East-West Digital News

The first-ever comprehensive startup research on 24 countries of Central and Eastern Europe

STARTUP INVESTMENT & INNOVATION IN EMERGING EUROPE

PART 3: AI: The New Powerhouse of Europe?

2018 EDITION, VERSION 1 – FEBRUARY 2018

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The result of a one-year-long research across 24 countries, this report highlights the main facts, numbers and trends of startup investment and innovation in Central and Eastern Europe. It can be downloaded at no charge from http://cee.ewdn.com

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ABOUT THE PUBLISHER

East-West Digital News is a news and research agency dedicated to the vibrant tech markets of Central and Eastern Europe.

Founded in 2011, the agency publishes news sites (Russia: www.ewdn.com , Ukraine: www.uadn.net) and industry reports (http://ewdn.com/reports).

A consulting branch, East-West Digital Consulting, provides international players with assistance for business development in Eastern-European companies, and advises local companies on their international strategies (http://www.ewdn.com/services).

For more information, please contact us at contact@ewdn.com

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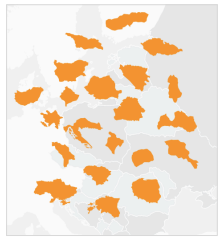

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PART 3:
ARTIFICIAL INTELLIGENCE:
THE NEW POWERHOUSE OF EUROPE?

2018 EDITION, VERSION 1 – FEBRUARY 2018

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INTRODUCTION

BY VIKTOR PROKOPENYA, INVESTOR

The implications of artificial intelligence (AI) go far beyond its underlying research achievements and innovative programming methods. AI creates economic value; if used wisely, it will drive progress and change the world for the better.

From a business standpoint, the early stages of AI signal huge opportunities. The way is opening for much simpler and more convenient products. AI also represents a considerable leap forward in personalization – which is paradoxical, since it relies less on individual characteristics than on statistical values stemming from large numbers.

AI products are also less transparent to competitors – it is virtually impossible to understand the underlying AI layer of an application – and hence less replicable.

But AI also demands specific and rare skills. As a totally new programming method, it requires strong abilities in mathematics and high-performance computing. And beyond those, successful AI startups also need: talented AI product managers to define and apply relevant data strategies (which data you have, why and how to use them, etc.); products designed to account for usability and business parameters; an understanding of the necessary resources and skills – and how they should be involved in a project; and much more.

In this perspective, Central and Eastern Europe is simultaneously strong and weak. The region is a reserve of tech talent, including in the critical fields of mathematics and high-performance computing. Thus it is not by chance that a variety of strong projects have emerged from the region, as illustrated by the cases in this report.

Yet at the same time the region lacks AI product managers and project founders with the requisite skills.

All told, Central and Eastern Europe has made a good start in this most promising industry. To confirm its status as a hotspot on the world's tech map – in this field as in so many others – public and private players from the region must bet on education, training and international skill cross-fertilization. As they do this, they will be nurturing the builders of the AI world of tomorrow.

- A prominent figure on the Belarusian business scene — he launched his first enterprise at the age of 15 and has received the Belarusian Entrepreneur of the Year Award three times — Viktor Prokopenya is the founder of VP Capital (www.vpcapital.com), a global investment vehicle focused on the technology and real-estate sectors. In early 2017 the fund launched a $100 million international AI startup investment program jointly with Russia's Larnabel. Mr. Prokopenya also participates in researches on behavioral finance. He now divides his time between Minsk and London.

THIS PART CONTAINS:


AI CONFERENCE
International conference
dedicated to application
of AI in business
April 19, 2018
https://aiconference.ru/en
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Section 1:

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THE EARLY DAYS AND RICH OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE IN RUSSIA

BY PETER ZHEGIN, CO-FOUNDER OF RUSSIA.AI

Elon Musk, the founder of self-driving car marker Tesla, recently labelled Russia as a "competitor for AI superiority" (http://goo.gl/d7ai4N). However, the question of whether the Russian tech ecosystem is capable of producing competitive AI-powered products remains open.

Undoubtedly, some companies from Russia, or with Russian roots, have managed to draw international attention; some of them have even been acquired by tech giants. For example, Api.ai, a conversational interface platform, was acquired by Alphabet, while ItSeez, a computer vision software developer, was scooped by Intel.

However, Russia does not appear to be the epicenter of the global AI map. As a matter of fact, Alphabet has acquired just one or two Russian or Russia-connected AI companies vs. dozens of others from other geographies.

Should Russian AI startups focus on their country's domestic potential – which is considerable, – or target the global market? Should investors bet on Russia AI projects? To answer these questions, one may explore the Russian AI ecosystem in several dimensions: its communities, the academia, and entrepreneurship.

The Russian data science community

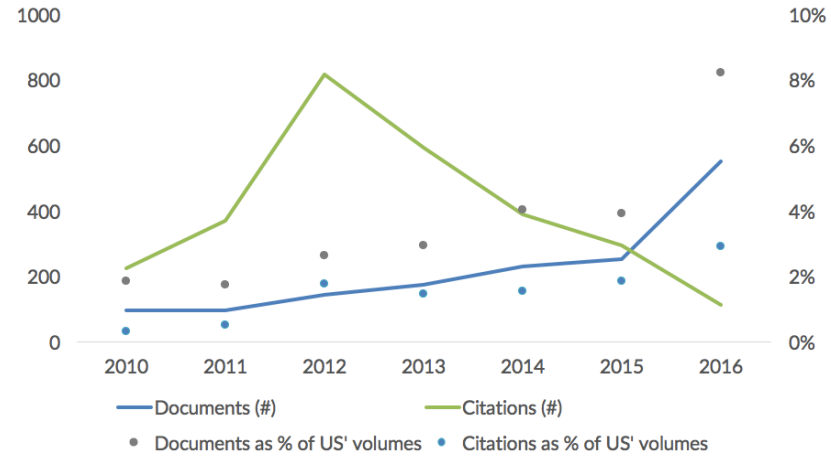
Russia boasts one of the largest data science communities in the world. The country ranks fourth on Kaggle, the largest data science platform that hosts analytics competitions (http://goo.gl/NkavsL).

Several important local communities actively contribute to the ecosystem. Thus, Open Data Science (www.ods.ai), a community of data scientists/AI researchers which started in Russia in 2015, is growing from strength to strength – reaching 6,700 members in September 2017 vs. 4,700 in May 2017.

Another community, AI Today (www.ai-community.com), gathers more than 5,000 engineers, experts and entrepreneurs. And no less than 2,000 participants went through Science Guide's hackathons (www.sci-guide.com), which were largely associated with AI and neuroscience.

A range of corporations and research institutions support the beating vibe of communities. Moscow's Phystech (Moscow Institute of Physics and Technology, or MIPT), MISIS (National University of Science and Technology), the ITMO university in St. Petersburg; such industry players as Mail.ru, Yandex (http://goo.gl/rBCrzm) and Sberbank (http://goo.gl/5dsbpK), as well as other notable corporates have supported a variety of AI-related conferences, summer schools and hackathons. Some of these events hosted world-leading experts.

CHART 1. RUSSIAN PUBLICATION ACTIVITY IN THE FIELD OF AI



SOURCE: SCIMAGO JOURNAL & COUNTRY RANK (HTTP://GOO.GL/K5PDNP)

THE EARLY DAYS AND RICH OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE IN RUSSIA

BY PETER ZHEGIN, CO-FOUNDER OF RUSSIA.AI

AI research

Russia's research effort in the field of AI is also developing fast, although it still represents a fraction of the US volumes (Chart 1). Probably as a result of a mixture of private and government-led initiatives (such as Skolkovo Institute of Science and Technology or Skoltech, the National Technology Initiative and others), publication activity in this field recently experienced a clear jump.

Thus, the number of papers grew almost six-fold between 2010 and 2016 (http://goo.gl/gbvX6f), while Skoltech was among the top 50 organizations by submissions to ICLR, an important AI conference (http://goo.gl/JtKgVS).

However, this increase in the number of publications has not resulted in a breakthrough in quality. The number of citations from papers produced by Russian ecosystem has declined since 2012. Also, one may hardly find Russian institutions presenting their research at invited/contributed talks at some important conferences like NIPS and ICLR (http://goo.gl/oL7hYZ).

The early-stage AI startup scene

Perhaps the Russian AI ecosystem is more visible on the early-stage investment scene than at conference floors. Entrepreneur success, if measured by investments from top-tier early-stage investors, is significant. A research by Flint Capital has identified 20 AI companies with links to the Russian tech ecosystem which were able to raise funds from top-tier accelerators between 2011 and 2017 (Chart 2).

Moreover, investors' interest is on the rise. The three first quarters of 2017 saw almost twice as many Russian or Russia-connected companies backed by top-tier international investors as during the full years 2015 or 2016 (Chart 3).

RUSSIAN OR RUSSIA-CONNECTED AI STARTUPS BACKED BY TOP-TIER ACCELERATORS (2011-2017)

CHART 2. BY THEME

COMPANY	THEME
Collectly	Analytics/segmentation/prediction/scoring
SBDA Group	Analytics/segmentation/prediction/scoring
Wallarm	Analytics/segmentation/prediction/scoring
Improvado	Analytics/segmentation/prediction/scoring
ManyChat	Chatbots/assistants/NL interfaces
Chatfuel	Chatbots/assistants/NL interfaces
Statsbot	Chatbots/assistants/NL interfaces
Visabot	Chatbots/assistants/NL interfaces
Api.ai	Chatbots/assistants/NL interfaces
Luka	Chatbots/assistants/NL interfaces
Akoya Biosciences	Materials/drug discovery
Exabyte.io	Materials/drug discovery
VCV	Product/content search and recommendation
Easysize	Product/content search and recommendation
Alpha Smart Systems	Robotics/human-machine/neuro interface
Toytemic Inventions	Robotics/human-machine/neuro interface
TraceAir Technologies	Surveillance/monitoring
Aerostate	Surveillance/monitoring
WayRay	VR/AR
Cappasity	VR/AR

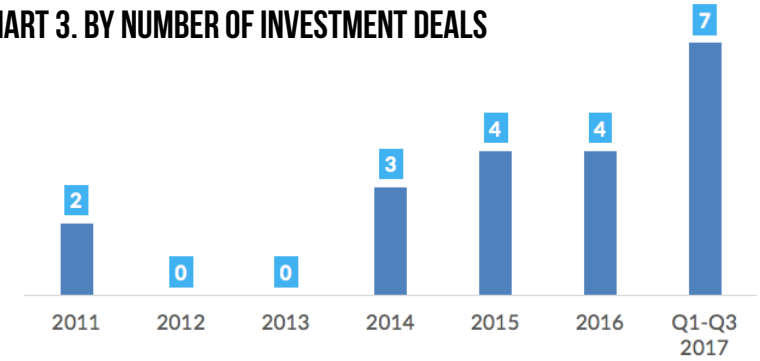
SOURCES: FLINT CAPITAL, CRUNCHBASE, PITCHBOOK. IN THIS AND NEXT CHARTS, "RUSSIAN OR RUSSIA-CONNECTED" MEANS THAT AT LEAST ONE CO-FOUNDER GOT HIS/HER UNDERGRAD OR FURTHER DEGREE IN RUSSIA. TOP-TIER ACCELERATORS ARE THOSE WITH PLATINUM AND GOLD STATUS BY MIT AND THE LARGEST ONES FORM OTHER TIER-GROUPS (WWW.SEEDRANKINGS.COM/#RANKINGS).

THE EARLY DAYS AND RICH OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE IN RUSSIA

BY PETER ZHEGIN, CO-FOUNDER OF RUSSIA.AI

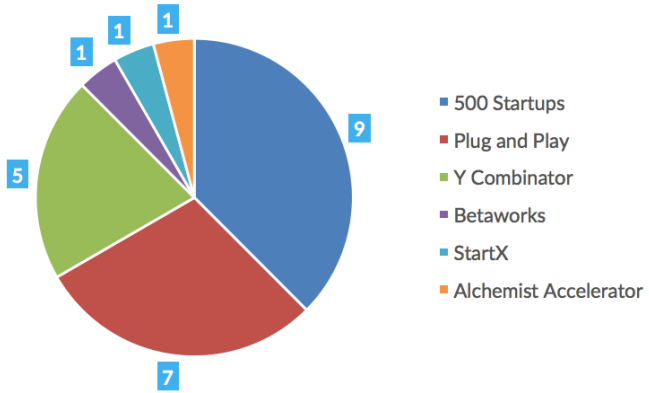
RUSSIAN OR RUSSIA-CONNECTED AI STARTUPS BACKED BY TOP-TIER ACCELERATORS (Q1-Q3 2017)

CHART 3. BY NUMBER OF INVESTMENT DEALS



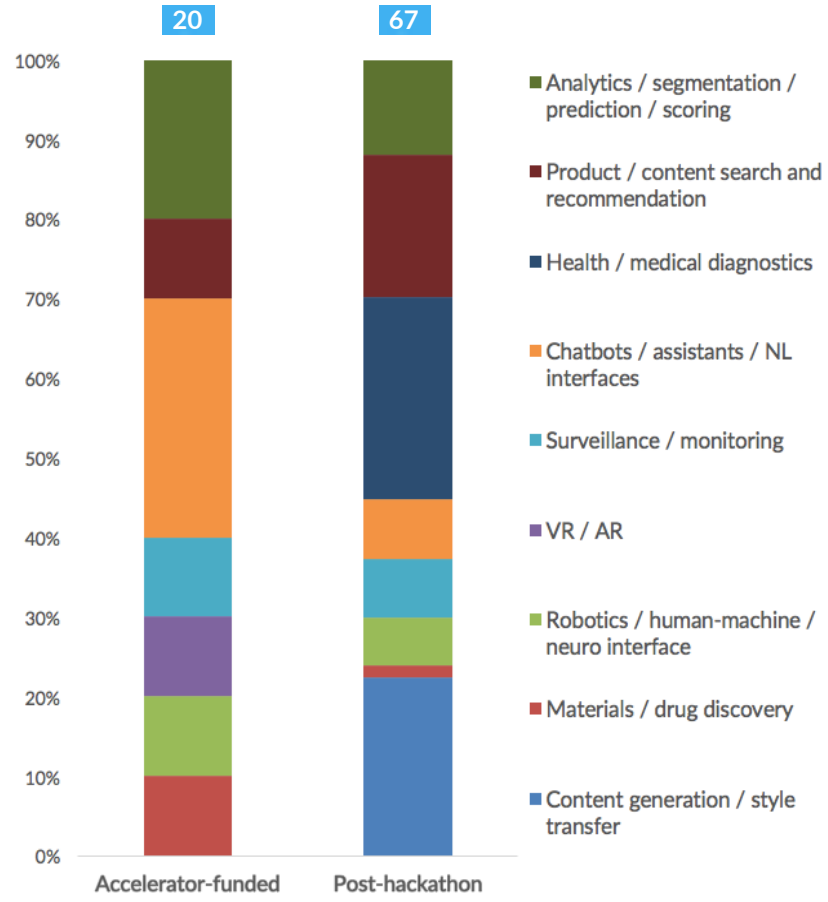
SOURCES: FLINT CAPITAL, CRUNCHBASE, PITCHBOOK

CHART 4. BY INVESTOR



SOURCES: FLINT CAPITAL, CRUNCHBASE, PITCHBOOK. THE TOTAL NUMBER OF STARTUPS DOES NOT EQUAL TO 20 AS SOME STARTUPS WERE BACKED BY MORE THAN ONE INVESTOR.

CHART 5. RUSSIAN OR RUSSIA-CONNECTED AI STARTUPS BY THEME



SOURCES: AI LAB, FLINT CAPITAL, CRUNCHBASE, PITCHBOOK.

THE EARLY DAYS AND RICH OPPORTUNITIES OF ARTIFICIAL INTELLIGENCE IN RUSSIA

BY PETER ZHEGIN, CO-FOUNDER OF RUSSIA.AI

Twenty companies backed by such international accelerators as Y Combinator, 500 Startups, Plug and Play and others represent a vivid snapshot of the potential of this ecosystem (Chart 4).

During the last six years, the sampled startups raised ca. $55 million from accelerators and other investors at later stages.[1] Almost $39 million was raised during 2016 and the three first quarters of 2017 only. This amount accounts for at least 10% of all VC investments in Russian IT during the same period.

