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Intelligente Messtechnik

Zurzeit gibt es anspruchsvolle Messtechnik. Zur schnellen Erfassung und Bearbeitung von Punktwolken bietet eine hochpräzise und leistungsstarke Kombination aus Kamera und 3D-Linienscanner. In dem Haus Wenzel gibt es die neue Shapetracer Generation. Sie basiert auf der intelligenten D3-Kameratechnologie von VRmagic mit Laserlinienextraktion im FPGA (LineEngine 3D). Der 3D-Linienscanner zeichnet sich durch eine Scangeschwindigkeit bis zu 48.000 Punkten pro Sekunde. Durch eine hohe Punktdichte und eine Messgenauigkeit von 20 µm können auch komplexe Oberflächen und Konturen sowie Freiformflächen erfasst werden.

Bildvorverarbeitung auf intelligenter Kamera. Die Bilderfassung und Bildvorverarbeitung erfolgen auf einer intelligenten Kamera von VRmagic. Im Shapetracer ist eine VRm-D3FC-22-E integriert, die sich durch kleinen Formfaktor und geringes Gewicht auszeichnet. Die intelligente Kameraplattform D3 verfügt über eine 1 GHz ARM-Cortex-A8-RISC MPU mir Floating Point Unit (FPU). Auf der Ubutnu Linux läuft und als Co-Prozessor einen 700 MHz C6 4x VLIW DSP mit FPU. Als Speicher stehen 2 GB DDR3-800 RAM und 32 GB Flash on-Board zur Verfügung. Die Extraktion der Laserlinien in Subpixel-Genauigkeit aus den Bilddaten erfolgt auf einem FPGA.

Gesamtsystem für alle Schritte der Prozesskette. Die Weiterverarbeitung erfolgt mit der Point-Master Software. Dies ist eine bedienerfreundliche und anwendungsorientierte Software für die Bearbeitung und Optimierung von Messdaten. Die Software zeichnet sich durch eine vollständig objektorientierte Bedienung aus und bietet Multicore-Unterstützung mit voller 64-Bit-Leistung. Bereits während des Scanprozesses erhält der Anwender Informationen über die Vollständigkeit und die Qualität der Messdaten. Darüber hinaus verfügt die Software über die Module Flächenrückführung, Verifikation, CAM-Fräsen und Computertomographie. Da die meisten Funktionen durch Automatismen unterstützt werden ist die Bedienung intuitiv, sodass mit einem geringen Schulungsaufwand von wenigen Stunden hochkomplexe Aufgabenstellungen gelöst werden können [1].

Effiziente Flächenrückführung. So lassen sich durch automatische Regelgeometrieex-traktion Ebene, Zylinder, Kegel. Kugel oder Torus in das Netz einfügen, Flächenränder können skizziert oder ein Soll-/Ist-Wertvergleich der rückgeführten Oberfläche kann durchgeführt werden.

Modellbauer, Designer oder Formen- und Werkzeugbauer erfassen und präzise bearbeiten Oberflächen und Konturen physischer Teile. Intelligente 3D Messtechnik ist unentbehrlich. Leistungsstarke Kombination aus Kamera und Schnelles Scannen aus dem Hause Wenzel ist ein ideales Tool.

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Online-Plattformen über uns

In sozialen Netzwerken hinterlassen wir ständig unsere Spuren. Unsere Nachrichten können viel über uns und unser Leben verraten. Darüber zeigen die neuesten Studien. Ich, das ist mein Facebook-Account oder mein Avatar bei World of Warcraft dem berühmten Onlinespiel. Das formulieren viele Kinder und Jugendliche auch so.

Die Daten sind doch schon da, bloß einen Klick entfernt! Forscher, besonders an den psychologischen Fakultäten, haben Onlineplattformen wie Facebook oder Twitter als unerschöpfliche Quelle entdeckt. Die Nutzer liefern die gesuchten Informationen frei Haus. Viele der Posts haben ja unmittelbar mit der Person zu tun, die sie verfasst, sie sind Selbstbeschreibungen – persönlich, direkt, emotional. Und vermutlich sind diese privaten Mitteilungen weniger geschönt als das, was ein Proband in einem Fragebogen von sich preisgibt, den ihm ein Wissenschaftler überreicht hat. Die Nachrichten zeigen ein überraschend genaues Bild vom Naturell ihres Verfassers.

