МІНІСТЕРСТВО НАУКИ І ОСВІТИ, МОЛОДІ ТА СПОРТУ УКРАЇНИ
ДНІПРОПЕТРОВЬКИЙ НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ ІМЕНІ ОЛЕСЯ ГОНЧАРА
ФАКУЛЬТЕТ УКРАЇНСЬКОЇ Й ІНОЗЕМНОЇ ФІЛОЛОГІЇ ТА МИСТЕЦТВОЗНАВСТВА
КАФЕДРА ІНОЗЕМНИХ МОВ ДЛЯ СОЦІАЛЬНО-ЕКОНОМІЧНИХ СПЕЦІАЛЬНОСТЕЙ
КАФЕДРА ІНОЗЕМНИХ МОВ ДЛЯ ІНЖЕНЕРНО-ТЕХНІЧНИХ
ТА ПРИРОДНИЧИХ СПЕЦІАЛЬНОСТЕЙ

АКТУАЛЬНІ ДОСЛІДЖЕННЯ В СФЕРІ СОЦІАЛЬНО-ЕКОНОМІЧНИХ, ТЕХНІЧНИХ І ПРИРОДНИЧИХ НАУК ТА НОВІТНІХ ТЕХНОЛОГІЙ

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PROBLEMS OF THE MODERN AGRICULTURE

Throughout the entire period of development of human society the problem of providing the population with foodstuffs has been the most topical and urgent. As the population size on our planet has been increasing, every country has been paying great attention to the improvement of agricultural systems as the fertile lands and rich harvests are necessary in order to receive the vast majority of people's foodstuffs.

By the middle of the 20^{th} century agriculture, which had gone throuh the path of development of the traditional forms, gradually began to switch over to the industrial ways of farming with wide use of fertilizers, pesticides, new varieties of plants and new types of farm equipment. This was caused by the deficit of foodstuffs in the world, necessity in raising the level of crop yield. But with the lapse of time it appeared that modern industrial methods of farming led to the reduction in quality of foodstuffs, their contamination, accumulation of hazardous substances in them and also contributed to the degradation of croplands.

In connection with this, to date a number of alternative tendencies in agriculture have appeared, the task of which is to stop the barbarian treatment of the soil and nature, to grow tasty and healthy ecologically clean foodstuffs with the minimum expenditure of labour and other recourses. These types of farming are also called biological or organic. As the foreign scholars tell us, alternative agriculture is ethics of attitude to soil. The main point of it lies in the total or partial renunciation of synthetic fertilizers, pesticides and growth regulators.

Movement for the alternative agriculture develops, mostly, in the industrialized countries, where the negative effects of the intensification of agriculture of the recent years have become more apparent.

Great attention in the alternative agriculture is also paid to the control over puddling. To this effect only light farm equipment is used (many French farmers have returned to the usage of horses). For weed control only biological methods are applied.

Biological agricultural system is used mainly in France. The basic fertilizer is organic one as it is a specific feed source for plants. For pest and disease control fire measures are recommended and against weeds- mechanical ones. Application of nontoxic preparations is allowed.

In the USA organic agricultural system has become widespread. The main characteristics of the organic farming lie in the fact that foodstuffs must be grown, kept and processed without use of synthetic fertilizers, pesticides and growth regulators. Before the harvesting ashes, chalkstone, gypsum, fish emulsion, soap could be applied. European and American biological farming allow also using dung, composts, lime. For pest control garlic and tobacco dust are employed.

The youngest tendency in alternative agriculture is organic biological agricultural system, which is widespread mainly in Sweden and Switzerland. The basis of the system is aspiration for creation of living and healthy soil for account of supporting its microflora. Farm is considered to be a single organism with clearly regulated nutrients' turnover and cyclicity. Fields should be occupied by vegetation for a long time, stubble remains should be digged into the surface soil, legume-grasses should be cultivated in crop rotation. Only organic (humus) and some mineral fertilizers are allowed to use. Thereby not plant but soil is fertilized.

Alternative agriculture in the Western Europe and in the USA has gained its official recognition and exists on legal grounds. Farmers who apply it associate in unions. These unions often have their own publications. State organs exercise official control of observance by farmers of the requirements of growing of agricultural products without the means of chemicalization.