In order to better understand where Russian AI entrepreneurs concentrate their efforts, and what to expect next, let us focus on early-stage, VC-backed companies and those fresh out of hackathons (Charts 5 and 6).[3] Such analysis shows that the themes that emerged at hackathons did not all all receive attention from accelerators and that, conversely, some themes drew more attention from accelerators than during hackathons.

Applications in the fields of healthcare/medical diagnostics and content generation were successful at hackathons, but failed to attract international investors. This was perhaps due to regulation rigidity in the first case and monetization challenges in the second (as exemplified by Prisma – http://goo.gl/47VPbb).

At the same time, dialog systems and analytical applications appear to be the most appealing to investors. These themes are perhaps precisely those gaining quick commercial traction, when being applied, for example, to customer service and such corporate functions as marketing or finance.

1. Disclosed deals only. Source: Pitchbook, Crunchbase
2. Assuming that 2017 investments volumes will be similar to ca. $150 million invested in 2016. Source: PWC/RVC Money Tree, 2016
3. Sources: Crunchbase and Pitchbook (accelerator-backed startups), Science Guide (post-hackathon startups)

By digging deeper into early-stage projects, even those not selected by established accelerators, investors may spot a niche or a new trend. Industry studies, such as those of Rusbase and Science Guide, may also provide a wider view on the Russian AI ecosystem.

Thus, a variety of instruments are available for investors to find attractive targets among the variety of projects emerging from Russia's vibrant research and entrepreneur communities in these fields.

- *Peter Zhegin is an Associate at Flint Capital, a venture capital fund investing, in particular, in cognitive tech. He is also a cofounder of AI Lab, an initiative aiming to help early-stage startup entrepreneurs from Russia develop their ideas and integrate into the global ecosystem.*

EXAMPLES OF POST-HACKATHON AI PROJECTS

Surveillance / monitoring
- Kickcity app (event marketplace)

Content generation / style transfer
- Plakot.ru (tool for generating poster designs)

Chatbots / assistants / NL interfaces
- Chatfirst (virtual assistant to optimizes corporate communications)
- Mcupfree (chatbot for Internet retailers)

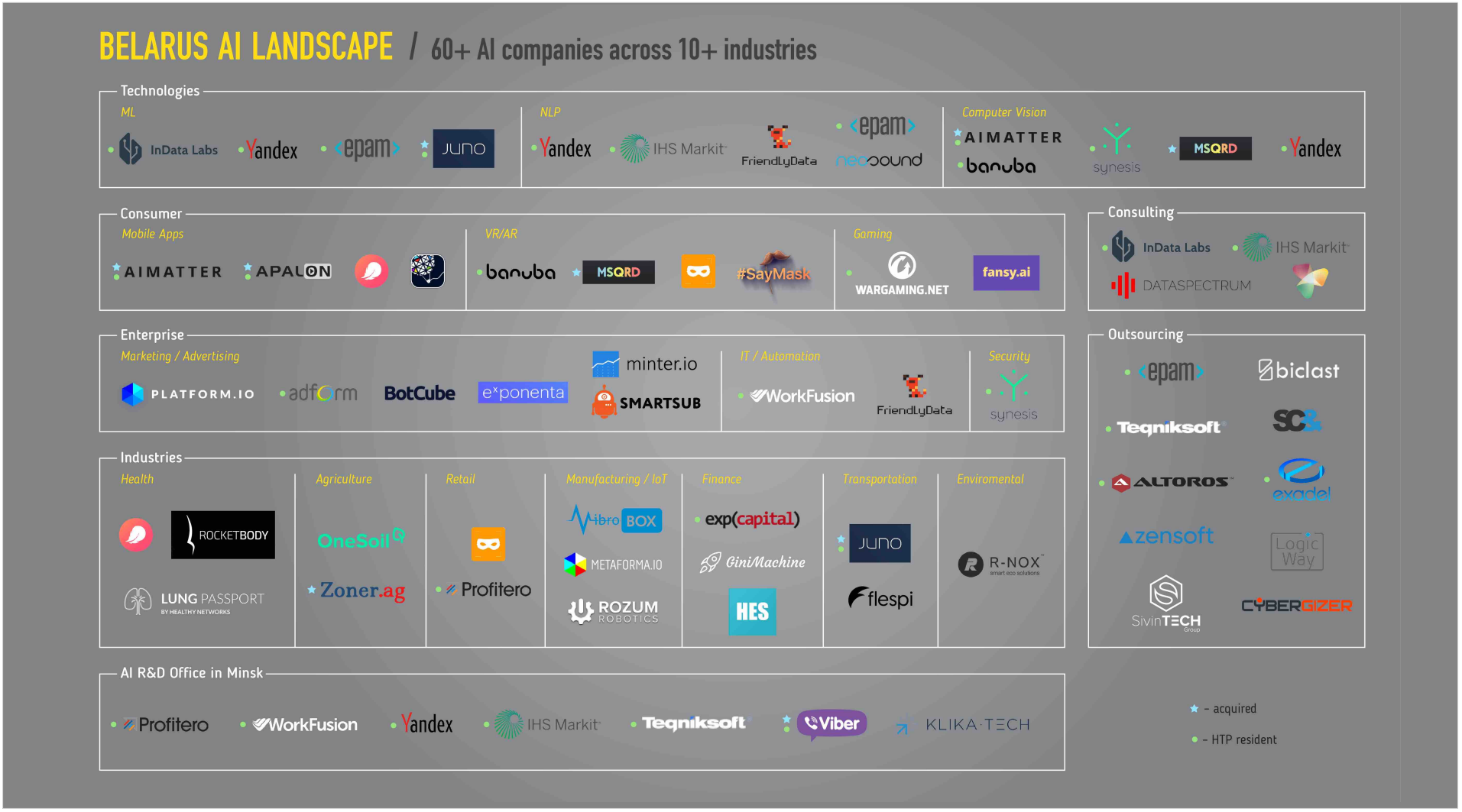
Analytics / prediction / scoring
- Howpop.io (blogpost popularity prediction)
- SmartAn (banking risk analysis)
- Datafuel.ru (cusomter segmentation / personalization)

Health / medical diagnostics
- Eyemove (Alzheimer and Parkinson disease diagnostics)
- Lungdiagnostics

Materials / drug discovery
- Druggable molecule pipeline (improve discovery process)

THE BELARUSIAN AI LANDSCAPE: 60 COMPANIES ACROSS 10 INDUSTRIES

BY ALEXEY MELNICHEK



THE BELARUSIAN AI LANDSCAPE: 60 COMPANIES ACROSS 10 INDUSTRIES

DEV.BY, OCTOBER 23, 2017

With the help of the community, IT entrepreneur and investor Aleksey Melnichek has compiled a list (http://goo.gl/dak6QZ) of companies involved into AI development in Belarus. His work goes well beyond the world-famous cases of MSQRD and AIMatter (acquired by Facebook and Google in 2016 and 2017, respectively) and the less famous but significant cases of Zoner.ag, Juno (merged with Gett), and Apalon (acquired by IAC Applications).

Melnichek's list includes 60 companies Among them are such global players like EPAM, Yandex, Viber, and local startups. There are companies dealing with "traditional" machine learning, natural language processing, and computer vision. But the range of specialties is wider: there are companies using AI in the fields of healthcare (Flo, doc, Lung Passport), agriculture (OneSoil, Zoner.ag), retail, commercial manufacturing, finance, transport, and environmental protection.

A number of large companies have their R&Ds in Minsk. For example, Profitero, IHS Markit, WorkFusion, Yandex, Teqniksoft, and Viber. All of them are residents of High-tech Park (HTP).

Dev.by has asked Belarusian industry players to comment on the map.

- **Aleksey Karankevich, co-founder and CTO at Healthy Networks:**

"Experts from Belarus may often lack machine learning training, but there is a good school of advanced mathematics and statistics. The Belarus AI landscape and community will continue to develop in a natural way, via hackathons, contests, seminars, but first of all through jobs in outsourcing companies, as was the case first with Android and iOS, then with big data and blockchain.

- **Ivan Kravchenko, head of Data Science group at EPAM Belarus:**

"Most of what is usually meant by artificial intelligence is used in a variety of EPAM's projects: natural language processing, computer vision, machine learning, neural networks, etc."

- **EPAM co-founder Leonid Lozner:**

"Is Belarus really aiming to be the capital of European artificial intelligence? It's not easy to attribute such development to one country or region. (Perhaps, only Silicon Valley can claim to be an exception.) Yet there are two major factors that are worth mentioning in Belarus. We have many highly skilled professionals, including people with academic background, and several globally famous success stories of AI startups. And the people who made them happen are still at the helm, which means they are still capable of scaling their own success."

- **Anatoly Lyotych, CTO at Cybergizer:**

"In previous years large companies in our country tended to hire all available AI engineers to work on their projects. This slowed down the development of other projects and startups. Now there are more people and companies on the market. This situation provides more options both for companies and engineers, "democratizing" this specialty. So next, I expect the emergence of new AI startups in Belarus."

- **Alexander Zaitsev, co-founder and CTO at FriendlyData:**

"In Belarus, there are some high-class specialists it is quite difficult to expand teams dealing with AI. And constant research also requires considerable investments. Perhaps, in order to improve the situation, should Belarus reform its education system and make it more flexible to meet today's requirements. We also should engage large companies like Google and Facebook to have their R&Ds appear on Belarus AI landscape."

These are key excerpts from an article which was initially published by Dev.by (http://goo.gl/eok5UH) and translated into English by InData Labs (http://goo.gl/2CEmeg)

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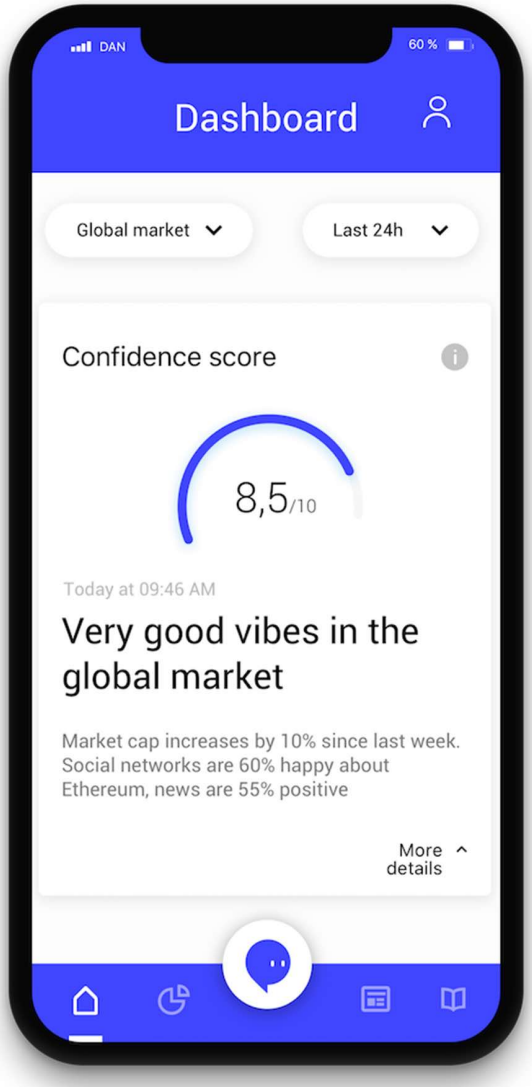

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DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

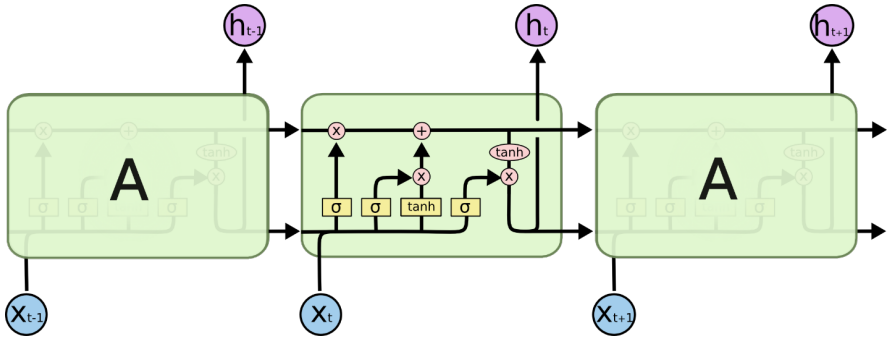
BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

Traditionally, methods of fundamental analysis and technical analysis have been used for stock market prediction. Most of these methods were engineered and adopted before the widespread use of computers and advanced probability theory, information theory and machine learning methods.

Therefore, until recently computers were playing an important but supplementary role in stock market decision-making, being used widely for data communication, processing and visualization but not for finding hidden gems in those data.

A bell rang loudly when it became known that most actively managed funds and private traders underperform the markets. It became obvious that traders would have to make the ever-growing amounts of data and computing capabilities more useful. Luckily, a whole new world of evolving machine learning methods was waiting for them.

FIGURE 1: STRUCTURE OF AN LSTM NETWORK



SOURCE: OLAH, 2015

Recurrent neural networks

The rise of the Neural Networks in the late 1980s led numerous researchers to try using them to solve problems of financial time series analysis and prediction. Yet it was not until 1997, when Sepp Hochreiter and Jürgen Schmidhuber (Hochreiter & Schmidhuber, 1997) proposed Long Short-Term Memory architecture (LSTM), that a neural network able to track temporal relationships appeared.

LSTM is also able to address the "vanishing/exploding" gradient issue, so it became one of the most widely used neural network architectures (Figure 1).

Had the magic wand finally been found? Yes and no. As it worked out, straightforward application of LSTM to the problem of stock price prediction usually led to the following outcomes:

- The LSTM model would try to use the last price seen as a prediction for the next step (Figure 2). This estimate, though being reasonable from the point of view of random walk theory, doesn't actually help us to trade. Or alternatively:
- The model would act as a kind of moving average, effectively levelling all short-term movements.

Another drawback of the LSTMs was that they are painfully slow to train.

In StocksNeural.net practice, we were able to overcome some of these limitations by performing a noise reduction on the original time series using a Kalman filter. It let us reach a rather high quality of prediction and generated trade recommendations.

DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

For instance, we have launched an automated trading bot which relies solely on generated predictions and recommendations and works on the US equities market. It is showing annualized return of 24%, a Sortino ratio of 7.6 and a Sharpe ratio of 2.8.

Convolutional neural networks

Since the landslide victory of the Convolutional Neural Network (CNN) in the ILSVRC-2012 computer vision competition, CNNs have become a popular architecture for most of the computer vision-related problems. However, they have not appeared precisely fitted to time series problems. The main concern has been that the traditional CNN layout was unable to retain temporal resolution.

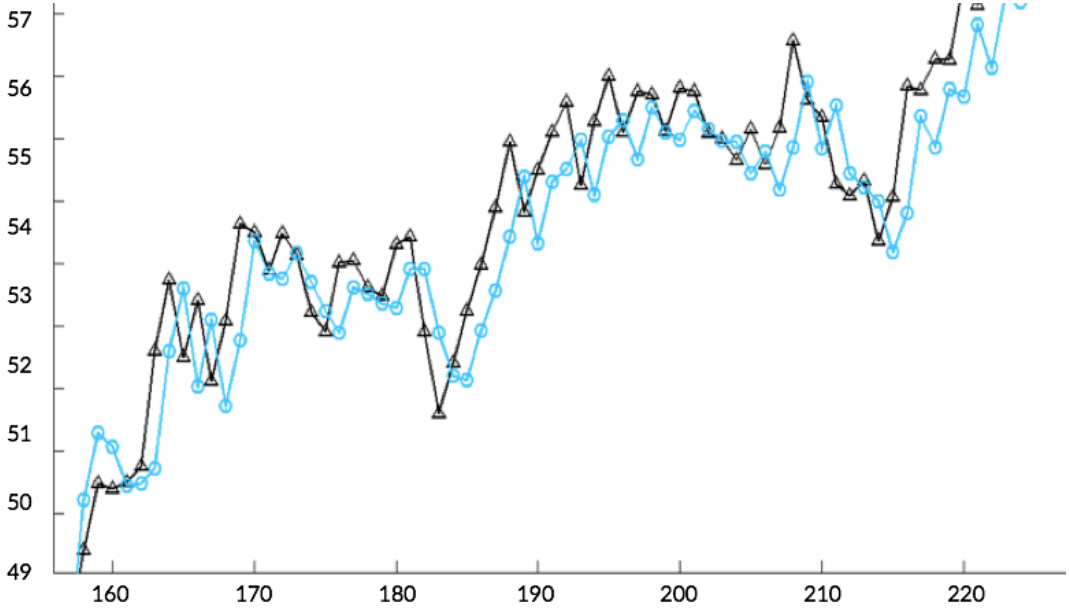
Things started to change circa 2015, when different research teams started to apply dilated fully convolutional networks to this problem. One of the most impressive outcomes was WaveNet – a deep generative model for raw audio.