Wir sind von Facebook oder Twitter abhängig geworden. Die Internetabhängigkeit ist jetzt offiziell als Erkrankung anerkannt. Internationale Forschergruppe fand vier Typen von Internetnutzern: mit hoher Wahrscheinlichkeit internetspielsüchtig, andere haben häufig stark ausgeprägte sozialen Kompetenzen und nutzen sowohl Online- wie auch Offlineangebote, zu anderen gehören eine wichtige adaptive Fähigkeit, die letzten erscheinen reale Leben als langweilig, alternative Interessen fehlen [1].

Es gibt verschiedene Online-Plattformen, Facebook ist einer davon. Auf Facebook wirken sich Persönlichkeitsunterschiede im Nutzerverhalten aus.

Die wohl bekannteste Persönlichkeitsdimension ist die Achse zwischen Introversion und Extraversion. Introvertierte Menschen sind still, zurückhaltend, selteneuphorisch. Extravertierte hingegen tragen ihr Herz auf der Zunge, sind gesellig, gesprächig, oft auch dominant.

Nicht die kontaktfreudigen Extravertierten, sondern die stillen Introvertierten nutzen Facebook intensiver. Sie verbringen mehr Zeit mit dem Medium. Allerdings sind sie auch dort zurückhaltend. Oft schauen sie sich lieber an, was andere von sich gegeben haben, als selbst etwas zu posten. Vor allem die Einsamen unter ihnen surfen durch das soziale Netzwerk, „um die Zeit totzuschlagen".

Extravertierte hingegen verweilen zwar nicht so lange bei Facebook, doch wenn sie online sind, posten sie, was das Zeug hält: Text, Selfies, Grüße, Verabredungen.

Forscher halten für die Online-Plattform von Facebook gefährlich. Psychologen haben den speziellen Begriff Facebook Addiction Disorder (FAD) eingeführt [2]. Dies ist eine Bedingung, die von der Kommunikationszeit auf Facebook abhängt. Auf diesem Grund ist das gesunde Gleichgewicht des Lebens einer Person gestört. Dies wirkt sich negativ auf die individuellen und anderen Aspekte des sozialen Lebens aus.

Opfer FAD haben diese Symptome wie Toleranz, Entzugssymptom, Reduktion von normalen sozialen Aktivitäten, virtuelles Datieren, falsche Freunde und totale Abhängigkeit. Diese Störung kann eine lange Zeit dauern [2].

In der Regel beobachten Forscher eine Abhängigkeit von Facebook mehr bei den Problemkindern, Jugendlichen, sozial schwachen und ungeselligen Personen als bei den Erwachsenen und ehrgeizigen Nutzern. Jüngere sind schon ganz anders und in der digitalen Welt groß geworden. Deshalb haben sie schon bei einer Stunde ohne Netz das Gefühl, dass sie gar nicht richtig existent sind. Der Cyberspace ist zu einer zweiten Lebensumwelt für Jugendliche geworden. Viele Personen nutzen soziale Medien als Informationsmittel bei der Arbeit, sie können die Balance zwischen realer und virtueller Welt erhalten. Das Internet und Online-Plattformen sind klasse, aber alles ist andere als harmlos.

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Autonomous car technology of the future

Autonomous transport is a type of transport based on an autonomous control system. The control of an autonomous vehicle is fully automated and is carried out without a driver using optical sensors, radar and computer algorithms. The main purpose of autonomous transport is to move passengers or goods.

Vehicles currently available to consumers include computer-based driving functions, such as parking autopilot or cruise control. These features are considered as a basic level of autonomy. By the standard features added the ability to warn drivers of danger, control of brakes, steering, etc.

Autonomous cars have a variety of sensors, cameras and sensors in their equipment. For example, there are ultrasound and infrared sensors. Some car models even have laser sensors.

