

Artificial neural networks have appeared quite recently, and are already applied in almost all spheres of human activities: for text identification and creation of contextual advertising on the Internet, translation, and even in video surveillance systems.

The Internet of things has also been more and more commonly used lately. Even today, many smartphone users have installed programs that allow to do quite prosy things: unlock a car, turn on the light and alarm system in the house, or even adjust the temperature regime of air conditioner. Moreover, about 40 percent of users believe that smartphones will soon learn their owner's preferences and will be able to automatically adjust household appliances.

Also, unmanned vehicles are retaining a leading position in the area of IT developments. Automobiles have long been able to park without a driver being involved in the process. In the nearer future, however, say in 3 to 4 years' time, hardly anybody will be surprised to see cars move without drivers. And it's no wonder, for Tesla company already equips its cars with systems of autonomous driving, while Google is planning to have launched its own unmanned hybrid Lexus-based cars by 2021.

There's only one reality. Users are waiting for the moment when they will have more opportunities available in virtual reality. In particular, half of the respondents are already interested in special shoes or gloves that allow controlling BP objects, with some 80 percent believing that in 3years' time from now virtual and material reality will merge creating one meaningful whole. Sounds pretty odd, does not it?

Personally complemented reality. Today, many consumers want to use AR to customize material reality. Most of the respondents would like to have AR-glasses to see better in darkness as well as to eliminate from their life some elements of the landscape, litter, etc.

3D printing is gaining popularity. 3D printing in the 21st century has become one of the most noticeable achievements of mankind in the field of technology development. Scientists have mastered the methods of creating three-dimensional models of any form and content, progress has even been made in food industry and medicine – food, bones, blood vessels can be printed now. 3D-printer is a device that uses the method of layer-by-layer application of consumables based on a 3D-model created by a computer. Experts say that in the near future 3D printers will become less expensive. This will make 3D printing more accessible for common use in all corners of the world.

Consequently, resulting from the implementation of the above-mentioned developments a completely new type of industrial production will come to existence based on numerous data and their analysis, full automation of production, technologies of complemented reality and the Internet of things. We are on the verge of new industrial revolution!

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AUGMENTED REALITY OR HOW MAKE WORLD BETTER

Augmented reality is a "big idea" that can change the world, as in its time – smartphone. Only imagine you could move planets into the room only with hands, open

programs in front of you, find information in Google without any computers or smartphones. You could change screens by moving fingers in the air like an “Iron man” did it in a film.

Fantastic? No, it is reality. Augmented reality. This technology seems something far and unreal, until you suddenly have it in everyday life. Computer games is the best example of this technology.

I think, all of you have heard about the “Pokemon Go”. It is an augmented reality game. “Pokemon Go” is a Nintendo game released for smartphones, Android and iOS platforms. Just in a week, it has become popular all over the world: people are catching Pokemon in the offices and parks, discussing them at dinner. In short, this game uses the GPS data and clock on your device to determine where you are in the game, and then randomly place the Pokemon around you (on the screen of the phone) so that you find and catch them. The main idea is to make you travel the world more, trying to find all new Pokemons in the game.

And this is just a small part of what this technology can. AR is the technology that will be able to dump our brains, free up part of the cognitive effort and help to optimize their use.

It is easy to imagine, where technology of augmented reality will continue to develop. People usually use smartphones to get additional information about the things, objects and places around us. And now imagine that the whole amount of useful information about these things will be displayed not on the screen of your smartphones, but, on the screen of your glasses which you wear every day. For example, you want to buy a used car, and instead of looking for all the information on the Internet, it will be issued to you in front of your eyes. Have seen a beautiful picture, but do not know the artist? No problem, the system will automatically sign the master of the masterpiece. You will not even need get your smartphone out of the pocket. Have met a girl or boyfriend at a party, but do not remember their names? If they have accounts on social networks – the system will quickly find them for you and give out all the necessary information.

Fantastic non-existent things can move from the virtual world to real, no matter where you are. For example, using a smartphone camera, you can put a new sofa in the living room, or “add” another room in the house.

But how does this fantastic technology work? Augmented reality – is actually a common reality, in which digital graphics are added, such as text overlays imposed on real physical objects. You can see them, for example, if you use Google Glasses or other similar devices. Big companies pay more attention on the glasses development of augmented reality. Recently, Microsoft announced about HoloLens glasses, which today are among the best glasses.

But, who is the leader in the AR-glasses industry? Vuzix Blade AR is absolutely the best among others. Of course, their price has a leading position too – \$1,997. But, they have everything to achieve the best visual effects: Internal Batteries, Touchpad, USB Connection, HD Camera (8MP), MicroSD Storage Slot, Dual Haptic Feedback, Cobra Display Engine, Full Color See Thru Display, Noise Cancelling Mics, Android OS.

Augmented reality technology is based on image recognition algorithms.

Existing systems of augmented reality used as virtual devices, can be divided into three categories:

- applications using dummy images;

- applications that work with a user's photo;
- applications that work with a video image coming from the camera

Examples of applications that use the first two approaches are systems odensya.com and VirtualDress. The FashionIsta software product is used image received from a USB camera, it is controlled by the system with the help of gestures, however the position of the human body is not analyzed at the same time.

Augmented reality is a way to escape the real world into something more fantastic. It has the potential to be the most social technology of all time. If you can dream it, AR can make it.

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SPACE RAYS

Space rays- it is elementary particles, which moves in space with a high energy. What did you know about origin of this rays? There are some sources of origin of this rays: in our galactic, out of our galactic, on the sun and in the interplanetary space. Also there are two types of space rays: primary and secondary. Primary- it is all galactic rays, which creates in our galactic or another. Secondary – flow of particles, which transforms in atmosphere of Earth. In addition space rays consisted natural radiation. Spectr of energy of Space rays consist on 43% from protons, on 23% it is energy of helium and on 34% of energy, which transfer by other particles. Composition of space rays is 92% it is protons, 6% it is cores of helium, 1% it is electrons and near 1% more heavy elements. Main feature of composition of primary space ray is enormous big content of cores of group L (it is lithium, beryllium, boron) in comparison with composition of stars. Only thanks to space rays and observant scientist were opened such particles like positron, muon, pions, k-mesons, hyperons and what not. In depending of energy of space ray here designated two types of space rays, like stationary and nonstationary. Stationary rays include galactic space rays, albedo particles and radiation belt, which surrounds our planet. Nonstationary space rays include only sun space rays. Galactic space rays consist of cores of different chemical particles with kinetic energy more than dozens of MeV/nucleon and so electrons and positrons with energy less than 10 MeV. The most believable source of space rays are considered sparks of new stars and the resulting pulsars.

Secondary particles in magnetosphere of Earth's: radiation belt, albedo particles. Inside the magnetosphere, as in any dipole field here is places, inaccessible for particles with kinetic energy less than critical. This particles which is located here can not leave this region, because of their energy less than critical energy. This zones of magnetosphere is called capture areas. In this capture areas are held big portions of particles (protons and electrons). Process of interaction primary space radiation with atmosphere resulted in emergence of neutrons. Neutrons albedo- it is neutrons which our planet reflects pass