Lab is one of Russia's premier infosec and ICT

firms, the US government banned its use by federal agencies over concerns that the company has ties to Russian intelligence organizations.

8. Facial recognition technologies spreading across Russia

Russian governments are increasingly utilizing facial recognition technologies at the local, regional, and federal levels. In Tatarstan, these technologies are being used to detect the extent to which people are following the rules for wearing facial masks on the Kazan subway. The same system is also being used in the region in combination with artificial intelligence systems to allow supermarkets to serve customers with no employees on site. Such systems are also being implemented in schools on a national level to ensure safety and security by detecting unauthorized individuals when they enter school buildings. Facial recognition cameras have been installed in over 1,600 schools in 12 regions, and plans are to implement them in over 43,000 schools in the near future. In addition to security functions, these systems could be used to verify attendance by students and to observe teaching.

The director general of the Satellite Innovation Company, which is sponsored by the Skolkovo innovation fund, has proposed that cameras with facial recognition technology could soon be used widely throughout the country. He argues that with every year, this technology is becoming more accurate and effective, as well as cheaper, which will speed its adoption on a mass level. According to Pavel Krivozubov, director of robotics and AI for the Skolkovo Fund, it can be used not only for security functions, but also in marketing, analysis of traffic patterns in commercial areas, and observation of staff work patterns.

Sources: "За масками на лицах татарстанцев будет следить "искусственный интеллект" [AI will observe mask wearing among Tatarstan residents], Interfax, June 10, 2020, <https://www.interfax-russia.ru/volga/news/za-maskami-na-licah-tatarstancev-budet-sledit-iskusstvennyu-intellekt>; "Резидент «Сколково» представил систему видеоаналитики для массового использования [Skolkovo resident has provided a video analysis system for mass use], CNews, June 11, 2020, https://www.cnews.ru/news/line/2020-06-11_rezident_skolkovo_predstavil; ""Ведомости": камеры с функцией распознавания лиц появятся в российских школах [Vedomosti: facial recognition cameras will appear in Russian schools]," Tass, June 16, 2020, <https://tass.ru/obschestvo/8733119>.

CNA Commentary: Facial recognition technologies are playing a greater role across Russia. Initially, they were utilized to monitor the population during the COVID-19 quarantine imposed by the government. Such monitoring spread from larger cities to many other towns across the country, with Moscow indicating that this could become a national policy. Recently, such technologies are being utilized for larger security reasons, such as school safety.

9. Skoltech discusses barriers to Russian neurotechnology development

Skoltech has published a White Book on progress and barriers to using technology to fight neurodegenerative diseases. This book, *Technology of restoring and expanding the resources of the human brain*, highlights the rising incidence of neurodegenerative diseases around the world and enumerates some of the causes of this development. It then focuses on the role of technology in progress in treating and conquering these diseases, especially such common aging-related illnesses as Alzheimer's and Parkinson's. Technologies such as positron-emission tomography and single photon computer tomography have been used to diagnose Parkinson's at an early stage, but remain expensive and require highly trained personnel, which limits their use. Similar constraints affect early diagnosis of Alzheimer's. At the same time, it has been suggested that early diagnosis would greatly improve quality of life and delay the onset of dementia in patients, while simultaneously reducing the cost of treatment. While the United States and the European Union are leading in the development of automated technologies for early diagnosis and treatment of these diseases, Russia has recently entered the game as well.

Russian efforts in this sphere are constrained by the limited ties of Russian medical researchers to the international community and by their relatively late entry to the field. The first project in this field, called Avatar, was to develop an artificial human body that could be used to help develop methods for rehabilitation and improvement of quality and length of life for patients suffering from neurodegenerative diseases. Although it was never completed, some of the advances were carried forward into subsequent projects in artificial intelligence being carried out by the Neuronet network.

The White Book spells out four barriers to the continuing development of neurotechnologies in the Russian medical sphere. The first barrier is financial, with companies expecting the state to guarantee initial orders in order to justify development of new technologies. Such orders have not been adequate to date. The second barrier is inadequate state support for research in new technologies, in terms of direct financing, institutional assistance, and certification of new products. The third barrier concerns the legal and ethical aspects of the development of new neurotechnologies. Society remains concerned about genetic modification and the implementation of cyber technologies in humans. Without adequate discussion of the ethical aspects of neurotechnology, society may resist new developments. Finally, the legal certification of new products is excessively complicated, which directly stymies innovation.

Source: Irina Dezhina, "Разбег с барьерами. Что тормозит развитие российских нейротехнологий?" [Sprint with carriers. What is slowing down Russia's neurotechnologies development?] Poisk News, June 7, 2020, <https://www.poisknews.ru/themes/medicine/razbeg-s-barerami-chto-tormozit-razvitie-rossijskih-nejrotehnologij/>.