Using sensors and cameras, the machine scans the surrounding space every few milliseconds. The environmental scanning system is able to determine around itself the landscape and other vehicles not only on the highway, but also in a large metropolis.

For now, autonomous cars cannot safely overtake other vehicles without driver participation. But technology continues to improve, and analysts predict that by 2020 this innovation will have been brought to perfection.

Autonomous vehicles are owned by Google, Nissan, Robot Car UK, General Motors and Yandex. In May 2012, Google received its first license for unmanned vehicles in some US states (Nevada, Florida and California). The test car - a robot created on the basis of the Lexus RX, drove about seven hundred thousand kilometers. A large number of instruments and sensors, located on the roof of the car, allows you to follow the road, drive around the pits, avoid collisions, stop at traffic lights and park.

Volvo is working on an automatic parking system. With it, you can put the car in a free place without the driver. It is assumed that the car will independently find the right place in the parking lot. It's enough for the owner to get out of the car and send the corresponding signal from its smartphone. Such a system will appear in the new version of the Volvo XC90. "Autonomous parking attendant" is also developing of the company Audi.

There is already robotic parking in Dubai. The system is fully automated. At that moment, when the motorist leaves the car at the entrance, it automatically parks the car in the designated empty slot.

According to The Economist, about 90% of all accidents occur due to human error. Google unmanned cars had already hit several thousand kilometers without a single accident. Experts believe that autonomous vehicles can significantly reduce the number of traffic accidents and accidents that occur due to a driver error. While safety is the most important benefit, introducing autonomous vehicles can reduce congestion and improve fuel economy.

Innovation will lead to enormous changes in the economy — a huge part of the population will lose their jobs, entire markets will collapse.

The transition has already begun. Tesla Motors CEO Elon Musk once said that the cars produced by his company will be able to manage 90% of the way independently. Major automakers are also lagging behind in the development of "smart" cars - according to Bloomberg, Cadillac plans to soon introduce a technology that will control the acceleration, braking, vehicle trajectory in traffic at a speed of 120 km per hour.

Google and Telsa predict that autonomous cars, which they describe as "a car that you can sit in, sleep on and get off at your destination," will be available to the public already in 2020.

The Morgan Stanley study showed that motorists spend on driving only 4% of their time per year - this figure sounds surprising, considering that, on average, the cost of owning a car reaches $ 9,000 a

year. After the real estate, the car is the second most expensive asset for people. Therefore, experts believe, it is not surprising that most citizens never buy it - because there are services on the market like Uber and Zipcar.

Following the automakers, the insurance market will collapse, estimated at $ 198 billion. The same fate awaits the market for auto financing ($ 98 billion) and parking ($ 100 billion). Car rental companies, public transport, parking, speeding tickets will gradually disappear.

The changes will affect not only public transport - the delivery of goods and goods will also occur without the participation of drivers.

According to the Bureau of Labor Statistics of the United States, 915,000 people are currently employing in the automotive industry. Another 6 million people work as professional drivers. Almost all of their jobs will be eliminated within 10-15 years.

The Morgan Stanley study showed that by reducing the number of accidents by 90%, 30 thousand lives would be saved, and 2.1 million people would avoid injuries. Autonomous cars do not need to park (about 30% of cars on city streets are cars that drive in search of a place to park). Lanes that were previously occupied by parked cars can now be used for traffic. There will be no traffic jams on the streets, which will allow residents to save 38 hours every year - that is, a full working week. More real estate will appear - parking lots, garages, dealerships will not be needed.

Thus, technology can even affect the environment. Since the majority of autonomous cars are likely to be electric, the demand for gasoline will sharply decrease - which is 134 billion gallons of fuel per year in the United States alone.

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The effect of color on human perception

Color is the subjective perception by the human brain of visible light, differences in its spectral structure, perceived by the eye. In humans, the ability to distinguish colors is better developed than in other mammals. Light affects the photosensitive receptors of the eye retina, and then they produce a signal transmitted to the brain. It turns out that the perception of color is formed in a complex way in a chain: the eye is a visual image of the brain. Thus, color is an interpretation of the surrounding world in the human mind, resulting from the processing of signals coming from photosensitive eye cells - cones and rods. In this case, the first is responsible for the perception of color, and the second - for the sharpness of twilight vision [3].