We have been working on the application of CNNs to the financial time series prediction problem since 2016 and have come up with custom architecture whose features include:

- usage of dilated convolutions;
- preservation of causality;
- deep architecture with residual connections to enable high-level features extraction.

A rather similar approach was proposed by a group of researchers from Italy and the Netherlands (Borovykh, et al., 2017).

FIGURE 2: PRICE PREDICTION ACCORDING TO THE LSTM MODEL



SOURCE: SCHOENEBURG, 2017.. THE BLUE LINE (MODEL PREDICTIONS) IS VERY CLOSE TO THE BLACK LINE (ORIGINAL TIME SERIES) SHIFTED TO THE RIGHT.

DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

Currently we are training and testing our model on the range of daily and intraday stocks and futures time series. We have been able to obtain a hit rate of up to 71% on the daily data (Figure 3), which is in line with hit rates obtained by Borovykh, et al. – up to 69%. The predictions are obtained using the causal dilated convolutional (CDC) model. We have also conducted backtesting of the trained models for some cryptocurrency pairs, including LTCBTC, XRPBTC and DASHBTC. The 125 days returns were 44.83% for LTCBTC, 95.64% for XRPBTC and 29.45% for DASHBTC (Figure 4).

The application of CNNs allows model expansion in order to cover a multi-instrument case (e.g. all stocks as constituents of the Dow Jones Industrial Average index).

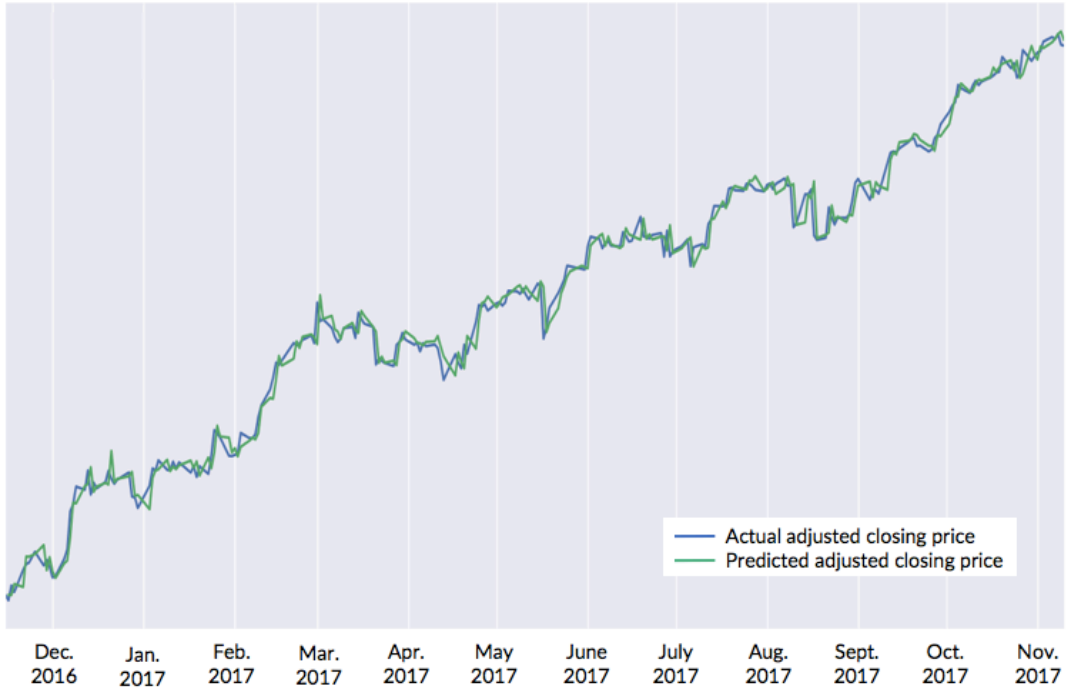
Learn to trade: How to use Deep Reinforcement Learning for optimal trading decision-making

Even when we come up with an almost perfect prediction model, it will still have to be converted into a profitable strategy. This is even more complicated in a real life, where our model is not perfect.

Perhaps we could train our model directly to trade – to decide when to buy a security, when to sell, and then to do nothing. There are a number of options for doing this, and Deep Reinforcement Learning is one of the most promising among them.

You have probably heard of the remarkable success of Deep Mind-built models outplaying top human Go (AlphaGo) and Dota 2 players, and perhaps also of Carnegie Mellon's Libratus, which has beaten professional Texas Hold 'Em poker players.

FIGURE 3: ACTUAL VS. PREDICTED DAILY CLOSE PRICES OF SPY ETF



SOURCE: STOCKSNEURAL.NET. THE PREDICTIONS ARE OBTAINED USING THE CAUSAL DILATED CONVOLUTIONAL (CDC) MODEL.

DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

If Deep Reinforcement Learning can top humans at those games, can it perhaps do the same in trading? Let's see!

There are numerous researchers working on this problem, ourselves included. For example, David W. Lu (Lu, 2017) from Bank of America Merrill Lynch, applied LSTM with Reinforcement Learning to GBP/USD trading using 30-minute interval price points. He trained two variants of the system, one rewarded for Sharpe ratio growth, another for Downside Deviation Ratio.

Lu was able to achieve approximately $200,000 of profit in the first case and $250,000 in the second over a test period of three months, with underlying assets showing returns close to 0%. (Figure 5)

Zhengyao Jiang et al. (Jiang, et al., 2017) applied Reinforcement Learning combined with CNN, RNN and LSTM networks to the problem of crypto asset portfolio management.

They have obtained rather impressive results, with final accumulative portfolio values (fAPV) of 29.70, 8.03 and 47.15 (with a base of 1.00) and Sharpe ratios of 8.7, 5.9 and 8.2 for the different periods – significantly better than buy and hold strategy results of 0.82, 1.03 and 2.23 of fAPV for the same periods.

StocksNeural.net is also working on this problem. We have conducted numerous experiments applying Asynchronous Advanced Actor-Critic (A3C) architecture to the problem of making optimal (in terms of profit) trading decisions at 1-minute intervals for equities and EUR/USD.

FIGURE 4: RESULTS OF THE BACKTESTING OF THE CDC MODEL FOR XRPBTC PAIR (FROM 29 JUNE 2017 TO 31 JULY 2017)

SOURCE: STOCKSNEURAL.NET.

DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

The training setup and process for A3C is cumbersome and the training is slow, but it has obtained rather good results: the model trained on the Apple stock data, for example, provided an annual return of 89% with a Sharpe ratio of 2.89 and Sortino ratio of 7.79 on the test set, accounting for trading commissions (Figure 6).

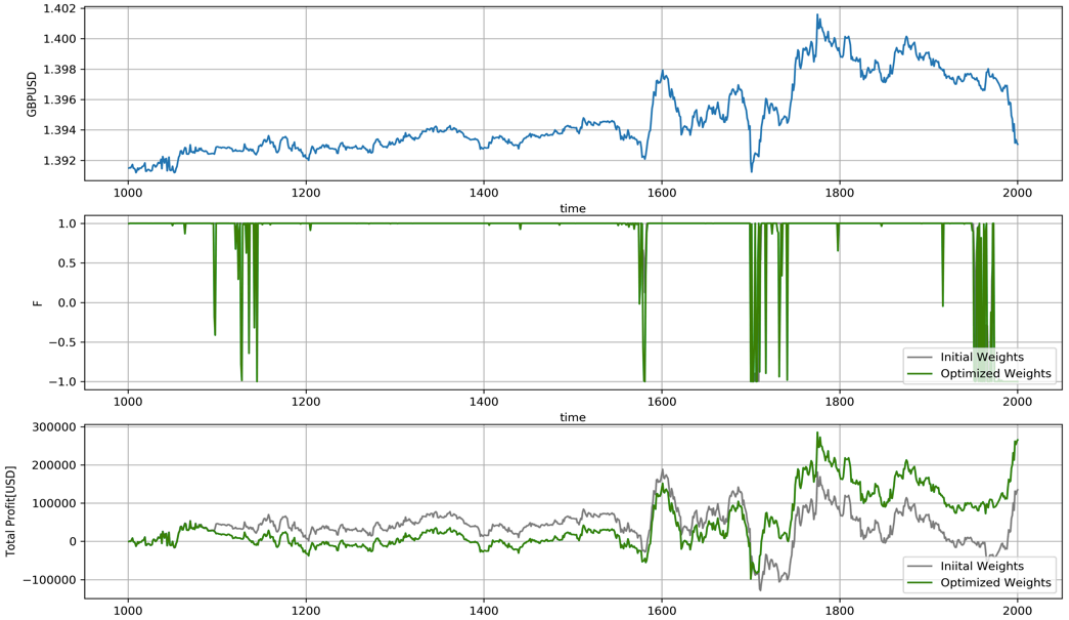
Industry adoption and future perspectives

While initially encountering considerable prejudice, Deep Learning has begun to see wider adoption in the last two years. Prominent funds have started to use Artificial Intelligence (AI) and Deep Learning for trading and investment decisions. For instance, Man Group Plc. is using AI (probably CNN-based) in managing assets of $12.3 billion; BlackRock, in turn, has built a natural language processing platform to help financial managers make informed investment decisions.

Available research shows that AI and Machine Learning-driven hedge funds already outperform their traditionally-managed competitors by a significant margin: 10.56% over a two-year period (Eurekahedge, 2017).

We at Deep Gnosis Inc. have been working on the application of Deep Learning methods to the problem of stock market analysis, prediction and optimal trading decision-making since 2015. In the first stage, we designed and trained RNN-based models for most of the stocks that constituted the S&P500 index and started publishing daily predictions and trading recommendations on our site (https://stocksneural.net).

FIGURE 5: GBP/USD RATE (TOP) AND TOTAL PROFIT OBTAINED BY MODEL (BOTTOM)



SOURCE: DAVID W. LU (2017) .

DEEP LEARNING FOR STOCK PRICE ANALYSIS AND PREDICTION

BY DMITRY LUKOVKIN, CEO OF STOCKSNEURAL.NET (DEEP GNOSIS, INC.)

Now we are rolling out a new generation of models powered by Convolutional Neural Networks, both for equities and cryptocurrency markets. We also developing relationships with a number of hedge funds that apply our solutions to the management of their assets.

The rise of distributed ledger technologies and cryptocurrencies opens a broad range of opportunities where trading, blockchain tech and Deep Learning can co-exist, shaping a new generation of fintech solutions. Some pioneer solutions are already here: one example is Numer.ai, a hedge fund utilizing crowdsourced AI solutions, employs its own cryptographic token to incentivize data scientists to contribute artificial intelligence to their fund.

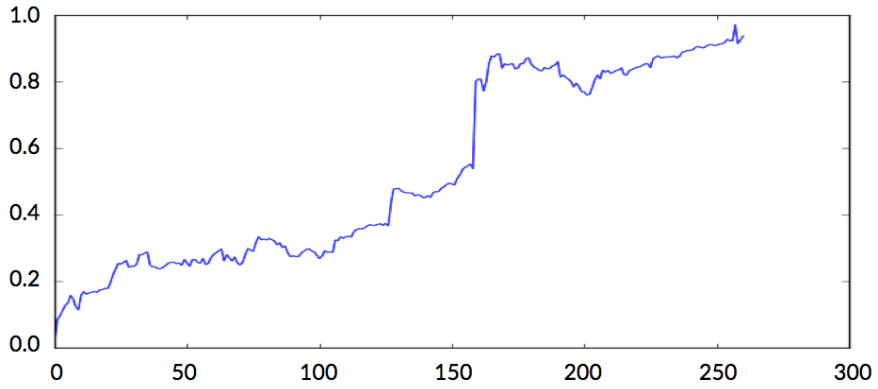
On the other hand, there are still certain drawbacks that make application of, for example, Deep Reinforcement Learning to short-term (1-minute) crypto trading inefficient; very high trading fees on the crypto exchanges, to name one, are forcing trading bots to stick to the buy-and-hold rule.

As soon as decentralization becomes a core feature of crypto-currencies, one may expect more and more decentralized exchanges to emerge. This will lead, in my view, to the rise of decentralized Deep Learning-powered hedge funds, which will mitigate risks related to the concentration of investors' assets in centralized entities and decrease hedge funds costs and overheads.

- *Dmitry Lukovkin is the CEO of Deep Gnosis, Inc. (www.stocksneural.net), where he works on applying Deep Learning and Reinforcement Learning methods to financial markets. He previously served several Russian tech startups as CEO and CTO. Concentrating on machine learning since 2013, he has offered contributions to Keras, the Python Deep Learning library. Mr. Lukovkin earned a master's degree in 1999 after graduating from the Moscow State University. Email: lukovkin@stocksneural.net.*

FIGURE 6: CUMULATIVE RETURNS FOR AAPL STOCK

OBTAINED USING A3C DEEP REINFORCEMENT LEARNING ON 1-MINUTE INTERVALS



SOURCE: STOCKSNERAL.NET

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CAN ARTIFICIAL INTELLIGENCE COMBAT BEHAVIORAL BIASES IN TRADING?

BY NIKOLAI MARKOVNIK, PH.D., VP CAPITAL

A senior investment manager at VP Capital,[1] Mr. Markovnik reviews the possibilities, benefits and limits of using artificial intelligence to reduce behavioral biases in stock traders' decisions.

In spite of the considerable funds that are at stake, trading is one of many domains of human activity to be affected by cognitive biases (http://goo.gl/WUF1EY). What traders believe are valid judgements may in fact be the results of effort-saving mechanisms by the brain. Supposedly rational decisions may stem from mental shortcuts that ignore chunks of information, which can then have a significant impact on traders' results.

Recent research in behavioral economics has identified dozens of common biases that can impact investment choices and practices. One of the most common is the disposition effect, where traders choose to sell and make profit on shares that have been going up in price for some time, while holding onto shares that are in steady decline, waiting for them to bounce back. Statistically, this does not make financial sense: the shares that are rising in price are more likely to continue to rise in price over the next six months than those in free-fall are to stage a recovery.

In a research paper entitled "Do Losses Linger? Evidence from Proprietary Stock Traders" (http://goo.gl/8CwqzA), researchers Ryan Garvey, Anthony Murphy and Fei Wu examined how professional stock traders on the Nasdaq are influenced by their recent trading performance. They found that when the traders incur morning losses, their desire to recoup these losses before the close of trading leads them to trade more aggressively in the afternoon.

According to the paper: "An analysis of individual trading performance shows that traders who are more influenced by their prior trading losses perform far worse than those who are less influenced."

Other widespread biases include overconfidence, which leads us to rely more on our own reasonings or feelings than on experts' accurate investment forecasting, and the status quo bias, which sees investors prefer – sometimes irrationally – to stick to their established portfolio rather than make changes.

According to VP Capital founder Viktor Prokopenya: "Human beings are not specifically designed to trade on the financial markets. The evolutionary process has programmed us to strive for survival and nutrition. In comparison, global capital markets are a quite recent invention, and so our behavioral patterns are not adequate for the financial market habitat."

AI for hedge funds and retail investors

It's been some time since professional traders first started using computers to assist or even replace them in the increasingly complex global financial markets. Algorithmic trading now accounts for nearly 90 percent of the market, according to research by Morton Glantz and Robert Kissell (http://goo.gl/LVSLF1). While high-frequency trading tools are designed to buy and sell financial instruments in fractions of a second, artificial intelligence (AI)-based models look for the best trades hours, days, weeks or even months into the future.