CNA Commentary: This article explores financial, infrastructure, and regulatory challenges facing Russia's emerging neural net RDT&E. It highlights the role of the National Technology Initiative as the driving force in national AI and neural research. The article concludes that the desired cooperation between various efforts working on neural network development in Russia is still far off, and recommends that the participants in the NTI effort join forces both in research and in the development of new technologies and products. NTI is a national program that identifies new technology markets; identifies key technologies and products/services that will be created in the new markets; and is a set of measures for high-tech support and stimulation, including institutional, financial, and research tools that allow for growing national companies.

10. AI-enabled channel appears on Telegram

In June 2020, Andrei Sebrant, the Yandex strategic marketing director and creator of the Telegram channel TechSparks, announced that a non-public Telegram channel that runs on AI, called "42 Seconds," recently appeared on the platform. The channel creates a daily extract from articles about IT technologies and the Russian segment of the internet using AI, which, according to Sebrant, is not biased in any way, since it simply pulls the information from the articles without giving analysis. One of the creators of the channel is Grigoriy Bakunov, the Yandex technology distribution director, though Bakunov did not disclose the names of his partners. A bot called @fortytwo_Invite_bot controls subscription to the channel, and those wishing to receive an invitation must send an introduction to the bot, including their name, position, and place of work, and attach a link to Facebook or LinkedIn. The bot will then decide whether to issue an invitation.

Source: Liana Lipanova, "The news channel '42 seconds,' which runs on artificial intelligence, appeared on Telegram" [В Telegram появился новостной канал «42 секунды» — его ведёт искусственный интеллект], VC.ru, June 15, 2020, <https://vc.ru/media/133574-v-telegram-poyavilsya-novostnoy-kanal-42-sekundy-ego-vedet-iskusstvennyy-intellekt>; also see: <https://t.me/techsparks/2417>; <https://twitter.com/bobuk/status/1265637470512852992>.

CNA Commentary: Russia's Yandex is one of the top ICT companies implementing AI solutions for better customer experience. Yandex (Russia's Google equivalent) is an integral part of the emerging AI ecosystem as one of the key companies working with the public sector on shaping AI and big data markets in the country.

Education and Training Developments

11. URTK and Huawei offer new AI training course

According to a June 4 press release, the Yekaterinburg-based A.S. Popov Ural College of Radio Engineering (URTK) is offering a new course focusing on AI, ML, and deep learning as part of its existing Huawei Academy Information and Communication Technologies certification program. The first cohort of 13 students, who began the new course at the end of April, have now completed it, and 10 of them were certified. The course focuses on the mathematics, data processing, and verification tools necessary for creating machine self-learning algorithms. The students also learned Python and several of its libraries.

According to the announcement on Huawei's News Room webpage on June 15, this course is the latest part of an ongoing collaboration that began in 2017 when URTC first opened its Huawei ICT Academy. Since then, the academy has graduated and certified more than 200 individuals. Vladislav Mikshevich, head of the group of regional sales of Huawei Enterprise in Russia, is quoted as saying, "Cooperation and the systematic development of relations with educational institutions is one of our priority areas. We not only offer advanced technologies and solutions to the Russian market, but also invest in the development of relevant specialists." According to Mikshevich, the Huawei-URTC collaboration began with two courses on data storage and networking, and this course was added because of the rise in popularity of big data and AI and the need to train specialists in these areas. In the future, a course on ICT security may be offered.

Sources: "Новый курс Huawei Academy" [New Huawei Academy course], Уральский радиотехнический колледж имени Александра Степановича Попова (УРТК им. А. С. Попова), June 4, 2020, <http://urtt.ru/2020/06/novost328/>; "Huawei и УРТК выпустили первых студентов по направлению Искусственного интеллекта" [Huawei and URTC certify the first students in the field of Artificial Intelligence], Huawei.com, June 15, 2020, <https://e.huawei.com/ru/news/ru/2020/202006161749>.

CNA Commentary: Huawei is targeting Russian academic institutions with funding and partnership agreements seeking to utilize Russia's STEM education for its own RDT&E. Huawei is seeding AI and ML labs, research grants, and cooperative arrangements to tap into Russia's vast pool of capable STEM students. In return, Russian universities are getting much-needed funding and access to a global high-tech leader. This arrangement is expected to involve dozens of Russia's top schools and universities.