The eye responds to three primary colors: blue, green, and red. And the brain perceives colors as a combination of these three basic colors. If the retina loses the ability to distinguish any color, then the person loses it. People with normal vision are able to distinguish up to a thousand shades. The perception of color by a person varies depending on the conditions of the surrounding world. The same tone looks different in the light of candles or in sunlight. But human vision quickly adapts to these changes and identifies the familiar color [2].

According to the three-color theory of vision, human eyes perceive color by stimulating three visual pigments in the retinal cones. One of these pigments is more sensitive to light with a length of about 630 nm (red), the other has a maximum sensitivity near 530 nm (green), and the third at a frequency of about 450 nm (blue). Comparing the intensity of light sources, we feel the color of light. This theory of vision is the basis for displaying color outputs on a monitor using three primary colors - red, green, and blue, which is called the RGB color model. The RGB color model — the additive color model describes the colors emitted and is formed on the basis of three primary colors: red, green, and blue; other colors are formed by mixing the three primary colors in different proportions (that is, with different brightness). When pairing the primary colors, secondary colors are formed: cyan, magenta, and yellow. Primary and secondary colors are primary colors. The basic colors are the colors with which you can get almost the entire spectrum of visible light. The RGB model is used in devices that work with light fluxes: cameras and camcorders, scanners, computer monitors, televisions, etc. It is hardware-dependent, since the values of primary colors, as well as the white point, are determined by the technological features of a particular equipment. For example, on different monitors the same image looks differently [4].

Numerous experiments of psychologists and physiologists confirm the ability of color to influence a person's physical condition:

- red color has a warming effect. It stimulates brain activity, eliminates melancholy, but in large doses, annoying;

- yellow stimulates the brain, therefore, helps with mental deficiency;

- orange color has a stimulating effect and accelerates the pulse, without raising blood pressure. It improves mood, raises vitality, but over time can tire;

- green is hypnotic and painkiller. It has a positive effect on the nervous system, relieves irritability, fatigue and insomnia, and it also raises the tone and lowers blood pressure;

- blue color has an antiseptic effect. It is useful to look at it with suppurations and inflammations. Sensitive individual blue shade helps better than green. But the "overdose" of this color causes some depression and fatigue;

- purple color affects the lungs, blood vessels, heart and increases the endurance of body tissues;

It is obvious that people have a strong desire for beauty, expressed in the inner need to see the world in color, and not monochrome. Vision is a unique and fragile instrument, the study of which will take a lot of time. Learning about it as much as possible will be useful to everyone[1].

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The process of game development

Game development is the process of producing computer games. Another common name: "game dev" (from the English game - the game and dev - development).

Overview

The development of video games is a process which can be represented by one person or by a company. Typically, large-scale commercial games are created by special teams within a company specializing in computer or console games. The development of a typical modern video game costs from 1,000,000 to 20,000,000 dollars or more. This process is usually funded by the publisher. The development of a modern game takes from one to three years, although there are exceptions.

Roles

In the early 1980s, in the early era of home computers and game consoles, a single programmer could manage almost all the tasks of game development. However, the creating of modern commercial video games requires a wide range of skills and support staff. As a result, working on one project often requires whole teams. A typical modern development team usually includes:

One or more producers to oversee the production

At least one game designer

Artists

Programmers

Level Designers

Sound engineers (composers and those who work on sound effects)

Testers

Some team members can perform several functions. For example, a producer can also be a designer or a lead programmer. However, if at the beginning of the era of video games this was a common occurrence, now, when developing professional games, it is becoming less and less common.

Development process

The game development process varies depending on the company and the project. However, the development of a commercial game usually involves the following steps.

Preproduction

Early stages of game development are often characterized by poor graphics quality. This is especially true for various gaming prototypes. Usually, before starting the development of any game, an idea should be formed, and the publisher / developer should give a green light.