Many funds are now moving towards true machine learning. Just some of the pioneers in this field are Bridgewater Associates, Renaissance Technologies and the Medallion Fund at Renaissance.

1. Disclaimer: VP Capital is an investor in Capital.com, one of the companies mentioned in this article.

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The latter has had an annualized return of roughly 35% for more than 20 years – one of the best records in investing history, according to investment forum Nanalyze.

Another hedge fund fully run by AI was launched by Babak Hodjat, a computer scientist who helped lay the groundwork for Apple's Siri. "For me, it's scarier to be relying on human-based intuitions and justifications than relying on purely what the data and statistics are telling you," he said in an interview with Bloomberg.

Furthermore, a host of start-ups are also fueling the AI trend. These include names such as Alpaca, Binatix, Sentient, Walnut Algorithms and Capital.com.

The latter, which launched this year after receiving a $25 million injection from two major investors (http://goo.gl/72FQqM) – VP Capital being one of them – is one of the first to have made AI available to retail investors, whose operations are more influenced by cognitive biases than those of professional teams, according to the company's COO, Anastasia Akula.

Similar to American Robinhood or European Trading212, the Capital.com app has a specific AI-powered function that provides investors with tailored content based on behavioral analysis. Dubbed SmartFeed, this function helps users identify common trading biases and behavioral patterns, and provides them with relevant educational content whenever these biases are detected.

Speaking to World Finance, Akula described the core functions of the app's AI features: "SmartFeed monitors the user's trading activity, providing all the necessary data, analytics and educational materials. Analyzing this data, the application will identify the cognitive biases that seem to influence the trader's behavior, and alert the trader about them.

The app can also make financial calculations based on available data and provide educational materials to fix the biases. Thus, users can avoid the mental traps that humans tend to fall into while trading, and make more rational investment decisions."

Akula's argument has recently been corroborated by Italian researchers who found that by reminding traders of the existence of behavioral biases, their performance on the trading floor tended to improve (http://goo.gl/asm6Na).

CAN ARTIFICIAL INTELLIGENCE COMBAT BEHAVIORAL BIASES IN TRADING?

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Furthermore, it is important to note that individual traders are often more exposed to the consequences of cognitive biases than professional trading teams.

Akula said: “It is a fact that individual traders have approximately the same numbers of profitable and losing trades as professional teams. However, the amounts of lost money are much higher with individual investors as a rule. This is the result of the disposition effect, which is not the case for professional traders. Our technology helps traders to avoid these disproportions.”

Can AI be trusted?

AI can be efficient in trading because of the large volumes of well-structured data available. “Finance does have such data, in contrast with many other sectors where the benefits of AI are overhyped,” said Prokopenya.

However, the recent evolutions affecting social networks, the media, politics and other spheres have also taught us that AI itself can be biased.

A study conducted by Tolga Bolukbasi, Kai-Wei Chang, James Zou, Venkatesh Saligrama and Adam Kalai in 2016 noted: “The blind application of machine learning runs the risk of amplifying biases present in data.” (http://goo.gl/ztZrw6).

This is not to mention cases of computer trading programs running amok, generating huge losses on the stock exchange, as has happened several times in the world’s largest exchanges (http://goo.gl/6xeaZ2).

When asked if she believes that one day AI could replace human brains to such an extent that traders will be able to earn money while sleeping, Akula replied: “I hope this will not happen soon and we will still have our jobs in the sector. But, honestly speaking, the technology is developing rapidly.”

There are already algorithms that trade autonomously and more efficiently than humans. Our team at Capital.com works effectively to provide our clients with the latest cutting-edge technologies and AI solutions,” she said.

The lesson? To let AI help us make more conscious and informed decisions, without allowing computers to fully replace our brains. Artificial or not, this combination may be the definition of true intelligence.

This article first appeared in Word Finance (http://goo.gl/o6jLLR).
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5 REASONS TO INVEST IN ARTIFICIAL INTELLIGENCE IN 2018

BY JOSEPH BEDMINSTER, FOUNDER OF DANEEL.IO

Not a day goes by without a new story about how AI will advance or revolutionize yet another area of our lives. But artificial intelligence is more than hype. It's a business opportunity. Venture capital firms spotted the opportunity and invested record amounts of money into artificial intelligence in 2017. So what about you, a private investor or even a dabbler - are you considering investing in AI? Here's why this year might be the right moment to take a leap and invest in some promising AI opportunities.

Reason #1: A top priority for technology leaders

A 2017 study by data analytics firm Teradata found that 80% of the surveyed enterprises it surveyed were investing in artificial intelligence. “Businesses think AI is here to stay and expect both short- and long-term gains from investments in the technology,” concluded the study (http://goo.gl/eusKvD).

Many tech leaders have already spotted the opportunity. For instance, NVIDIA and Nuance announced a partnership aiming to bring artificial intelligence into healthcare. Google has even rebranded itself as an “AI-first” company in the last 18 months, under the direction of CEO Sundar Pichai. IBM has also heavily invested in AI, as Watson, their AI platform for business, quickly rose to prominence as one of the most sophisticated solutions in the market.

Reason #2. AI as a competitive edge

The fact that the likes of Apple, Facebook and Amazon heavily invest in AI doesn't tell the full story. What’s striking is that technology leaders began using artificial intelligence for competitive edge.

For instance, IBM has made significant strides, asserting their leading position with bold moves such as the acquisition of The Weather Company for approximately $2 billion. IBM gained access to 2.2 billion forecast points worldwide, which are now used by Watson to fuel multiple client services.

IBM is currently the only company offering sector-based AI solutions which allow businesses to truly own their AI rather than just rent it. As a result, Watson is now arguably the strongest brand in AI – although Google DeepMind and Microsoft Oxford are also aggressively competing for AI headlines.

Artificial intelligence is the common thread that runs through the hottest business opportunities pursued by all tech giants (namely home automation, autonomous driving, augmented reality, etc.). What’s certain is that this AI race will help to accelerate innovation and spark acquisitions - good news for any investor.

Reason #3. Encouraging bold solutions

As the Alphabet chairman said: “Technology is now on the cusp of taking us into a magical age, in which machine learning can prevent blindness, translate any language with expert skill, or even save endangered species from extinction. Machine learning is beginning to help us solve problems today that we simply couldn’t solve on our own.”

AI has the potential to help us tackle problems we've been grappling for hundreds or often thousands of years. As machine learning encourages entrepreneurs to think bigger and bolder than ever before, we'll see a proliferation of startups with immense potential for growth that will offer outstanding investment opportunities.

5 REASONS TO INVEST IN ARTIFICIAL INTELLIGENCE IN 2018

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4. AI and data industries: a symbiotic partnership

It's impossible to talk about the potential of AI without talking about data. As Alex Woodie of Datanami put it, "in the world of ideas, AI seems to be taking the torch from big data and running with it".

This doesn't mean that big data has become irrelevant, quite the opposite. Businesses are increasingly relying on data solutions to mine and process the enormous amounts of information gathered from daily digital interactions. As the ever-increasing need for data technologies will ensure a continuous industry expansion, AI will be the key instrument that's not only desired, but necessary to enable further growth.

On the flipside, data is the fuel of the AI revolution. Deep learning requires a tremendous amount of data. For instance, Tesla and Alphabet train their autonomous car systems by feeding their machine-learning networks with enormous amounts of data. As of November 2016, Tesla has reportedly accumulated 1.3 billion miles of Autopilot data to be used for their AI systems.

Investing in data-fuelled AI companies means capitalizing on promising developments in both fields.

Reason #5. It's not too late

Many proclaim 2018 "the year of AI", which signifies an anticipation that machine learning and deep learning systems are ready to be employed in a widespread manner. But does that mean we've entered into a dangerous stage where hype overtakes substance? Despite a noticeable exuberance in the market, there's an immense room for growth.

Advances in artificial intelligence are predicted to boost the global GDP by $15.7 trillion by the year 2030, a rise of 14% over baseline projections, as estimated by PwC.

AI is definitely a hotly debated topic and it's hard to pinpoint the exact path that AI will take. One thing that's abundantly clear is the vastness of potential.

If you're considering investing in AI in 2018, you can discover in this report fascinating projects from Central and Eastern Europe. One of them, daneel.io, is the first Watson-powered intelligent personal assistant who can accompany you in the daily management of cryptocurrency.

- *A French citizen and Estonian e-resident, specializing in software engineering, Joseph Bedminster is a former manager in a research and innovation laboratory. His work has led him to explore the areas of artificial intelligence, conversational assistant technologies, and Big Data. His background has allowed him to work with companies such as IBM, discovering Watson's services, and also to collaborate with Microsoft. Passionate about cryptocurrency, he dreamt of an assistant system capable of responding to user requests using natural language. In 2017, he decided to embark on the adventure of creating the company Daneel Assistant. When creating the company, Joseph discovered that the Estonian government is one of the few governments in the world to have created an advantageous legal framework for entrepreneurs for cryptocurrency and companies in the field of cryptocurrency. Thanks to the e-residency system, Joseph Bedminster decided to create Daneel in Estonia. Daneel's ICO is live until March 5, 2018* https://daneel.io

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CASE STUDIES & ENTREPRENEUR INTERVIEWS

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BANUBA: ARTIFICIAL INTELLIGENCE AND PERSONALIZATION ALGORITHMS FOR AR-ENHANCED APPS

By Vladimir Kozlov, East-West Digital News – This is a sponsored article, which means it was written by the EWDN team in an independent spirit but financially supported by the company's investors.

With AI-based face recognition technology for mobile, a startup born in Belarus aims to conquer the hearts of app developers and publishers worldwide. The Banuba team and their backers believe that augmented reality (AR) and artificial intelligence (AI) are going to change the way people live, behave and communicate, "with an impact comparable to that of the electricity revolution in the early 20th century."

To a large extent, the AR software development kit (SDK) developed by Banuba relies on AI algorithms to recognize people's faces and bodies, understand their emotions, facial expressions, postures and gestures, and estimate race, age and gender. Various scenes, situations and surroundings can also be detected, Banuba claims.

Mobile apps enhanced with the Banuba AR SDK will provide users with a variety of personalized recommendations, which correspond to different situations in their life.

"Such apps can suggest content that entertains, or makes some practical recommendations, for example, what hairstyle suits them the best, or how they would look like in future," says CEO Vadim Nekhai.

The young entrepreneur sees one of Banuba's distinctive advantages in its capability of mixing technologies on the same device, and optimizing them for "ground-breaking performance results."

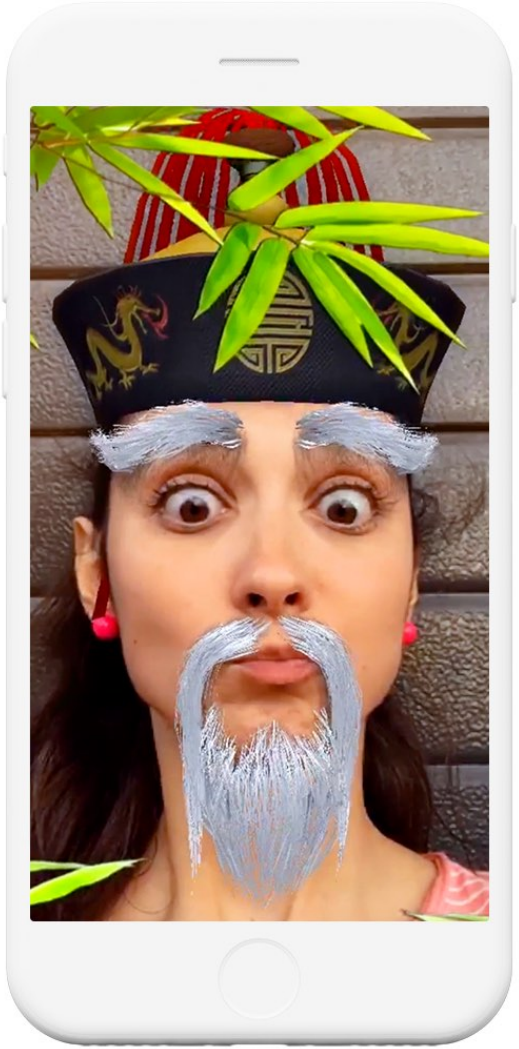
"With a reasonable level of accuracy, we try to develop optimized and fast sultions, making them perfectly suitable for the growing market of mobile apps," Nekhai claims.

On the footsteps of tech giants

His previous experience runs a gamut – from QA engineer and programmer to product manager, but he says what he wanted to do most was to develop his own products. His idea of launching an AR startup was prompted by Snapchat's acquisition of Looksery, a photo modification startup developed by a Ukrainian team, in 2015, and by Facebook's acquisition of Belarus-based face-filter AR app MSQRD in 2016.

The interest of global tech giants in startups from the region was confirmed again when Google bought AIMatter, maker of the Fabby computer vision app in August 2017.

Another source of Banuba's inspiration is Tim Cook, who sees in AR as big an idea as a smartphone: "AR is that big, it's huge. I get excited because of the things that could be done that could improve a lot of lives, and be entertaining," Apple's head stated in early 2017.



BANUBA: ARTIFICIAL INTELLIGENCE AND PERSONALIZATION ALGORITHMS FOR AR-ENHANCED APPS

LET YOUR MOBILE RECOGNIZE YOUR EMOTIONS!

One of Banuba's main features is emotion recognition. It is based on the idea that people's emotions are mostly reflected on their faces, and the computer's ability to 'read a face' would make a more targeted delivery of content possible.

"Our technology makes it possible to detect all basic classifications of emotions: anger, disgust, fear, happiness, sadness, and surprise," says Sokolsky. "As we are focused on the entertainment market, our mobile applications are emotion dependent," he explains. "For example, you can generate three-dimensional visual masks that reflect users' feelings while they are communicating in mobile chats, or some elements of the interface could be triggered by users' emotions."

"Also, you can provide users with mood-related content in mobile applications of a wider scope," he goes on to say. "All these can help you create a unique and highly personalized user experience in your apps."

Banuba's 'emotion recognition' technology allows the conversion of data to a facial action coding system (FACS). This system was originally developed by a Swedish anatomist named Carl-Herman Hjortsjö, such systems refer to the muscle movements that correspond to specific emotions.

Originally staffed by Belarusian specialists in computer vision and augmented reality, Banuba launched in 2016. In early 2017, the startup managed to attract $5 million from Viktor Prokopenya, a Belarusian self-made man now living in London, and the Gutseriev family, one of the richest ones in Russia, via their respective investment vehicles VP Capital and Larnabel.

But Banuba's formative stage was not all rosy.

Early R&D challenges

During its first year of operations, Banuba's R&D effort focused on face tracking and recognition, emotion recognition, detection of user's background, eye-gaze direction tracking, motion capture and separation of objects from the background. The startup had set the goal of developing a number of solutions compatible with both Android and iOS platforms.

"When we started, we had high expectations in terms of face tracking and recognition and we thought we would make it in a couple of months," Nekhai recalls. "In reality, it took us almost a year to come up with the first working prototypes."

In a domain where battery performance is key, one of Banuba's main technical challenges was related to the frequency scaling of processors – the central processing unit, or CPU, of mobile devices. Because it required high CPU power, the Banuba app tended to make the battery drain too fast.

"Due to significant fluctuations in FPS [frames per second], the user experience with facial recognition was mediocre," says Alexey Sokolsky, Banuba's head of R&D. "We managed to make our algorithms more GPU-friendly and to have the operating system diminish the FPS fluctuations."

BANUBA: ARTIFICIAL INTELLIGENCE AND PERSONALIZATION ALGORITHMS FOR AR-ENHANCED APPS

Another challenge was connected with merging several different models of machine learning – such as skin color detection, separation of objects from the background and detection of head location – into a single process.

"They all shared some common features, which even their creators didn't know about," says Sokolsky. "So, we created a meta machine learning approach, which united all these models, and they even benefited from that."

First steps on the global market

In spring 2017, Banuba launched its partnership program, providing selected partners with its Face AR SDK. The program is presented as "an opportunity to use advanced AR technologies for mobile without patent infringement." Banuba even offers funding to support its partner's marketing efforts.