12. FEFU students' traffic regulation app places in Russian hackathon competition

According to a June 16th *Izvestiya* article, a team from the Vladivostok-based Far Eastern Federal University (FEFU) made the top three in an all-Russian online hackathon by creating an innovative application for optimizing traffic lights. The students used machine learning, Internet of Things devices, computer vision, and neural networks to create a mobile application that can analyze and predict traffic trends to regulate flows more efficiently. The team, comprising university students and schoolchildren from the region, developed the application in three days. According to the university website, the competition was funded by Skoltech's NTI Competence Center for "Wireless Technology and the Internet of Things." The event was supported by the Presidential Grants Foundation. FEFU trains students in 35 areas of IT, and seeks to engage interested students as early as possible to help develop their skills and prepare them for their careers.

Sources: "Школьники ДВФУ создали регулирующие транспортные потоки нейросеть" [FEFU students created a neural network that regulates traffic], *Izvestiya*, June 16, 2020, <https://iz.ru/1024034/2020-06-16/shkolniki-dvfu-sozdali-reguliruiushchuiu-transportnye-potoki-neiroset>; "Школьники ДВФУ создали нейросеть, способную регулировать транспортные потоки" [FEFU students created a neural network capable of regulating traffic flows], Far East Federal University, June 15, 2020, https://www.dvfu.ru/news/fefu-news/students_of_the_university_created_a_neural_network_capable_of_handling_traffic_flows/.

CNA Commentary: Part of the Russian national AI strategy unveiled in October 2019 is the education of the future workforce in artificial intelligence and machine learning, starting with Russia's school and universities. A growing number of Russia's academic institutions are implementing AI degrees, running hackathons and workshops, and placing in domestic and international ICT competitions focusing on AI skills development. Russian government is supporting and encouraging such activity in order to create a competitive high-tech workforce that will be well versed in AI RDT&E.

13. Tyumen Programming School to offer new neural networks course

The Tyumen School of Programming has begun to offer a new course on neural networks, a June 15th TASS article reported. The two-month-long online course will specifically focus on collecting and preparing data to train neural networks. It will be free of charge to those who are admitted, and the content will be accessible to beginners. The Tyumen School of Programming was established in 2017 and has graduated more than 600 students who now

work in IT. The article notes that one of the subtasks of the national “Digital Economy” project is to develop an IT hub in Tyumen. (*Please see “Digital Economy” coverage in this and earlier issues of AI in Russia.*)

Source: “Тюменская школа программирования запустит курс по нейросетям” [Tyumen school of programming will launch a course on neural networks], TASS, June 15, 2020, <https://futuresussia.gov.ru/nacionalnye-proekty/tumenskaa-skola-programmirovania-zapustit-kurs-po-nejrosetam>.

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14. MIPT professor discusses digital education

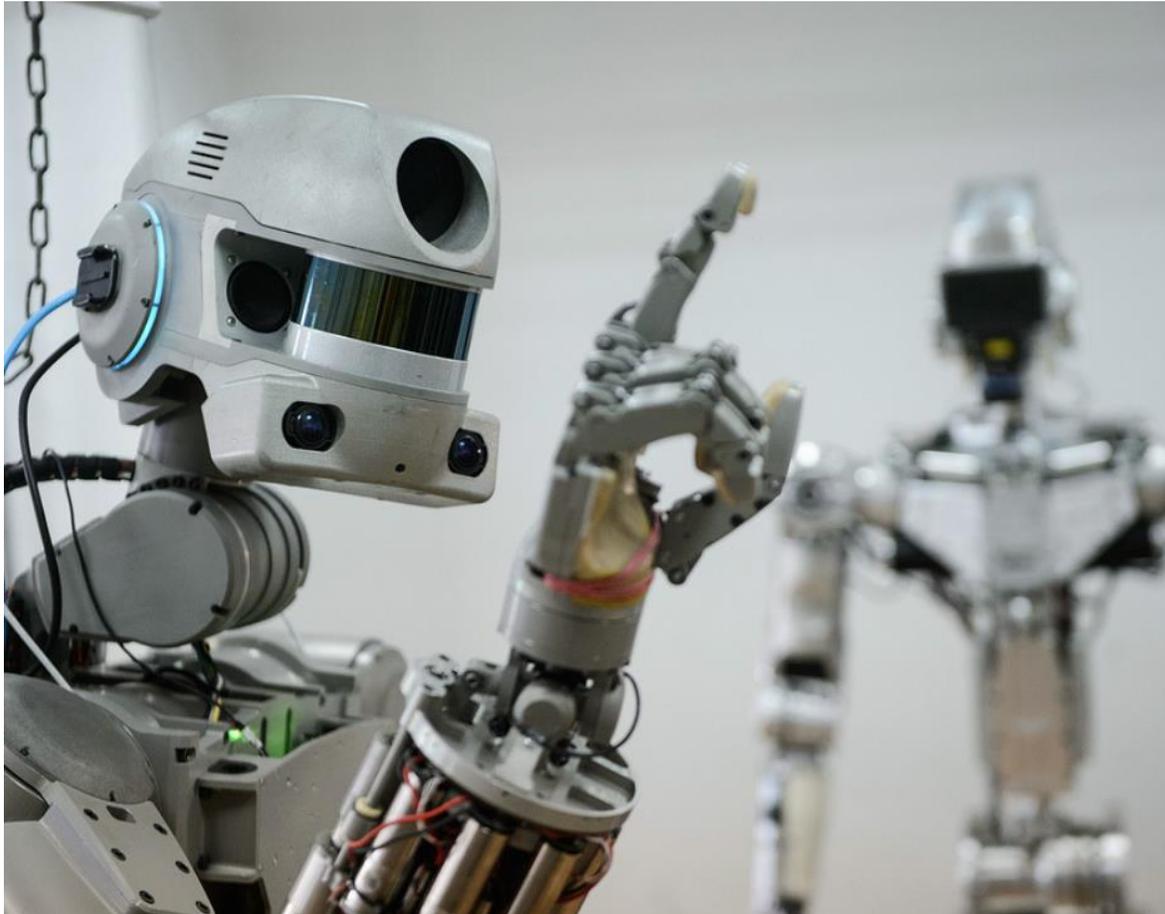
In a June 17th article in *Nezavisimaya Gazeta*, Alexey Maleev, a professor in international programs and digital innovation at Moscow Institute of Physics and Technology (MIPT), discussed the implications of the COVID pandemic for education technologies in Russia and in the world. He noted that the pandemic challenges past assumptions about the ease of transitioning to online education. He also suggested that much of higher education could be conducted online, with physical universities left only to carry out socialization (access to community) and certification (grading). Further, higher education could move away from traditional forms of tests and exams. In this regard, Maleev pointed to MIPT’s RuCode programming and AI championship, which are organized jointly with 10 other schools of higher education. He also noted MIPT’s participation in the international CDIO (Conceive, Design, Implement, Operate) initiative that employs project-based learning as an additional stimulant of student innovation and initiative.