In the more common case, if the developer and the publisher are different companies, the idea should be proposed to management, approved and submitted to publishers. A working demo can help with this, but it is not mandatory for a reputable authoritative publisher. If the interested publisher is found, you can start production. Today, the idea of the game rarely convinces if the publisher is not interested in it.

If the developer is also a publisher, or if both are divisions of the same company, only top management should give approval. However, depending on the size of the publishing company, it may take several attempts until the idea rises up through all layers of the manual.

The project representative is usually a game designer, but he can also be a person from the gaming industry of any other position. Before the start of full-scale production, the game designer must write a design document - a detailed document describing the concept and game play. It may also contain some preliminary sketches of various aspects of the game. Some game designers include in the design a document even an approximate working prototype showing one or several sides of the game. Typically, a design document combines all or most of the materials of the initial design. The main

feature of the design document is its "liveliness" - in fact, it will not be completed as long as the game is in development. It can be changed every week, sometimes every day. Therefore, even if a document design must exist in some forms before the start of full-scale production, it is almost never a complete design, although it can describe many aspects of all stages of a fully designed game.

Before an approved design, a core team of programmers and artists can begin working on ideas. Programmers can develop initial prototypes to demonstrate one or more features that some middlemen want to see in the game or they can start developing a framework that will ultimately be used by the game. Artists can draw sketches as a springboard for the development of real game resources. First, the producer can work on the game part-time, but increase their employment as the development progresses.

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Corporate Messenger QuickSend

Nowadays, one of the primary aspects of any company's success is the availability of fast communication. The most popular ways of organizing corporate communications are telephony and instant messengers.

Telephony functionality is limited, only SMS and phone calls are available. Internet instant messengers have more opportunities, such as:

- transfer of text, graphics, sound, both in real time and with deferred answers;
- storage of the message archive with the ability to search for the necessary information;
- fast exchange of any files.

Therefore, messengers are often used to organize communication between employees of the organization. The simplest example of corporate communication is the use of instant messaging (IM) - clients such as Telegram, Viber, WhatsApp etc. Key features of these clients are easy implementation and low software costs.

However, the use of popular IM clients does not always comply with the privacy policy of corporate information, in particular:

- there is no possibility to control the actions of employees of the organization;
- there is always the danger of information threats, such as information leakage by sending confidential data to third parties;
- high probability of spreading malware and spyware through spam messages;
- if an employee loses access to their account, it is not always possible to restore it, there is a threat that an attacker will steal authorization data for personal use.

Therefore, the solution to most of the above problems is the QuickSend messenger developed by the author, which allows:

- organizing corporate correspondence of all employees with a clearly regulated number of authorized users;
- exercising administrative control over the sent messages without the possibility of deleting fragments of correspondence by users;
- being fully protected due to the fact that new users registration goes through a moderation procedure by the administrator and the inability to transfer data from users who are not employees of the organization;
- keeping archive of messages not limited by time frames;
- implementation with no financial costs.

The work of the QuickSend messenger is based on the Google Firebase database for Android OS smartphones. User registration data is stored in the database that is accessible only to the owner (administrator).

At the moment, the messenger is in the testing phase. Improving the interface in accordance with customers' wishes continues. The messenger is easy to use and has an intuitive interface for the average user. That's why, there is a high probability that it will be successfully implemented for organizing corporate communications.

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RAM

Introduction

All personal computers use three types of memory: operational, permanent, and external (various drives). Memory is needed for both the source data and for storing the results.RAM is needed to interact with computer peripherals and even to maintain an image visible on the screen. All computer memory is divided into internal and external. In computer systems, working with memory is based on very simple concepts. In principle, all that is required from computer memory is to save one bit of information so that it can be extracted later from there.

RAM is intended for storing variable information, as it allows changing its contents during the execution of the corresponding microprocessor operations.

In computers with the von Neumann architecture (this class includes almost all computers, including PCs), RAM plays a very important role. That it stores all executable programs and their data. The work is carried out by the central processor and RAM, while the remaining components of any computer system are not directly involved in the calculation process.