"We received many applications. Our first partnership aimed at creating an AR multiplayer game and social networking app," Nekhai says. "We're seeking to initiate up to 10 more partnerships by the end of 2018."

Among Banuba's first partners is Inventain. The companies have jointly launched Camera First Entertainment, a new company which develops two AR products: FaceKick and MojiCam. The new company received new blood of 40 Inventain employees and €1 million funding from Banuba.

However, "going global implies specific challenges," concedes Nekhai. "Communication suffers and coordination becomes more challenging. It takes huge efforts to make everything work as expected."

Currently, the company still has its R&D team in Minsk, Belarus, where Nekhai says they enjoy favorable legal conditions. To support the international roll-out, Banuba has opened offices in Limassol, Cyprus and Hong Kong, and plans to open a new site in the US in 2018.

(November 2017)

EXAMPLES OF APPLICATION

- Combining game mechanics and video chats, FaceKick is an AR camera app that guides users to the world of fun and artistic 3D video effects. Users can test a whole arsenal of tools and realistic effects on a face.
- The MojiCam app turns you into stickers and emojis using Banuba's 3D facial technology from the Banuba AR SDK. MojiCam offers a variety of customization features, including clothes and many creative hairstyles. You can edit your body features, pick up fancy outfits, build your own library of memes and share them in messengers.
- Banuba – Live Selfie Filters app is an AR entertainment app which allows users to use AR video effects for their photo and video.
- Another app developed by Banuba is an AR-powered video messenger. It will offer a new and creative way to communicate, using entertaining, emotional, funny AR effects.
- The Banuba AR SDK can enhance a variety of other applications: for virtual makeup, to detect tiredness and estimate the degree of stress, to react to human mimics in a human-friendly way, to edit "boring" backgrounds or remove undesired objects or people in videos. Banuba's founders even envision video applications where the patient and the doctor will be able to see and discuss the possible outcomes of a plastic surgery operation.

See technology description: http://goo.gl/c3Hufb

RUSSIAN STARTUP USES ARTIFICIAL INTELLIGENCE TO MAKE PROPERTY REGISTRIES MORE ACCURATE AND REAL ESTATE INVESTMENT SAFER

This is a sponsored article, which means it was written by the EWDN team in an independent spirit but financially supported by the company.

During the recession years, off-plan property gained a bad reputation, with many homes never getting built or not paid off to investors. The economic crisis ended, but the market still experiences issues. In developed countries, property buyers struggle to become eligible for mortgage plans, which are regulated as tightly as ever.

In the new economic reality, millennials cannot buy own houses in their thirties as their parents used to. Many families are pushed out of the property market by escalating prices.

Another major problem with off-plan investment lies in the unpredictability of demand. Overestimation may lead to oversupply and depreciation.

Such a situation, which is not rare on the property market, is not only due to developers' imprudence. Even more often, the cause lies in unstructured records of earlier property deals.

Coming from Russia, an AI-powered market analysis system might help tackle these issues. It aims to make off-plan investments significantly safer and more predictable, and to bring confidence to both developers and home buyers.

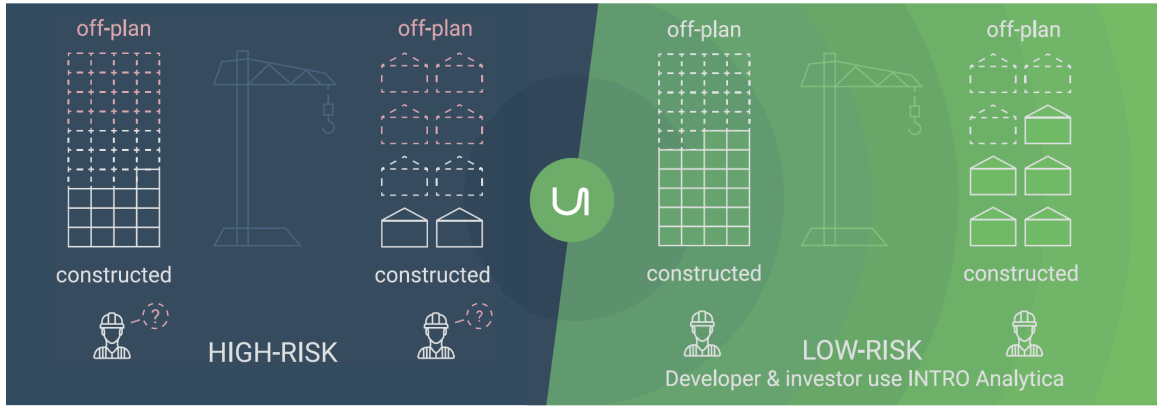
Costly inaccuracies

Russia is one of the global champions in off-plan construction, with as many as 80% of new homes being built using this investment scheme. It has always been a risky game, but many low-income families often have no other choice but buying homes off-plan.

The market decline in 2014 led to huge losses for Russian off-plan buyers. The housing market recovered afterwards, partly due to the decrease in inflation rate (some 3.5% in 2017). In certain regions, this favorable trend has been supported by the deployment of INTRO Analytica, a solution used by developers, real estate agents, architects and state bodies.

This intelligent tool processes all the property records from the state registry, each deal being related exactly to a building under construction. Thus, the actual market size, structure of demand, investment prospects and other key parameters can be assessed more precisely. In total, INTRO Analytica integrates a dozen of market metrics.

Complications in state registries do have a substantial impact on the entire market. Russia's state property register (Rosreestr) records off-plan deals with real estate, land, parking slots and non-residential properties. The entire database should be carefully structured and analyzed in order to highlight exact market segments. The data processing time is also crucial to make business decisions.



RUSSIAN STARTUP USES ARTIFICIAL INTELLIGENCE TO MAKE PROPERTY REGISTRIES MORE ACCURATE AND REAL ESTATE INVESTMENT SAFER

AI to safeguard global property investors

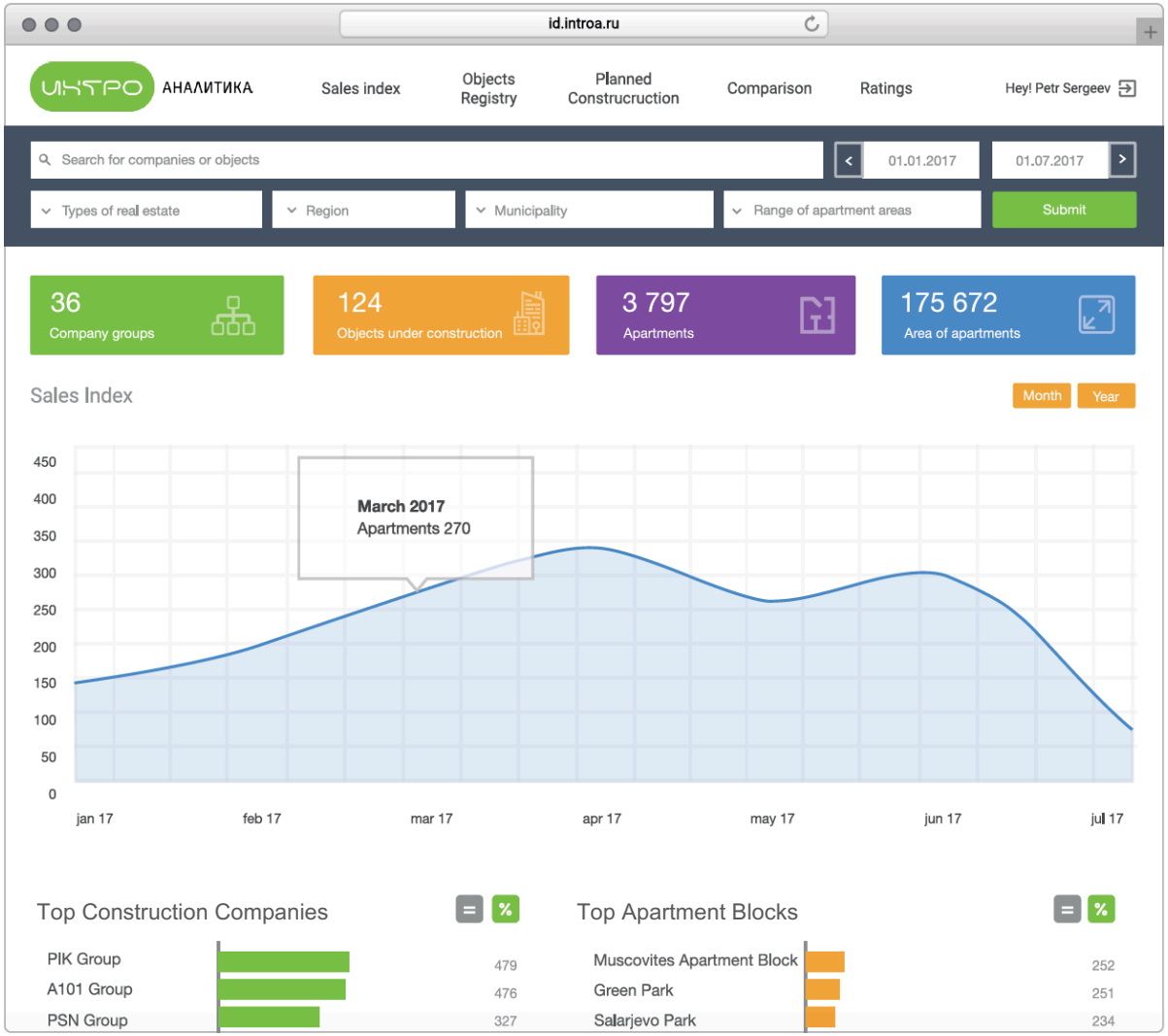
The technology advancement allowed for solving the key uncertainty of property market. In INTRO Analytica, AI is used for matching the official records and houses under construction with desired accuracy and speed. Moreover, it already has the capacity to process data on property deals in some 40 countries with the same speed and accuracy.

A high share of risky off- construction is found in many countries. The issue is particularly acute in markets experiencing a construction boom – typically BRICS and many post-Soviet countries, – where the authorities do not have the capacity to structure such big data.

INTRO Analytica has been developed by a startup in Ufa, a city located nearly a thousand miles east from Moscow. It was approved by the authorities in certain regions shortly after launch in 2017.

Less than one year later, INTRO Analytica is in use in 20 major Russian cities, with a penetration rate of around 40%. The solution might soon be deployed nationwide as a mandatory tool for housing market agents.

Presented at the BRICS business cooperation summit in September 2017 – which was held in Ufa – the solution drew attention from Indian, Brazilian, Kirgiz and other delegates.



OLEG OBOLENSKYI: "AI CAN REDUCE COSTS FOR BOTH DEVELOPERS AND PROPERTY INVESTORS"

A former CTO at Rambler and team leader at Yandex, two major Russian Internet companies, Oleg Obolenskyi is now CTO at INTRO Technology Rus. In this interview, he provides more details about the use of AI in property deals, the way the INTRO Analytica solution can be used and its prospects on the global market.

Why is artificial intelligence needed to process property deals?

AI is needed here to match the records from Rosreestr (the state registration authority) with homes under construction. The thing is that all the Rosreestr records are uncategorized: they only report the apartment number. The deal then has to be "attached" to the building plan in order to understand the property type and area. Developers can make this task even more difficult since they may change the building plan after sales launch. AI can recognize such changes and match a deal with a building faster and more precisely than other instruments.

Currently, INTRO Analytica processes deals that cover about 25 million square meters of property across Russia.

Are there any benefits for homebuyers?

INTRO Analytica is not designed for homebuyers, but they can indirectly benefit from the reduction of costs induced for developers and property investors. And in the future, we plan to introduce products for homebuyers as well. By the way, among our new products under development is one, dubbed DDU, for the B2C segment.

How much time do you need to add a new locality to your system?

It depends on the size of local market. If we're talking about a city of one million inhabitants with some 150 apartment blocks under construction, it will typically take a week.

Sometimes there are delays in record disclosure by the state authority, so one week can turn into two or three. Once the location is in the system, the monthly updates take only 2-3 days or even 1.5 day for smaller cities.

At such a pace, you could cover many countries in just a few years?

This tool is only needed in countries where off-plan property accounts for a significant share of the real estate market, or where the authorities want to establish this scheme. This is the case of many emerging countries in need of affordable housing. Off-plan is also used in the segment of luxury properties – for instance, in the Gulf countries or in the UK.

Who are your competitors?

Some efforts to structure property records are being made by state or private actors, but most of them are still in the R&D phase. For instance, the Indian government is trying to create an online database of properties, which is still under construction. The UAE went further creating an online monitoring system for off-plan properties, which calculates total amount of investment.

Our system is more advanced: we can track market saturation by location or property type. To put it simply, the UAE solution fits well for property investors, but doesn't offer much help for developers or regulators. In any case, these players may be partners rather than competitors as the global property market is huge and the adoption of AI for market analysis is at its very early phase.

What is the size of total addressable market, exactly?

According to the State Agency for Housing Mortgage Lending, the off-plan property market in Russia is worth around $25 billion.

OLEG OBOLENSKYI: “AI CAN REDUCE COSTS FOR BOTH DEVELOPERS AND PROPERTY INVESTORS”

More than 4000 construction companies are potential customers for INTRO Analytica, they would generate some $70 million in revenues per year. However, our planned market penetration in Russia would not exceed 40%, since covering small cities may not pay back. In these locations, the market is usually less competitive and, therefore, more predictable. Our growth potential lies essentially in foreign countries with a similar market structure.

An earlier version of INTRO Analytica included the monitoring of the second-hand property market as well, yet later we removed this functionality. We decided to focus on monitoring the construction and development market, which is not yet saturated.

What if a market has its own unique characteristics?

Our solution is flexible: we can add new metrics or modify existing ones.

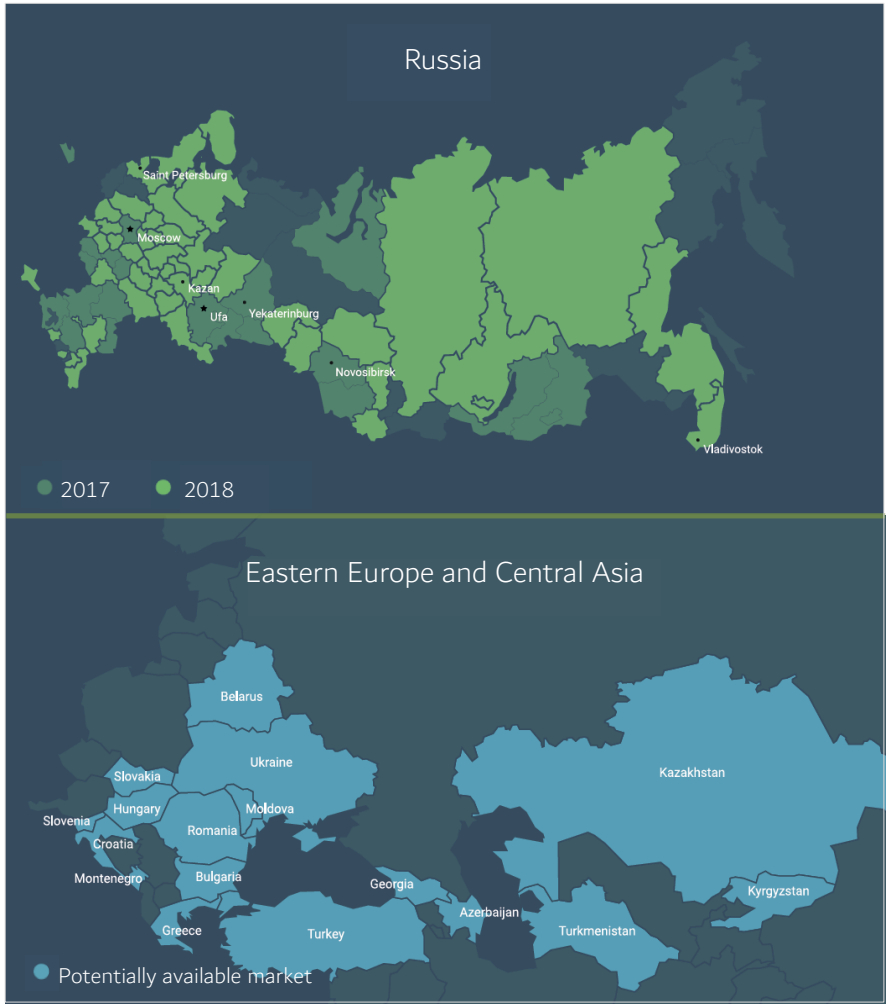
Is INTRO Analytica your only product?