Source: Алексей Малеев, “Только элита будет учиться в офлайне” [Only the elites will study offline], *Nezavisimaya Gazeta*, June 17, 2020, https://www.ng.ru/vision/2020-06-17/8_7887_vision.html.

CNA Commentary: MIPT is one of Russia’s top STEM universities, and one of the most significant AI RDT&E nodes in Russia’s emerging national high-tech ecosystem. As COVID-19 is forcing a re-evaluation of education methods and metrics, and in light of the ongoing debate in Russia about whether the future of education is online, MIPT is trying new models that include festivals and competitions in AI and programming among students. MIPT leadership

feels that this kind of model can become a better determinant of the students' success in learning and implementing AI scholarship in Russia.

Spotlight: Advanced Research Foundation



Source: Advanced Research Foundation, Fedor, www.fpi.gov.ru/projects/fiziko-tehnicheskie-issledovaniya/fedor/

A significant entity in the development of AI in Russia, and military AI in particular, is the Advanced Research Foundation (ARF).¹ The goal of ARF is to “promote research and development in the interests of national defense and state security,” especially in leveraging new technologies to achieve “results in the military-technical, technological, and socio-economic spheres.” The Russian government founded ARF in October 2012, and it is roughly analogous to the US Defense Advanced Research Project Agency (DARPA). In March 2018, ARF

¹ Фонд Перспективных Исследований <https://fpi.gov.ru/>.

announced that it had prepared proposals for the Russian Ministry of Defense on AI standards and asserted that AI development in Russia should proceed along four lines of effort: image recognition, speech recognition, management of autonomous systems, and support for weapon life-cycles with maintenance and logistics.

Notable AI-related projects include the anthropomorphic robot Fedor, whose envisioned usefulness includes rescue missions in dangerous environments for the Ministry of Emergency Situations, work in high-radiation environments in the nuclear industry, and military applications such as mine clearance and casualty assistance.

Marker, another ARF project, is a military ground robotic system (РТК — наземное робототехнический комплекс), used to test various military-related AI technologies through its modular construction and open information architecture. ARF notes that the evolution of RTK systems is moving in the direction of gradually decreasing the role of the operator. Research areas associated with Marker include manned-unmanned teaming (MUM-T), autonomous control, orientation and navigation, technical vision, unmanned systems' group and swarm capabilities, hybrid power plants, and payload management.

ARF was a key developer of the Vityaz UUV, which was designed with the Ministry of Defense and Rubin Design Bureau. Vityaz had onboard AI that enabled the vehicle to navigate independently once it descended to the bottom of the Mariana Trench on May 8, 2020.

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

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