During the last years a number of new tendencies in alternative agriculture appeared, but the characteristic of all is that methods and techniques, which are used in the agrotechnology, don't ruin the soil or reduce fertility. On the contrary, they restore it. With the help of these methods natural increase of humus layer takes place, soil microflora is restored, for account of this plants become strong, healthy, and able to resist diseases and pests.

The other peculiarity lies in the fact that with the help of alternative agriculture natural balance of insects and small species of animals is restored, food chain is rebuilt, where there is a mouth for every head. In this way, the number of beneficial insects and pests is regulated in its natural way.

One more peculiarity of alternative agriculture is that receiving of rich harvests is not a purpose, but a result. The purpose is to save the nature for the future generations and grow useful for people, full-fledged foodstuffs.

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"ROLLING STONE" ZEITSCHRIFT UND DIE BESONDERHEITEN DEREN DEUTSCHEN VERSION

"Rolling Stone" ist eine Zeitschrift über Musik, liberale Politik und populäre Kultur. Sie wurde 1967 in San-Francisco bei dem Musikkritiker Ralph Gleason und Jann Wenner, der heutzutage der Editor und der Herausgeber ist, gegründet. Der Name "Rolling Stone" wird wie "der Landstreicher" übersetzt, was bedeuten könnte, dass die Zeitschrift so einem Namen den aktuellen Trends folgt. Das kann auch bedeuten, dass die Leser ihre Bevorzugungen im Bereich der Musik frei wählen. Im ersten Heft schrieb Wenner, dass "Rolling Stone" nicht nur die Zeitschrift über Musik ist, sondern auch über alle Sachen, die mit der Musik verbunden sind. Das wurde das eigenartige Motto der Zeitschrift.

Die Zeitschrift "Rolling Stone" hat 19 internationale Versionen, die ein eigenes Konzept haben. Aber Themen und die Struktur ändern sich in den

verschiedenen Regionen. 1994 erschien die deutsche Version der Zeitschrift, die beim Axel Springer Mediahouse herausgegeben wurde.

Auf den Titelseiten der deutschen Version erschienen deutsche Prominente und Politiker nicht oft. 2012 sehen wir nur einmal im April Campino aus der Gruppe "Toten Hosen". Die deutschen Titelseiten reproduzieren das amerikanische Original mit den kleinen Verschiedenheiten in der Ausgestaltung. So sehen wir der Schauspieler Charlie Sheen auf der Titelseite in den USA im Juni und in der deutschen Zeitschrift im Juli. Der Artikel wurde aber unterschiedlich ankündigt. In den USA ist es "On the Loose with Charlie" (anhaltendes Trinken mit Charlie), wo das beliebte Wortspiel benutzt ist, und in Deutschland ist es «Der letzte Wilde: Charlie Sheen ist zurück».

Die wichtige Rolle in der US Zeitschrift spielt die Kolumne von Ozzi Osborne. Das ist eine Kolumne der Beratungen, die ziemlich auffallend sind. Im Februar beklagte sich die Leserin, dass die Schwester ihres Manns im Internet geschrieben hatte, dass das von ihnen verkaufte Essen verdorben ist. Osborne gab ihr einen Rat nicht zu streiten, um die Beziehungen mit dem Mann nicht zu verschlechten. Für eine richtige Rache empfehlt Osborne ihre Schwägerin zum Abendessen einladen. Diese Kolumne spielt eine Rolle der Unterhaltung und ist gleichzeitig die Rückinformation für die Leser. In der deutschen Zeitschrift gibt es solche Kolumne nicht.

In der US Zeitschrift sehen wir eine bestimmte politische Richtung. Der Herausgeber von "Rolling Stone" Jann Wenner hat nie seine politische Bevorzugungen verheimlicht und wird darum sehr oft kritisiert. Der Präsident Barack Obama erschien auf der Titelseite siebenmal und sein Image war immer positiv. Dagegen ist die politische Richtung der Artikel in der deutschen Version nicht klar. Im Juli sehen wir den Artikel über Agnes Krumwiede, die die Mitgliederin der Grünen Partei ist.

In der US Zeitschrift gibt es eine bestimmte Rubrik für die Politik – "National Affairs", in der die analytischen Artikel erscheinen. Gleichmäßig gibt es in der deutschen Version die Rubrik "Politik", diese Artikel sind aber kleiner und mit

dem literarischen oder musischen Kontext verbunden. Oft werden auch die politischen Artikel aus der US Zeitschrift reproduziert.