We’re currently developing two other IT-products for the B2B and B2C segments. We also provide web- and mobile development services to a variety of clients.

Are you looking for international partners or investors?

We’re interested in cooperating with a variety of players, starting with governments willing to set up a similar property market monitor in their countries. We’re in talks with Kirgizstan, whom we met at the BRICS summit in September, and Slovenia.

We’re also open to cooperation with any potential partners including IT companies willing to become local distributors; franchisees from the real estate market; and investors.



In 2018, INTRO Analytica’s expansion plan targets essentially CEE and Central Asian countries.

PROMOREPUBLIC: A GLOBALIZED STARTUP THAT BRINGS ARTIFICIAL INTELLIGENCE TO CONTENT MARKETING

By Mina Nacheva, East-West Digital News – This is a sponsored article, which means it was written by the EWDN team in an independent spirit but financially supported by the company.

For solo entrepreneurs and small business owners, developing an online presence is key to success. Yet for many of them, being active on social media — on top of all their other priorities — is often too time-consuming.

PromoRepublic, a Finnish-American startup with Ukrainian roots, has developed a solution to help these entrepreneurs grow their business-leveraging social media in an affordable way. TechCrunch has called it the "WIX for a small business's social presence." (https://goo.gl/nZAJ9y)

The bulk of PromoRepublic's customer base consists of American entrepreneurs and small- to mid-sized businesses (SMBs) in the field of marketing, and freelance marketers that serve SMBs. As of August 2017, the PromoRepublic user base had 70,000 SMBs, which had in turn created and published over 2.5 million visual posts.

Meant to appear "crazy simple" to users, the solution is, in reality, the result of substantial research and development efforts. It is built on a library of hundreds of thousands of context-relevant social media templates and images which is constantly updated using content effectiveness data, user behavior, and interactions.

Deep learning for SMB marketing

To expand their technology even further, the PromoRepublic team is now testing the waters of artificial intelligence.

"We want to boost the creativity and quality of visual content that SMB owners post to Facebook, Instagram and other social networks with the help of deep learning and AI," says Max Pecherskyi, co-founder and CEO of PromoRepublic.

PromoRepublic offers template libraries for easy posting via social networksм

"We have spoken to Facebook representatives several times — the fact that SMB content quality is very low is a huge pain for them, because as a result SMB owners do not consider Facebook an effective channel for promoting their businesses. Only a fraction of SMBs on Facebook actively post and use paid ad features."

PromoRepublic's AI-powered engine will suggest relevant content automatically. The client will need just one click to approve it for publication on Facebook.

"So we'll put Facebook back to the SMB marketing stack with templates, automation and AI," claims Pecherskyi.

PROMOREPUBLIC: A GLOBALIZED STARTUP THAT BRINGS ARTIFICIAL INTELLIGENCE TO CONTENT MARKETING

Eastern Europe's most globalized startup?

PromoRepublic was founded in Kiev in 2013 by serial entrepreneur Valeriy Grabko, who had a vision of how to make the company a global success.

Since its early days, in fact, PromoRepublic has joined and completed four acceleration programs, both in Europe and beyond. These include Ukrainian EastLabs, Estonian Startup Wise Guys, Startup Chile, and Finnish Startup Sauna.

"There are two ways to enter a new market," Grabko said in a media interview (http://goo.gl/Wj3QUk).

"First, you know a lot about the market from the beginning and invest your own money in expansion. Second, you [gain this knowledge and raise money] through acceleration programs. We've chosen the second way, which is very convenient for us. In addition to that, we save money that can be spent on product development and marketing," he explained.

Pecherskyi, on the other hand, notes that an accelerator may not be for everybody. "Many founders go there thinking that everything will be taken care of for them — [but] you still need to develop your network, build trust, and look for clients. It's all about your own initiative. The accelerator is only helpful if this format motivates you."

PromoRepublic has also sought to secure solid funding — from over €1 million in grants and loans (including those provided by the acceleration programs) to financing raised from a number of different investors over the years.

Artificial intelligence is starting to be used for targeting on social networks

The most notable round took place in June 2017, when an international pool of investors put $1.2 million into the company (http://goo.gl/18paVC).

The funding is being used to develop an AI system that will interact with social networks. In the future, the company will aim to add the capability to create high-quality content for emails, blogs, YouTube and other channels.

PROMOREPUBLIC: A GLOBALIZED STARTUP THAT BRINGS ARTIFICIAL INTELLIGENCE TO CONTENT MARKETING

Conquering new markets

These capital injections allowed the startup to enter the US market in 2016.

“We spent one month in San Francisco, Boston and New York and learned how this market works. We reached out to small businesses directly and came to understand that they do not have the time, money and knowledge to make social media promotion work for them. They needed an affordable solution that would automatically turn them into professional Social Media Managers. We decided to tailor our solution to their needs,” says Pecherskyi.

Communication with their US customers and partners goes through their office in San Francisco’s SaaStr Co-Selling Space — which Pecherskyi describes as “the best place on the planet for SaaS startups to grow to $1 million ARR [annual recurring revenues — ed.].”

As of August 2017, PromoRepublic claimed to serve 5,500 paid customers, mainly in the US. The startup expects to generate some $300,000 in revenues in 2017, up from 130,000 in 2016. In addition to the US, the company also operates in Canada, Australia, the UK, New Zealand and Russian-speaking countries.

The company has permanent offices in San Francisco and Helsinki as well as a full-blown R&D staff based in Kiev.

Artificial intelligence is starting to be used for targeting on social networks

YOUDO.COM: THE AI-POWERED SERVICE MARKETPLACE THAT WANTS TO RESHAPE CONSUMPTION PATTERNS AND THE LABOR MARKET

By Adrien Henni, East-West Digital News – This is a sponsored article, which means it was written by the EWDN team in an independent spirit but financially supported by the company.

YouDo.com, a platform that matches people requesting and providing day-to-day services, is virtually unknown outside Russia. Yet its strong traction on the local market is fuelling a desire to become one of the next digital superstars of the region, in the footsteps of unicorn Avito.

The site presents itself to users in a very simple way, as a place to solve all manner of practical problems — from computer repair to translations to housekeeping, and thousands of other fields of activities.

Yet beneath this surface is a technologically-sophisticated platform, which founder Alex Gidirim claims can "disrupt the classifieds," "change the way people search for services and even goods," and "contribute to the emergence of the labor market of the future."

Too early on the market?

The story of this startup, which is now backed by major Russian VCs, has not always been rosy.

"At the early stages, in 2012-2013, I developed the project as a believer, since the deep tech we prepared was not in demand," recalls Gidirim.

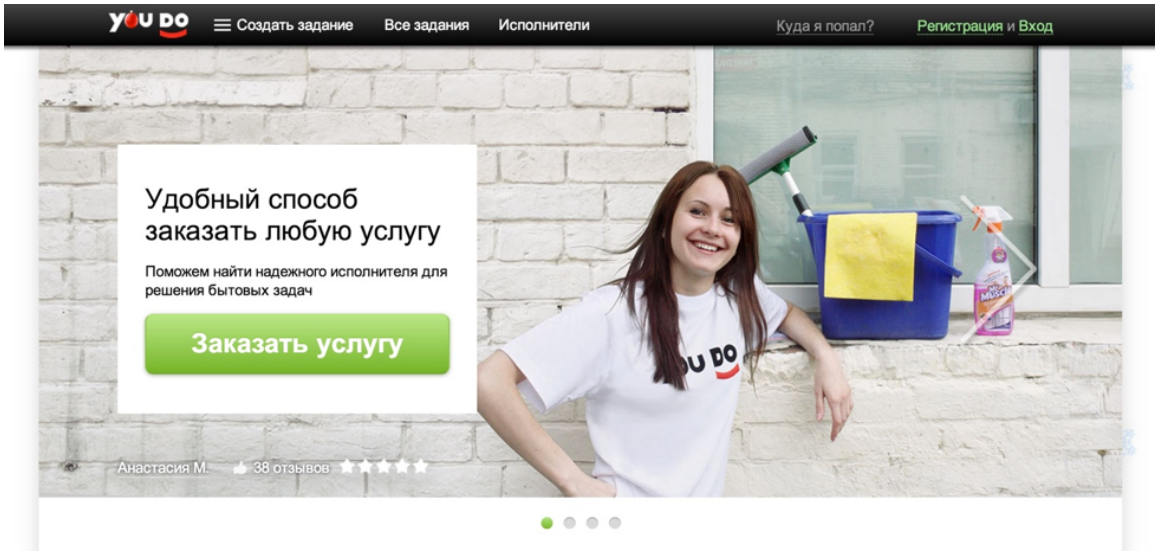
"We had to evangelize and create our own ecosystem around our solution," he adds.

But the company chugged along, fine-tuning its technology features and business model while patiently waiting until its marketplace concepts finally captured customers' and investors' attention.

In 2016 the platform at length got some significant traction, boasting more than 61,000 average monthly published tasks. That same year YouDo.com completed a $6.2 million Series C financing round, following earlier smaller capital injections (https://goo.gl/Ft8nj3).

AI-powered matching and anti-fraud

YouDo.com claims to be the only Russian online marketplace using artificial intelligence at its core. Machine learning is used in practically all areas of operation, from creating tasks to matching users and service providers to checking comments and verifying users, Gidirim says.



YOUDO.COM: THE AI-POWERED SERVICE MARKETPLACE THAT WANTS TO RESHAPE CONSUMPTION PATTERNS AND THE LABOR MARKET

Is AI really necessary for a service marketplace? “In the traditional model, if a user chooses the wrong subcategory when creating a task, a moderator has to correct it manually. This consumes resources and has a negative impact on user conversion. In our new system, a neural network automatically determines the subcategory from the name of a task by meaning, not just by keywords,” explains Gidirim.

Mistakes are very rare, he claims, as the system is learning on a daily basis from thousands of new tasks. What’s more, a Big Data approach is used for identifying spurious comments and suspicious users as well as for checking providers during the implementation of tasks.

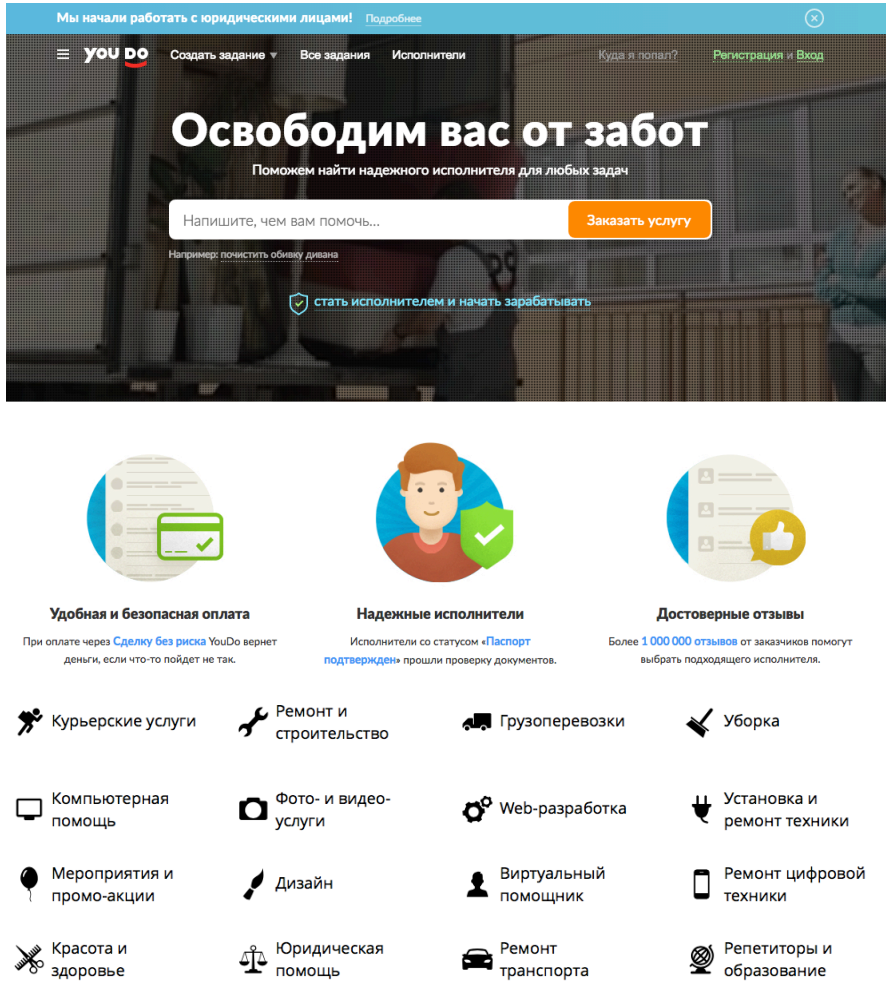
“You can’t fight fraud in large systems without automation and machine learning,” Gidirim says.

Competing with major classifieds platforms

With 500,000 registered and verified service providers, 2.8 million registered users and a monthly GMV of over $10 million (as of October 2017), YouDo.com is the largest platform for personal services in Russia today. In December 2017, Apple distinguished the YouDo app among the best of the year (http://goo.gl/yGTnSC).

Yet competition is strong. One source is Avito: this leading classifieds platform was launched in 2007 by Swedish entrepreneurs and acquired in 2015 by Naspers (http://goo.gl/249Cir).

As a classifieds site, however, Avito is technically not the same as YouDo.com. From Gidirim’s perspective, Avito is “an outdated model”: users are required to seek out goods and services using a search box, then make calls or send messages to check availability. This is time-consuming — unlike YouDo.com’s immediate matching of service seekers with providers.



YOUDO.COM: THE AI-POWERED SERVICE MARKETPLACE THAT WANTS TO RESHAPE CONSUMPTION PATTERNS AND THE LABOR MARKET

Avito Service Pro, a service which closely paralleled YouDo.com, closed after several pivots in May 2017. Among YouDo.com's other domestic competitors are mono-vertical players, including vezetvsem.ru (trucking), qlean.ru (cleaning), remontnik.ru (home improvements).

The closest international analog of YouDo.com is Task Rabbit. This US marketplace — which was acquired by IKEA in September 2017 — matches freelance labor with local demand.

"Despite the fact that they raised nearly four times as much as we did in terms of equity funding,[1] Task Rabbit's traffic is well below ours — roughly one million unique visitors a month vs. 3.3 million, according to SimilarWeb," boasts Gidirim.

Plans for growth

YouDo.com aims to keep its leading position on Russia's on-demand services market, taking up to 30% of the C2C market and 10% of the B2B market by 2022 while achieving a transaction volume of $4 billion.

And that's not all. As the labor market and employment models evolve, YouDo.com hopes that government policies will stimulate self-employment and reduce the gray market.

In the meantime, the readiness of many Russian service providers to switch to fully legitimate operations has yet to be proven.

YouDo.com also considers developing B2B services. As for B2B on-demand services, the transaction volume will exceed $3.5 billion in Russia, YouDo.com predicts.

But what the company lacks is geographical coverage, as it currently operates only in Moscow, St. Petersburg, Kazan, Nizhniy Novgorod and Yekaterinburg.

Geographical expansion is high on the agenda, Gidirim, says. Thanks to a new round of funding, YouDo.com will be able to enter more than 20 of the largest Russian cities in 2018 and eventually cover the entire Russian Federation.

Expansion beyond Russian territory is also being considered by Gidirim, who believes his concept has potential as disruptive as that of Airbnb and Blablacar in their respective fields.

"But for the next 12 months, we have enough to do here," he says. "Our main aim is to keep our leadership in Russia." And indeed, Yandex and Avito have remained Russia-focused to a large extent – but this did not prevent the former from going public on the NASDAQ in 2011 or the latter from being valued at $2.7 billion when acquired by Naspers four years later.

"Nevertheless, we see how crucial the technology to offer a sophisticated product and disrupt a market is. It is our intention to deploy it outside Russia at a later stage."