Classification and main characteristics of RAM

Cache memory

Cache memory is designed to coordinate the speed of relatively slow devices, such as dynamic memory with a fast microprocessor. The program usually uses the memory of a limited area. By storing the necessary information in the cache memory, the program allows you to avoid waiting cycles in its work, which degrade the performance of the entire system.

Not every cache memory is equivalent. One of the most important fact is that how much information a cache memory can contain. The larger the cache, the more information can be placed in it, and therefore, the greater the likelihood that the desired byte will be contained in this fast memory. Obviously, the best option is when the amount of cache memory corresponds to the amount of all RAM. In this case, the rest of the memory becomes unnecessary. The very opposite situation - 1 byte of cache memory - also has no practical significance, since the probability that the necessary information will be in this byte tends to zero. Practically, the range of used cache varies from 16-512K.

With the help of a cache memory, an attempt is usually made to coordinate also the operation of external devices, for example, various drives, and a microprocessor. Implementing cache systems is not as simple as it may seem at first glance. The microprocessor should not only read from memory, but also write to it. What happens if the processor puts new information into the cache, and before using this information it will be changed in the main memory? In order to avoid such a situation, a method called write via cache memory is sometimes implemented. Obviously, this method reduces the system performance, because you have to write not only in the cache memory. Worse, the microprocessor may need information that it has just been written, and which has not yet been reloaded into cache memory.

SRAM

In this type of memory, the unit cell is not represented by capacitors, but by static triggers on bipolar or MIS transistors. The number of trigger states is two, which makes it possible to use it for storing a binary unit of information. Having received a charge once, the cell of such a memory is able to store it for an arbitrarily long time, at least as long as it is powered. Naturally, in this case, the unproductive delays in updating the information disappear, which leads to acceleration of work with such microcircuits. However, SRAM is significantly more expensive than DRAM. As a result, the scope of application of SRAM microcircuits is limited to those areas that require a small amount of

memory, and a significant speed. The ideal option is cache memory, where SRAM has been and is still being used.

DRAM

Currently, dynamic memory devices based on the ability to maintain an electric charge are widely used. Dynamic RAM microcircuits differ from static RAM microcircuits in greater information capacity because of the smaller number of components in one memory element and, consequently, their denser placement in a semiconductor chip.

The memory is called dynamic, since a standard RAM cell is a capacitor formed inside a semiconductor chip that stores an electric charge. As you know, capacitors can spontaneously discharge, which leads to loss of information. To prevent this from happening, the information needs to be constantly updated. Because of the continuous nature of this process, such a memory is called dynamic.

In modern personal computers, dynamic memory is implemented on the basis of special conductor circuits that replace conventional capacitors. A large number of such circuits are combined in the corps of a single dynamic chip. However, like a memory on capacitors, it must be constantly refreshed.

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Robotic technology

Robots today have entered our lives in different areas. If you look at the history of space exploration, you can see that most of the space research is on the shoulders of robots. It is impossible to imagine modern factories without robotic technology. Robots perform many different operations.

The term "robot" came to us from the Czech word "robota", which literally means "forced labor". In principle, this word perfectly describes most robots.

First-generation robots are software-controlled robots designed to perform a specific, brutally programmed sequence of operations.

Robots of the second generation are "sensitive" robots designed to work with objects of any shape, perform Assembly operations, collect information about the environment using a large number of sensors.

Robots of the third generation are the so-called intelligent, robots designed to reproduce the physical and motor functions of a man, to solve intellectual problems.

The most popular ones in the middle ages were automatic clockworks and human figures that moved. So in 1495, Leonardo da Vinci created a mechanical knight project to show that the machine can move like a man. But Leonardo never designed it. This invention of the Renaissance is considered the first robot in history.

The first working humanoid robot was created by the French inventor Jacques de Vaucanson in 1737.

Modern robotics is based on computer technology. Industrial robots make up more than 80% of all existing devices today. They are able to replace a person in many factories almost completely: mechanical "workers" do not make mistakes, do not get tired.