Soziale Themen in der "Rolling Stone" US sind ziemlich wichtig. Es gab einen Artikel über die Gewalt gegen Frauen in der Armee oder über die radikale Bewegung der Nonnen. In der deutschen Version finden wir solche Themen nicht.

"Features" ist eine der wichtigsten Rubrik nicht nur in der US Zeitschrift, sondern auch in seiner deutschen Version. Ein charakteristisches Merkmal ist, dass der Hauptheld des Artikels maximal zu den Lesern nahgebracht wird, darum wird er mit den typischen Charakterzügen und in der typischen Umgebung beschrieben. So wird die Soul Sängerin Lianne La Havas: "Ihren so charakteristischen Dutt, einen voluminösen Haarknoten, hat Lianne La Havas wie meistens schräg auf dem Kopf sitzen, so dass sie bisweilen wie einohrige Micky Maus aussieht…" In den solchen Artikeln gibt es kein Interview mit der direkten Rede und keine Frage-Antwort Form, dafür existiert die Rubrik "Q&A", die auch in der deutschen "Rolling Stone" reproduziert wird.

Die Sprache der beiden Zeitschriften hat ihre Besonderheiten. In der US Zeitschrift wird manchmal das Wortspiel benutzt. Diese Besonderheit betrachten wir auch in der deutschen Zeitschrift, aber viel weniger. Diese sprachliche Verschiedenheiten kann man gerade betrachten, wenn die Titelseite mit der Gruppe Red Hot Chili Peppers analysiert wird. In der US "Rolling Stone" ist die Überschrift "The Unstoppable groove of the Red Hot Chili Peppers" (die unhaltbare Lebensfreude von Red Hot Chili Peppers) und in deutscher Version wird es "Hurra, sie leben noch".

Man kann eine Folge sehen, dass die deutsche Version der US Zeitschrift "Rolling Stone" eine andere thematische Richtung hat, obwohl die Struktur und einige Artikel dieselbe wie im Original sind. Man muss auch sagen, dass das typische Modell der Farben (schwarze und rote Überschriften auf dem weißen Grund) und der typische Druck in deutscher Version reproduziert werden. Der typische Leser der deutschen Zeitschrift ist älter und es gibt 10% mehr Männer als Frauen in der Zielgruppe der potenziellen Leser. Die deutsche Version ist mehr mit

der Musik und weniger mit den sozialen Themen verbunden. In der US "Rolling Stone" ist die Politik eine führende Richtung, dagegen spielt sie nicht so große Rolle in der deutschen Zeitschrift.

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REFORMING OF LEGISLATURE IN HIGHER EDUCATION OF UKRAINE

Having joined the Bologna process Ukraine has proved striving to be a fully-fledged participant in the process of European integration and European Higher Education Area, and country's strong willingness to modernize Ukraine's higher education following the best standards and European values. Reforming of higher education legal base has been one the core issues since then and there have been a lot of public discussions and debates lately both in the political and academic area.

The Ukrainian legislation regulating higher education is provided by the Constitution of Ukraine, the Laws of Ukraine "On Education" (1996). "On Higher Education" (2002), and "On Scientific Research and Scientific Research-Technical Activities" (1991), other regulations issued by the President of Ukraine, Cabinet of Ministers of Ukraine, Ministry of Education and Science.

In 2003-2007 projects of bills were introduced to the Parliament. Four times bills were not supported by different Presidents of Ukraine President (June 24, 2004, September 22, 2005, February 21, 2006 and March 22, 2007), primarily because of budgetary and fiscal considerations. At the same time, ten amendments were made to the Law "On Higher Education" and 1 amendment done by the Constitutional Court of Ukraine to limit amounts of state expenditure.

In 2008, the Ministry of Education and Science of Ukraine together with the academic community elaborated the Draft of a new Law of Ukraine "On Higher Education", providing a range of measures for modernization of national higher

education, in particular the implementation of Ukraine's commitments to the Bologna process. But it was negatively treated by the Ministry of Finance and other agencies because of financial matters connected with greater university autonomy.