1. According to CrunchBase, Task Rabbit has attracted $37.68 million in total in six rounds from 13 investors vs. YouDo's $10 million

TOMASZ WESOLOWSKI, FOUNDER OF 2040.IO: "TODAY'S INTELLIGENT ASSISTANTS AREN'T MATURE, BUT THEIR CAPABILITIES MAY BECOME UNLIMITED IN THE FUTURE"

Your startup refers to 2040. What do you expect will happen that year?

At the 2012 Singularity Summit, Stuart Armstrong did a study of artificial intelligence predictions by experts and found a wide range of predicted dates, with a median value of 2040. So probably, by 2040 artificial intelligence will be as smart as humans. This is also what we believe in, and this is what our company's name refers to.

More specifically, how do you envision the future development of AI and related technologies in the corporate world?

Not only will it change the way we use our business applications, but also the way we communicate with machines. All this will be possible with the development of technologies like conversational user interfaces, natural language understanding and neural machine translation.

We like to think of this segment comparing its early stage of development to the first websites. The capabilities of intelligent assistants may soon become unlimited, but currently we are still at the beginning of the road.

Let's talk about your product, Edward (http://edward.ai) will work as an artificial intelligence powered assistant for the sales departments, right? Please describe its key functions and the value for users.

Searching for an analogy to other projects, we can say that Edward works in a similar way to Siri, Cortana and Google Assistant. However, it focuses on one particular area — sales — which he knows best.

Moreover, Edward is not a typical chatbot which allows users to ask questions and provides (mostly bad) answers — as most of the current chatbots do. Instead, we've focused on developing an assistant that will be mostly "proactive" for sales people.

This means that Edward works in the background (on your mobile phone and/or desktop) and his activation is based on context. For example, right after a phone call, Edward asks you to create a quick follow up, and can automatically register some notes in your current CRM. We allow quick selection using smart reply buttons, which is of great importance, especially when using the mobile version. Using push communication means that user doesn't have to remember about turning on the application every time he is performing some action.

Can Edward be characterized as being a sophisticated CRM system?

Not exactly. Edward may power up your existing CRM, putting all the activities automatically, and then draw conclusions based on that data and user context. Even though Edward may work as a stand-alone application, the best results can be achieved with integration to an existing CRM.

What do you mean about user context?

The biggest weakness of most chatbots and assistants is a lack of adequate knowledge of the user. Therefore, one of many challenges in the area of context is to acquire a sufficient amount of information to be processed and analyzed. So we have to try to collect data in the background, without much user involvement.

The context of actions is very dynamic as well — it can change significantly at any moment. For example, leaving the office and coming back home is a critical change of context and in such a case, the user expects a different kind of message.

TOMASZ WESOLOWSKI, FOUNDER OF 2040.IO: "TODAY'S INTELLIGENT ASSISTANTS AREN'T MATURE, BUT THEIR CAPABILITIES MAY BECOME UNLIMITED IN THE FUTURE"

But do sales teams really need such subtle tools?

During the past several years, when we ran our previous software company, we completed hundreds of projects for different types of clients. The main knowledge gained from this period concerned the observation of how users use the software. It turns out that people are very reluctant to use programs that are too complicated. This is why sales people don't like their CRMs.

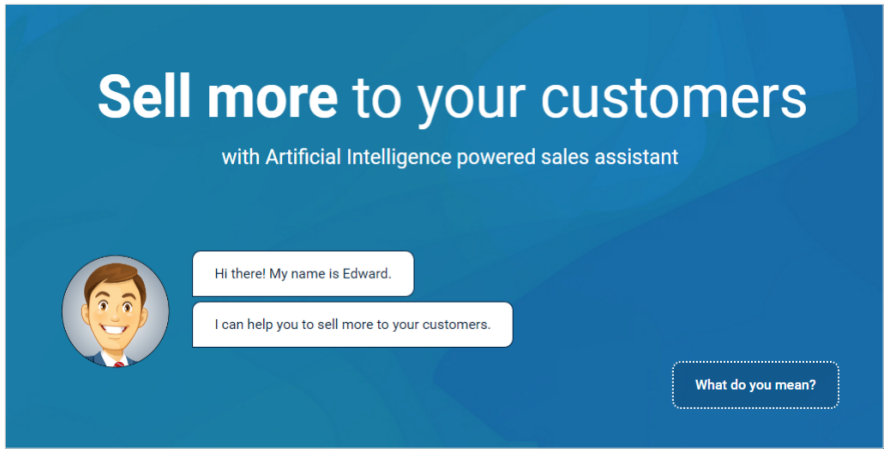
On the other hand, constantly increasing the number of data and processes somehow enforces this complication and makes it difficult to control the business without using modern software. This is why, while designing Edward, we focused on simplicity combined with a natural way of interaction.

What are Edward's first use cases or pilot projects?

Currently we focus first on customers who believe in the AI revolution as much as we do; those who want to help sales people do things faster and smarter. With Edward, they can focus on their customers, not on the boring stuff like entering data or setting follow ups.

What's more, Edward helps sales people perform such typical actions as logging all the information about contacts or using calendar and making notes — and he will offer event more automated functions to do this in the future. Sales managers can also view all the activities using a powerful dashboard with advanced filters. We can upgrade existing CRMs with information about activities in real time, and connect it with Edward's interaction scenarios.

We also perform some experiments with call transcription and creating sales notes automatically. This will be the killer feature for field sales people, who are constantly moving and need to make notes very quickly.



How did your start start, how has it developed so far?

We spent the last 15 years in the Internet industry as entrepreneurs, advisors, and board members of several companies. That experience allowed us to self-fund the early stage of a new company. After developing our first MVP [minimum viable product], we were backed up by several business angels, and currently we are in the process of raising funds from VC firms.

From the product side, we managed to create our own software for creating intelligent assistants for various industries. It consists of a multi-language platform for building interactive "conversations", a system for efficient processing of large data sets (big data), and models for automatic classification of data based on machine learning. Edward was created on the basis of this platform, and now it's having its first customers.

You may reach Mr. Wesolowski at tomek@2040.io

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RUSSIAN NEURAL NETWORKS PREDICT DONALD TRUMP WILL BE NEXT US PRESIDENT

EAST-WEST DIGITAL NEWS, AUGUST 8, 2016

Artificial neural networks are modelled on the human brain and nervous system. They are used to estimate or approximate functions that can depend on a large number of inputs that are generally unknown.

One of the hottest areas of artificial intelligence development, neural networks are used extensively in image recognition, data science, forecasting, and many more.

Ed Tyantov, one of the developers of Russian neural network-powered app Artisto, has used neural networks to determine who most looks like a US president. The answer he got was Donald Trump.

The developer used the model created by Mu Li, a student at the University of Carnegie Mellon (Pittsburgh, PA), for the Large Scale Visual Recognition Challenge 2016. After analyzing a photo, the model provides five most relevant characteristics for the person or object pictured.

Li's neural network was trained using a set of 14 million categorized images, each image was assigned to one of 21,000 categories (for example, a profession, position, etc.). The network achieved prediction accuracy of 70% for the five most relevant characteristics.

During the learning process set up by Tyantov, the neural network in question has "seen" more than a thousand photos of various heads of state. As a result, it has learned how presidents look. It has learned to recognize facial features, clothes, accessories, background pictures, etc. typical for presidents.

Photos of Vladimir Putin, Barack Obama and Angela Merkel were also used.

The neural network identifies the current US president as "the head of the company, chief operating officer," "minister," "president of the United States executive director," "executive vice president," "baron, big businessman, king, magnate, business leader, top manager."

The network calls Vladimir Putin "centrist, moderator," "president," "president of the United States, head of the company," "chief executive officer, chief operating officer," "former president."

Angela Merkel is characterized as "secretary of the state," "minister," "executive vice president," "skeptic," "chief executive officer, head of the company, chief operating officer."

Read the original story in East-West Digital News:
https://goo.gl/1QDP9E

RUSSIAN NEURAL NETWORKS PREDICT DONALD TRUMP WILL BE NEXT US PRESIDENT

EAST-WEST DIGITAL NEWS, AUGUST 8, 2016

How the neural network characterized Hillary Clinton:

- Secretary of State
- Donna
- First lady
- Auditor
- Girl

How the neural network characterized Donald Trump:

- Ex-president
- President
- Secretary general
- President of the United States, president, executive director
- Minister

Read the original story in East-West Digital News:
https://goo.gl/1QDP9E

RUSSIAN UNIVERSITY JOINS FACEBOOK'S ARTIFICIAL INTELLIGENCE PROJECT

RUSSIA BEYOND, AUGUST 31, 2016

By Vsevolod Pulya

In an exclusive with Russia Beyond, Yann LeCun, the Director of AI Research at Facebook, said that the Neural Nets and Deep Learning Lab at the Moscow Institute of Physics and Technology (MFTI), together with 14 research centers from around the world, will join forces in a global research program launched by the Facebook Artificial Intelligence Partnership (FAIR).

All the program's recipients will receive access to 22 high-performance servers based on GPUs (graphics processing units). In return, participating scientists will have to openly publish their results, algorithms and other information obtained in the course of research.

This information will then be available to scientists and developers around the world.

FAIR's selection criteria is the quality of past research and its usefulness, as well as geographical diversity and the team's need for additional capacity, LeCun said. In addition to Russia's MFTI, the other 14 academic and research institutions come from Austria, France, Germany, Great Britain, Switzerland, Czech Republic, Belgium, and Italy.

FAIR members are conducting research in various areas of artificial intelligence, including neural networks, computer vision and machine learning systems. The full list of recipients is available on Facebook's blog.

MFTI researchers (left to right): Vladislav Belyaev, Alexei Ozyorin, Valentin Malykh, Dmitry Khusnutdinov.

RUSSIAN UNIVERSITY JOINS FACEBOOK'S ARTIFICIAL INTELLIGENCE PROJECT

RUSSIA BEYOND, AUGUST 31, 2016

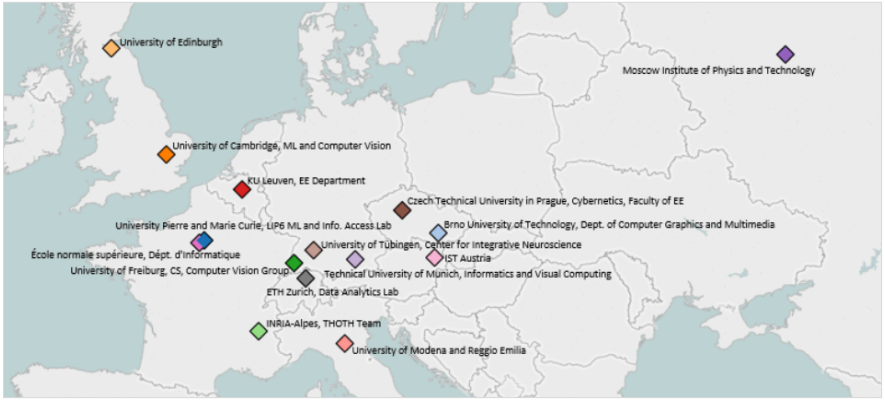
Self-reliant robots

Mikhail Burtsev, the head of MFTI's Neural Nets and Deep Learning Lab, said the possibility of making breakthrough discoveries in his lab is critically dependent on the speed of processing large amounts of data.

"The new equipment will allow us to carry out experiments more quickly," Burtsev said. "As a result, new possibilities in artificial intelligence will be discovered sooner."

His laboratory is working on a neural network dialogue system — a set of algorithms capable of supporting a meaningful dialogue with a human on given topics.

The technology can be used in technical support call centers, stores and information services..



Another area of research is machine reinforcement learning. It differs from neural network learning by the fact that examples for solving the problem are unknown, and there is only an estimate of the success of particular actions.

A program or a robot tries different strategies to get the "desired" (positive reinforcement), or to avoid "punishment" (negative). As a result, AI systems learn to better understand the human and become more self-reliant, plan actions and make decisions.

The laboratory's deputy head, Vladislav Belyayev, said this research can be used for the automation of various activities — interaction with customers, computer games, helping with logistics, or the management of complex technical systems.

FB forgoes exclusive rights

FAIR provides not only the servers and software, but also will work with recipients on their research. In addition, there will be internships for students and young scientists from participating universities, LeCun said. Most important, Facebook will not demand exclusively obtaining the rights to research results.

Facebook is already using elements of artificial intelligence in its products. For example, the DeepText AI technology can determine the meaning of a post or comment, and will learn to block offensive messages. LeCun said that recognition of images and video clips is a priority for Facebook AI development, as well as understanding and translating languages.

Read the original story in Russia Beyond:
https://goo.gl/PfQSrU

SBERBANK INKS R&D PARTNERSHIP ON DATA ANALYSIS AND ARTIFICIAL INTELLIGENCE WITH TOP MOSCOW UNIVERSITIES

EAST-WEST DIGITAL NEWS, MARCH 20, 2017

Russia's national savings bank Sberbank has announced the launch of a risk theory and data analysis laboratory in partnership with Moscow State University (MSU) earlier this week.

Dubbed "CMC-Sberbank," the new lab will function as an R&D center focusing on statistical methods for big data analysis and machine learning.

The laboratory is intended to become a leading Russian academic center for fundamental and applied research in data science, machine learning and artificial intelligence, says Alexander Vedyakhin, Senior Vice President of Sberbank.

Another university Sberbank has announced an R&D project with is the Moscow Institute of Physics and Technology (MIPT, also known as PhysTech). Dubbed "IPavlov," it will focus on artificial intelligence and neural networks, in particular.

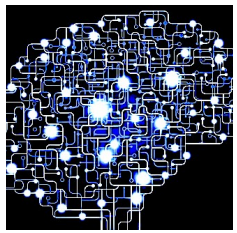
By 2020, the partners expect to develop learning algorithms simulating functional architecture of the human brain. They also aim to design an AI-powered technological platform which will allow supporting a meaningful dialogue with a customer.

"As the outcome of the project, we expect to get new business apps, which will be integrated into Sberbank's operations and put our customer support to a new level. Besides, as part of the project, Sberbank and MIPT will carry out comprehensive interdisciplinary research, which will help create a world-class ecosystem in the field of deep neural networks," said Sberbank's CEO German Gref.

Sberbank's strategy is more and more oriented towards innovation, in which Gref sees a top priority. Thus last year the bank teamed up with the Internet Initiatives Development Fund (IIDF, or FRII in Russian), a government-backed fund for Internet startups, to launch a fintech accelerator.

Sberbank also signed a partnership with the Linux Foundation to join an international blockchain R&D project.

Read the original story in East-West Digital News:
https://goo.gl/cY9sGf



RUSSIAN AND BELORUSSIAN BUSINESSMEN INVEST $100 MILLION IN AI PROJECTS WORLDWIDE

EAST-WEST DIGITAL NEWS, MARCH 24, 2017

The global AI investment fever has hit Eastern Europe with two funds, Larnabel VC and VP Capital, making their first local and international deals under a joint $100 million investment program.

Larnabel VC is the venture arm of the Gutseriev family, one of the richest in Russia. VP Capital is the investment vehicle of Belarussian businessman Viktor Prokopenya.

Any project types are potentially eligible. “We are interested in a wide range of companies that apply AI technologies in interesting, unique, and impactful ways. We don’t restrict ourselves to specific industries or sectors. We are interested in every application of artificial intelligence, from fintech to entertainment, to education, and beyond,” Prokopenya told East-West Digital News.

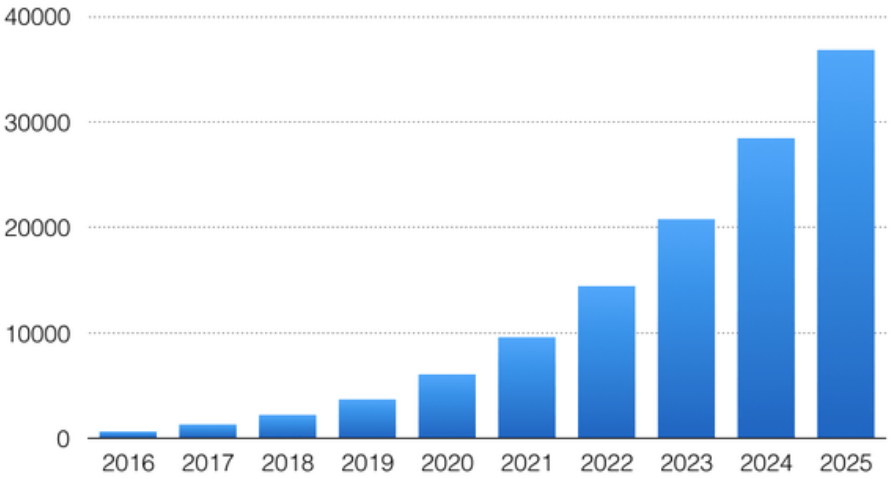
Technologies from all around the world are potential targets “as long as they have a world-class team and are building a global product,” Larnabel VC Managing Partner Eldar Vagapov said.