Robots explore everything around them using sensors – special video cameras, distance sensors and other special devices. Everything that the robot "sees" and all the information that it receives goes to a small controller built inside the robot – a computer that processes the information received by the robot, makes decisions and gives commands to all nodes of the robot.

Robots are involved in operations to rescue people in disasters, neutralize explosive devices, look for places of leakage of dangerous gases to prevent an explosion.

The unique invention of the robot developed by Sony was a dog, Aibo. It is able to recognize its master, respond to commands, affection. Aibo has four stages of adulthood: infancy, childhood, adolescence and adulthood. The dog can run, jump, stretch, play football and dance.

By 2020-2030, micro robots measuring centimeters and millimeters will be actively used. They will be used in medicine, agriculture (as smart sensors) and many other fields. And in 10 years the first nanorobots (nanobots) will become widespread. Nanorobots will be able to carry out the construction of the necessary structures of molecules and atoms, which will do without special preparation of raw materials. This means that even individual nanorobots will be quite independent.

Nowadays, robotics is used in all fields and professions: in industry, medicine, war and even in space, robots help us at home, and perhaps in the future and will replace many human professions.

The world of robotics is huge, but it is no less interesting. Humanity still has a lot of discoveries in this area and perhaps once robots will become a full part of human society.

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English language as a source of computer terms in Russian language.

Everybody knows that English language affects computer terminology of the languages. But is it really true? Does English enlarge Russian computer vocabulary?

To do the task for my IT lesson the teacher gave me a book HTML, XHTML and CSS for Dummies by Andy Harris. I decided to prove that computer terms come to Russian language from English with the help of the book. To prove it I had to

-read one of the parts of the book;
- to translate it into Russian;
- to find words connected with programming,
- to check their origin.

The analysis proved the hypothesis of the way of enlarging of Russian language.

The results were the following:

-about 112 pages were read and translated;
- from 14 to 42 computer terms were found on every page;
- 83 different terms in general;
- 58 words from English (70%)

The result of the work proves the hypothesis of the appearing of different computer terms from English. Moreover knowing English makes easer the work in the sphere of programming.

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High-Level Programming Languages

High-level programming language is a programming language designed for speed and ease of use by the programmer. The main feature of high-level languages is abstraction, that is, the introduction of semantic structures that briefly describe data structures and operations which are very long and difficult to understand if written in a machine code.

High-level programming languages were developed for the platform independence of the algorithm essence. The dependence on the platform is shifted to instrumental programs – translators compiling text written in a high-level language into elementary machine commands (instructions). Therefore, a platform-unique translator is developed for each platform.

Thus, high-level languages are created not only to facilitate the solution of complex software problems, but also to simplify software porting. The use of various translators and interpreters ensures that programs written in high-level languages communicate with different operating systems, programmable devices and equipment, and do not require modification of the source code for any platform.

But this kind of isolation of high-level languages from the hardware implementation of the computer has some disadvantages. For instance, it does not allow you to create simple and accurate instructions to the equipment used. Programs written in high-level languages are easier to understand by a programmer, but they are less effective than their counterparts created in low-level languages. That was a reason for addition of support for low-level languages (Assembly language) in a number of modern professional high-level programming languages.

High-level languages can work with complex data structures. Most of them have integrated support for string types, objects, file input/output operations, etc. The most popular high-level programming languages are C, C++, Delphi, Fortran, Java, JavaScript, and Pascal.

The first high-level programming language is considered to be Plankalkül computer language developed by a German engineer Konrad Zuse in 1942 – 1946. However, there was no translator for it until 2000. The world's first high-level language translator is PP (Programming Program) successfully tested in 1954. The second version of the translator appeared in 1955 was optimizing and contained its own loader and debugger, a library of standard procedures, while the PP compiler for a computer Strela-4 included the linker of the modules. However, the widespread use of high-level languages began with the emergence of Fortran and the creation of a compiler for this language in 1957.

According to the company TIOBE Software, the Java programming language is a leader in use by programmers nowadays.