Further attempts to reform the legislation were made within the program of economic reforms for 2010–2014 by President of Ukraine Viktor Yanukovych "Prosperous society, competitive economy, effective government": increasing autonomy for educational institutions to administer their finance; optimization of the network of educational institutions with regard to demographic and economic realities and the need to enhance the quality of education (establishment of enlarged regional universities), introducing of a new model of financing HE (from everyday maintenance to the forming of the budget based on the number of students and the standards of tuition fees; empowering educational establishments to raise additional funds through legalization of "endowment" – non-profit charity funds; the use of grant support for research projects and educational innovations; expanding the list of paid services provided by educational institutions; reforming of state order for training specialists based on the regional economic forecast.

Further in 2011 the Cabinet of Ministers of Ukraine submitted to the parliament a new version of the draft law "On Higher Education", which was formally legitimized at the Third National Educators Congress, though, this project provoked a negative reaction of many academic groups, NGOs and student organizations and independent experts. However, another 2 alternative drafts were prepared by the official representative of the President of Ukraine in the Verkhovna Rada Yuri Miroshnichenko and by the parliamentary opposition. But again, neither experts nor legislators could reach a consensus.

Nowadays, the public discussion is in progress. There are 3 drafts of the Law "On Higher Education" registered in the Parliament. 1st project (№ 1187) was developed by a group of deputies from the ruling party "Party of Regions" (M. Soroka, S. Kivalov, H. Kaletnyk), other two are alternative: 2nd – oppositional one (№ 1187-1), which was developed by A. Yatseniuk, V. Klitschko, O. Orobets, and the current

chairman of the Parliamentary Committee on Science and Education L. Hrynevych, and the 3rd project № 1187-2 was submitted by V. Baloha and prepared by a working group led by the Rector of the National Technical University of Ukraine "Kyiv Polytechnic Institute" M. Zgurovsky from previous government and alternative projects. Thus, the Ministry is not the author of any project, but now they actively support draft 1187.

It's very important that the society, academic community, faculty, students, politicians are discussing the future of Ukrainian higher education, are debating on the changes to the Law that must be introduced, that confirm the active position of civil society, but also the politicization of education issues. The Chairman of the Parliamentary Committee on Science and Education L. Hrynevych said: *"These debates are not held between authors of different bills, but between two paradigms – two visions of not only higher education, but also the entire Ukrainian society. Today we choose not only a model of higher education, but a model of society, the model of country we will live in"*. Thus, the academic community, policy makers, experts and students agree that the various projects offer essentially different ways of Higher Education of Ukraine, and the Parliament should adopt the law, which will provide basic academic rights, real university autonomy and decentralization of higher education.

The Resolution on the results of the Roundtable "Bills on higher education: the findings of community" was adopted by the leading experts in educational policy and representatives of student organizations, it is considered that "the revival of higher education in Ukraine is possible only if the law ensure the autonomy of higher education institutions, which is based both on a broad decentralization and the democratization of governance practices within the universities themselves, the decentralization of higher education at the national level, an increase of public funding and at the same time establish full transparency and accountability on the use of budget funds". It is worth mentioning that all bills legalize Bologna terminology: European Credit Transfer System, ECTS credits, the European Higher Education Area.

The extended session of the Parliamentary Committee on Science and Education February 27, 2013 “On legislative provision development of higher education in Ukraine” was devoted to discussing the future of higher education in Ukraine. The Recommendations of the Parliamentary Committee hearings defines the priority problems and their solutions, in particular for improvement of legal mechanisms of equal access to higher education, elimination of inconsistencies of higher education content and the needs of society and the labor market, improving the management of higher education, providing university autonomy, establishing a system of quality assurance, integration of Ukraine to the European educational area.

Today, first we must formulate a unified strategy for higher education and science in Ukraine and a common vision of goals for changing legislation. Higher education of Ukraine must lead to national progress and all-round development; provide quality training for government and high-tech economy and sustainable development of the country. This requires innovative administrative and legislative decisions. That is the main purpose of higher education, and it must be taken while reforming the legislation base.

Thus, new Law should provide the implementation of the European experience of LLL-learning, of government-public system of higher education, establishing of Schools of Business, Corporate Universities, integration of university-employer (order for training specialists must be reformed), development and promotion of national and international academic mobility of students and teachers.