Last month the partnering funds announced the first investment in Astro Digital, a California-based startup which develops open APIs for satellite imagery.

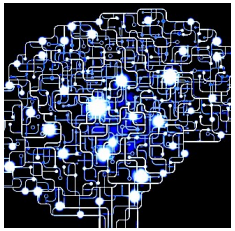
The round, in which also took part GVA Capital, the investment vehicle of Russian businessman Magomed Musaev, amounted to $16,65 million, as reported by Russian venture blog tech blog Firrma.ru.

Astro Digital’s technology enables users to easily search for and process images of the Earth’s surface so that they can monitor specific areas and analyze changes over time. The company is planning to launch a series of satellites with high-definition and broad coverage capabilities later this year in order “to monitor and gather multi-spectral images of the Earth’s surface on a daily basis.”

WORLDWIDE ARTIFICIAL INTELLIGENCE REVENUE (IN MILLION USD)



AI REVENUE MAY REACH $36.8 BILLION WORLDWIDE BY 2025, ACCORDING TO TRACTICA AND STATISTA



RUSSIAN AND BELORUSSIAN BUSINESSMEN INVEST $100 MILLION IN AI PROJECTS WORLDWIDE

EAST-WEST DIGITAL NEWS, MARCH 24, 2017

Such technologies will provide businesses and organizations with the data and analysis needed to make informed decisions, believes Prokopenya. “By using Astro Digital’s satellite imagery and artificial intelligence algorithms, researchers can gain access to the type of valuable data and analysis that will help them make meaningful, informed predictions across the natural, urban, and business arenas,” he said in a statement.

Astro Digital, which has its office is the NASA AMES Research Park in California, was co-founded by Mikhail Kokorich. This Russian serial entrepreneur, who studied physics at the Novosibirsk university some 20 years ago, has been involved in businesses from a variety of industries, from manufacturing and chemical services to retail.

Kokorich claims that these businesses generate more than $1 billion in revenue. He is also the founder of Dauria Aerospace, a space company which aims to “transform the industry with a cloud-based, low-cost satellite technology solution. Finally, he works as Chief Strategist at San Francisco-based startup Spectafy Labs.

The second deal under the joint AI investment program went to Banuba, which received last month $5 million to develop further its solutions for AR-enabled mobile applications.

Launched last year in Minsk, Belarus, this startup already employs 30 programmers and has several patents in the USA, according to Firrma.

Based on neural network models and advanced machine-learning algorithms, its technology can reveal and recognize objects and face expressions in real time. It can also modify and augment their forms using filters and video effects. The startup believes its technology will be used in the fields of emotion recognition, entertainment applications and education technologies.

Larnabel VC and VP Capital are open to international cooperation opportunities. “We have good relationships with angel investors and seed funds all over the world. They show us their portfolio companies when these have reached the required level of development,” Vagapov said.

Among the numerous other Russian investors investing in artificial intelligence is billionaire Roman Abramovich. Earlier this month his fund Impulse VC led a $10 million round for LoopMe, a UK adtech startup which uses AI to optimize mobile video advertising.

On the corporate side, Sberbank, the national savings bank, has just inked a research and development partnership on data analysis and artificial intelligence with top Moscow universities, just weeks after Yandex launched a machine intelligence and research division.

The Moscow Institute of Physics and Technology (‘Phystech’) has joined the global Facebook Artificial Intelligence Partnership (FAIR).

Read the original story in East-West Digital News:
https://goo.gl/FghcMf

AI-ENHANCED MOBILE TRADING APP RAISES $25 MILLION FROM EASTERN EUROPE

EAST-WEST DIGITAL NEWS, JULY 20, 2017

Two major investors from Russia and Belarus have just injected $25 million in Capital.com, a trading app that is similar to Robinhood in the US or Trading212 in Europe — but with a specific AI-powered function that provides users with tailored content based on behavioral analysis.

Dubbed 'Smart Feed' and scheduled for launch next month, this AI function analyzes user activity in real time to provide personalized news feeds, analysis, educational and research materials.

"It is like a Facebook thread in the app," said Viktor Prokopenya in an exchange with East-West Digital News.

A wealthy businessman who shares his life between his native Belarus, London and Cyprus, Prokopenya is a co-investor in Capital.com via his fund VP Capital and took a position on the board as a part of his investment.

Artificial intelligence against overconfidence

According to Prokopenya, Smart Feed is able to "identify common trading biases and behavioral patterns to provide relevant educational content whenever these biases are detected. Thus users can avoid the 'mental traps' that humans tend to have while trading, and make more rational investment decisions."

"Say you purchased an Apple stock, it grew a bit, then you sold it. You did the same three times. You start feeling that you know everything. You put all your money in Snapchat stocks — which unfortunately drop in price and make you lose everything. This is the overconfidence bias, which the Smart Feed technology can detect and address," according to the businessman.

"The human brain is not made for trading because it is exposed to many behavioral biases. To design the app, the team got inspiration from the latest word in behavioral economics," claims Prokopenya, citing 'Thinking, Fast and Slow,' a best seller by Nobel Prize winner Daniel Kahneman.

"Artificial intelligence can bring value wherever large volumes of well-structured data are available. Finance does have such data, in contrast with many other sectors where the benefits of AI are overhyped. We believe that the best investment banking products of the future will be based on a deep understanding of people's mind using big data analysis and AI," Prokopenya tells us.

The Capital.com trading app is intended for all types of investors, from the sophisticated ones to beginners who are not sure about how to navigate the market. There are no transaction fees, but Capital.com already charges leverage fees as one of the potential monetization methods.

AI-ENHANCED MOBILE TRADING APP RAISES $25 MILLION FROM EASTERN EUROPE

EAST-WEST DIGITAL NEWS, JULY 20, 2017

$100 million for AI startups

The app was launched yesterday — without the AI feature in its current version. It is available in the App Store and Google Play platforms in the European Union, according to the company, which is based in Cyprus. Capital.com currently operates only under the EU jurisdiction but has plans to expand "soon" to other countries, including the USA.

According to media reports, Capital.com spent no less than $1.5 million to acquire its prestigious domain name.

Founded last year, the company has gathered a team of 100 people from Belarus, the UK, and Cyprus.

Among the company's board members and directors are Alex Grebnev, a former executive at Goldman Sachs and Bank of America, and Said Gutseriev, a member of one the richest Russian families, whose venture arm Larnabel VC contributed to the funding round along with VP Capital.

This is the fourth deal under a $100 million investment program targeting AI startups, which was announced in early 2017 by Larnabel VC and VP Capital. The first investments went to Astro Digital, a California-based startup which develops open APIs for satellite imagery; Banuba, a startup with Belorussian roots developing AR-enabled mobile software development kit; and Dronefence, a Germany-based developer of drone tracking and security systems.

Read the original story in East-West Digital News: https://goo.gl/ji3ezt

YANDEX DEPLOYS BIG DATA AND AI TECHNOLOGIES ACROSS EUROPE, EYES SOUTH AMERICAN MARKET

COMBINED REPORTS BY 150SEC.COM AND EAST-WEST DIGITAL NEWS, JULY 26, 2017

Yandex Data Factory, a B2B business unit which Yandex launched in 2014 to develop custom-made Big Data solutions, has developed significantly both in Russia and abroad, its CEO Jane Zavalishina said in an exchange at an industry conference.

From its offices in Moscow and Amsterdam, Yandex Data Factory aims to make Yandex's technologies – especially in the fields of machine learning, image and voice recognition, deep neural networks, and natural voice processing – accessible to companies needing to make sense of their accumulated mass of data and solve their business tasks. The offer targets, in particular, such vertical sectors as mining, metals, food & beverage, oil & gas, chemicals, pharmaceutical, and other process industries.

"Our solutions deliver directly increase the productivity, reduce costs and waste, improve energy efficiency. The models are AI-enhanced in order to make the accurate predictions, real-time recommendations, and automated decisions for the most complex industrial processes," said Zavalishina.

"Now we have a good list of customer companies in [Western Europe and Russia], among them Intel, AstraZeneca, CERN, Magnitogorsk Iron and Steel Works, Gazprom Neft, and Schlumberger."

Yandex Data Factory is also interested in South America: "The companies over there have got very developed infrastructures already and are willing to invest into the disrupting technologies like ours."

Asian markets, meanwhile, "still need to mature a bit, since the processing industries over there have been a bit stuck with marginal improvements and often lack the long-term vision and infrastructure," believes Zavalishina.

"Therefore it's harder to persuade [these Asian companies] to invest into the new and unexplored previously for them technologies," she told 150sec.com.

Gradient boosting for free

In a separate move this month, the Russian search giant also made its advanced machine learning algorithm, CatBoost, available free of charge for developers around the globe, reports Russia Beyond The Headlines.

"CatBoost is based on gradient boosting, a machine learning technology that works very well with data from different sources," said Anna-Veronika Dorogush, head of machine learning systems development at Yandex.

Thus the algorithm applies not only to numbers, but also to such other types of data as audio, and text or imagery, including historical data.

In weather forecasting, for example, it is important to analyze a combination of historical data, weather models and meteorological data. Yandex is already using CatBoost as a part of its weather forecasting service to improve accuracy.

Read the original story in East-West Digital News:
http://goo.gl/mfHvF4

AI-POWERED CHATBOT LETZ SECURES FUNDING FROM SOUTH CENTRAL VENTURES

150SEC.COM, AUGUST 30, 2017

By Adrian Pica

Letz is a startup form Skopje (Macedonia) that also has offices in Amsterdam. Their product is an AI powered chatbot that keeps track of daily tasks and helps users get through busy days. Now they have announced a seed investment of €100,000 from South Central Ventures, the first investment the VC Fund has made in Macedonia.

The two founders, Nino Karas and Martin Anchevski are not at thier first entrepreneurial endeavour. They were working on developing their team since 2011 and co-founded Codewell, a software development company.

Last year the team was part of Rockstart Accelerator in Amsterdam that also provided support in the investment in the new company, Letz.

With Letz they plan to change how we think about productivity, introducing a completely new way to organize the daily tasks and set reminders. The chatbot engages in a conversation, so the users have the impression of talking to a friend that reminds them of the tasks or even motivates them with funny comments. Their early adopters are young professionals and non-business people.

“Letz is bringing a new perspective towards the personal productivity problem by boosting user’s productivity, via a subtle and friendly interaction that is the chat. The well-known interaction and subtle presence will provide the full support for the user through his day helping him become productive effortlessly. The investment from South Central Ventures will accelerate us to finish and launch the product in its final form as well as help us place the product on the global marketplace,” said co-founder Nino Karas.

The investment will help the team to finish the development of the product and fuel the international marketing efforts since the product launch is scheduled for October 6.

"We immediately liked the idea of using conversational interface to address the productivity challenge we are all facing, not only in business but also in everyday life,” said Tatjana Zabasu, Partner at South Central Ventures.

"Letz is our first investment in a Macedonian start-up, and I’m sure not the last one,” she added.

This is an adapted version of a story which initially appeared in 150sec.com (http://goo.gl/PjWosg)

POLISH NETHONE FIGHTS ONLINE FRAUD USING ARTIFICIAL INTELLIGENCE

150SEC.COM, NOVEMBER 13, 2017

By Markus Skagbrant

Total financial losses that companies had to endure on a global scale as a result of card fraud in 2015 are estimated to be around 22 trillion dollars, with an overwhelming majority coming from card-not-present (CNP) transactions. That astonishing figure highlights just how big the online fraud problem has become.

As the saying goes, one man's loss is another man's gain and the global fraud problem has opened up an opportunity for startups to develop an effective solution that can prevent companies from taking these massive eye-opening losses. This notion gave birth to the Warsaw-based startup Nethone which uses complex artificial intelligence to its advantage in order to combat online frauds.

"To put a complicated concept into one sentence — we basically help online companies discern fraudsters from legitimate customers and obtain actionable business insights. We help companies detect potential threats and in turn help them make profitable decisions," explained the company's Chief Operating Officer Hubert Rachwalski.

Nethone's technology is capable of obtaining relevant information about their clients' customers, such as distinguishing a discount hunter from a future frequent shopper. The system developed by Nethone is able to achieve this through the combination of three different modules: a set of in-depth profiling tools; machine learning and predictive models as well as proprietary ways of crunching and augmenting relevant data; and a system that allows customers to receive the insights in real time over the API.

The startup has also developed a dedicated dashboard in which they visualize what models do in the background.

Nethone's story began back in 2015 from a deep disappointment over the cybersecurity options that were available, after which they decided to develop their own solution to the problem. "After extensive R&D we realized that our solution was much better than anything else that is available on the market. This encouraged us to offer our product on the market and to other companies," stated Rachwalski.

Nethone initially faced a lot of challenges on the path to success. One of the main challenges was having to invest a lot of money in R&D despite being a low-budget company while at the same time developing a product that would satisfy customers in a highly and rapidly changing industry.

Despite early struggles the company managed to overcome them effectively and create a successful product which they released globally earlier this year. It now boasts an impressive market traction with over a dozen of implementations to date and a few dozen more in the pipeline.

In the future, the company plans to keep improving on the existing product while also thinking about future additional products which it can potentially develop. "Obviously we will keep developing the existing product but for sure our plan is to develop new products and additional solutions," concluded Rachwalski.

This is an adapted version of a story which initially appeared in 150sec.com (http://goo.gl/u3YCaq)

PUTIN TO RUSSIAN STUDENTS: "WHOEVER LEADS IN AI WILL RULE THE WORLD"

EAST-WEST DIGITAL NEWS, SEPTEMBER 5, 2017

Just three months after demonstrating an unexpected interest in the Ethereum technology — in which he sees a potential instrument for tech modernization, — Vladimir Putin has shared with Russian students his far-reaching views on artificial intelligence (AI).

In a 45-minute "open lesson" about science on Friday, the Russian president told Russian students that "whoever becomes the leader in this sphere will become the ruler of the world," RT reported.

"Artificial intelligence is the future, not only for Russia, but for all humankind. It comes with colossal opportunities, but also threats that are difficult to predict," Putin warned.

No one should "monopolize" this field, the president added.

"If we become leaders in this area, we will share this know-how with entire world, the same way we share our nuclear technologies today," he promised.

Taking place in the Yaroslavl region, the open lesson was attended by students and teachers from 16,000 schools, with a total audience exceeding one million, according to the Russian media.

The Russian president's statements were heard well beyond Russian academic circles.

"It begins," Elon Musk twitted in a reference to fears that AI could be used to develop new-generation weapons and ultimately usher a new war.

"China, Russia, soon all countries with strong computer science. Competition for AI superiority at national level most likely cause of WW3," the businessman added.

Last month 117 technology leaders, including Musk, called on the United Nations to ban lethal autonomous weapons, otherwise known as "killer robots," in orrder to avoid a "third revolution in warfare."

"Once developed, [autonomous weapons] will permit armed conflict to be fought at a scale greater than ever, and at timescales faster than humans can comprehend. These can be weapons of terror, weapons that despots and terrorists use against innocent populations, and weapons hacked to behave in undesirable ways," the signatories wrote.

Today, Russia's military robots and drones are remotely operated, notes Gregory C. Allen, a researcher at the Center for a New American Security. By 2025, however, AI-powered robotic military units will be supplied to the Russian army, according to a plan announced by the Defense Ministry in April 2017. These "intelligent robotic complexes" will no longer need a human operator to fight and kill.

Similar plans were announced in 2015 by the Russian Military-Industrial Commission.

Read the original story in East-West Digital News :
https://goo.gl/P6fGQp