The list of references:

1. Kremen V. Higher Education in Ukraine: UNESCO-CEPES Books on higher education / V. Kremen, S. Nikolajenko and others. – Bucharest, 2006. – 99 p.

2. Finikov T. The national system of higher education joining to the European Higher Education and Research Area: Analytical Report / T.Finikov. – K., 2012. – 54 p.

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MODERN FEATURES OF THE DEVELOPMENT OF RELIGIOUS TOURISM IN PRIDNIPROVSK ECONOMIC REGION

Nowadays tourism becomes one of the most stable parts of the world economy. It does not suffer from the reduction attempts and proposals. Modern tourist activity has many species and areas, including significant stands religious tourism.

During religious tourism need to understand the traveling to the holy places and religious centers, that are outside normal environment of tourist. Religious tourism is an integral part of modern tourism industry. There are such kinds of religion tourism: pilgrimage and religious educational tours with religious orientation.

Pilgrimage tourism is a collection of travel of representatives of various confessions of pilgrimage purposes. Pilgrimage – it is a wish of believers to visit holy places. They are also interested in direct participation in religious cults.

Among the main reasons for pilgrimage tourism today are the following: the desire to be healed of mental and physical ailments, pray for loved ones, the desire for asceticism in the name of faith, finds the meaning of life and so on.

The objects of religious tourists are holy places and religious centers. For religious canons pilgrimage trip should last at least 10 days and often falls on religious holidays. Nowadays pilgrimage can travel from several days to several months, depending on the willingness of most pilgrims or depending on the capabilities of visiting places. In Ukraine, religious tourism developed more and more every year.

Although the Dnieper (consisting of Dnepropetrovsk and Zaporozhe regions) were observed many religious monuments as Kyiv or Lvov region, but potential for religious tourism and pilgrimage in particular, there is still available. This contributes to the colorful religious composition of the population of the region (Table 1).

Table 1. The religious composition of the Dnieper in 2011

Religion	Percentage (%)
Christianity	59,5
Islam	4,9
Judaism	35,4
other	0,2

Today, religious tourism and pilgrimage are new and promising types of tourism in the region. Their development they received only 90-ies of XX century. For the purposes of religious tourism in Dnepropetrovsk potentially be suitable 900 buildings, including 18 monastery (Samara desert Nicholas Monastery in Novomoskovsk, Holy Ascension Convent in Ternovka Pavlohrads district, Saint-Tikhvin Nunnery in Dnepropetrovsk, St. Savva the Sanctified Monastery in Melitopol and others), 19 temples (In Praise of honor of the Blessed Virgin in Pavlograd, temple complex in honor of Saint Mother of «Iver» in Dnepropetrovsk, St. Nicholas church in Odessa, etc.), 15 cathedrals (Novomoskovsk Holy Trinity, St. Nicholas in Dniprhodzerzhynsk, temple of Vladimir icon of the Mother of God in s. Novo-vasylivka Berdyansk district, the Cathedral of the Holy Trinity in Zaporozhe), 1 Chapel (In honor of St. Seraphim Sarovskoho in the village Sandy Novomoskovsk district) and various churches (Assumption, Nikolaevsky, Varvarivske in the village Kitaygorod Tsarychans'kyy district, St. Dukhovskoi Church in Dnepropetrovsk, Nativity of the Holy Virgin in the village. Mikhail-Factory Apostolove district, etc.). Religious community unites 165 buildings. Over the past decade, in region was built and opened 101 new places of worship, built 80 more temples.

Orthodox pilgrims in the Dnepropetrovsk region visited Barvarivska, Myko-layivska and Assumption Church in the village Kitaygorod Tsarychans'kyy District, Holy Transfiguration Cathedral and the Temple complex in honor of the Mother of God «Iver» in Dnepropetrovsk. Cathedral of the Holy Trinity in Zaporozhe, has in its arsenal a few of the icons, which heal physical and spiritual wounds of believers.

By the Holy Transfiguration Cathedral pilgrims come to give a honor to icons «Weeping Savior», Mother of God «Iver», Mother of God «It Is», and the Mother of God «Samara». There is also a Cross of John the Baptist, the Holy Apostles

Matthew, Luke, Mark, Holy Righteous Hana, St. Catherine and Prince Alexander Nevsky.

Particularly noted architectural complex in the village Kitaygorod, which taking religious tourists with cultural and cognitive purposes. The village every year takes 5 thousand tourists who prefer to look at the oldest church Dnepropetrovsk region that were built here in the XVIII century.

Also with religious cognitive goals can visit St. Mykolayivskue Cathedral in Dneprodzerzhinsk, the Savior Cathedral in Krivoy Rog, etc. And one of the most attractive place for tourists is the Trinity Cathedral in Novomoskovsk, built in 1772-81's by folk artists Jacob Pogrebnyak from wood without any nail. Constructive solution structure is unique in the world of architecture. Beauty Trinity Cathedral inspired many artists, including the famous Ukrainian writer Oles Gonchar, who made it the main «hero» of his famous work «The Cathedral».

Jewish population of Dnieper is 35%, while the number of people coming here Jews who come just for unite of religious «family», almost twice the number of permanent Jewish population of Dnepropetrovsk. Among the visited places allocated Central Synagogue «Golden Rose», built 150 years ago and now is one of the largest in Europe, the Jewish cemetery on the west side of the of Dnepropetrovsk, multifunctional center «Menorah» and synagogue «Hiymat Rose» in Zaporozhe. Both synagogues filled with parishioners during major Jewish holidays: Shavuot, Rosh and Hashanah, Yom Kippur. Most of the pilgrims come here from Sumy, Kharkov and Mykolaiv regions.

Religious tourism is gradually becoming one of the most promising areas of modern tourism. The high rate of growth of determining the significance of spirituality and religion on the whole. In Pridniprovsky economic district this type of tourism today is underdeveloped. Saved our day of worship can serve as important objects for religions tourism and pilgrimage in the area, although the status of this species mass tourism has not got. However, today the number of tourists coming to the region with religious and pilgrimage purposes is gradually increasing in the future will take Dnieper religious tourists not only from neighboring regions, but also from other countries.

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RESEARCH OF AGGRESSIVENESS OF YOUNGER PUPILS AT DIFFERENT STYLES OF EDUCATION IN THE FAMILY

The problem of aggressiveness is currently very urgent but still it is hard to solve. According to certain data, the crime in Ukraine has increased by 31% since 2010. It is very important to find the factors that influence the development of aggression. In order to do this, first of all, it is necessary to determine the impact of emotions on a person.

The aim of this work is to study the aggressiveness of junior pupils and establishing the interdependence between the level of aggressiveness and style of education in the family.

The study involved 80 students of 4th grades of school № 131, Dnipropetrovsk, including 40 girls and 40 boys, aged 10-11, and their mothers.

The participants were divided into groups according to parenting style with the help of "The questionnaire of parental attitudes by A.Ya.Varha, V.V.Stolin".

The methods of research included the technique of "Drawing imaginary animals», «Hand-test», an author questionnaire to determine the aggressiveness of the younger pupils, a test-questionnaire of parental attitude by Stolin.

The results were processed using nonparametric statistical methods.

It is found that among children of this age boys are more aggressive (by 28% compared with girls).

Children with high levels of aggression, regardless of gender, are dominated by such parenting styles in the family as "exclusion" (33% of boys and 33% girls) and "authoritarian hypersocialisation" (36% and 34% of boys and girls, respectively). Meanwhile, the children, boys as well as girls, with low aggressiveness are dominated by the style of education in the family as "Cooperation" (52% of boys and 47% – girls) and "Symbiosis" (the boys – 39% , girls – 22%).

Thus, the level of agressiveness of a student depends on the parental attitude to the child.

Taking into account these results, we can consult parents pointing to the inadequacy of the applied style of education and the consequences of the wrong attitude to the child, and carry out educational work with teachers to warn and prevent the development and manifestation of aggressiveness in students.

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SOFTWARE DEVELOPMENT FOR HELPING TEACHERS IN CREATING MATHEMATICAL DISCIPLINE COURSE AND FOR HEURISTIC HELPING IN SOLVING NONSTANDARD MATHEMATICAL PROBLEMS

The growing need of society for people who are capable of approaching to any changes creatively, solving the existing problems unconventionally and efficiently is caused by the acceleration of the society development and, consequently, need to train people for life in rapidly changing situations.

Creating a course which meets the modern requirements of science and pedagogy is a very difficult task. To solve this problem you need to have enough diverse material, break this material down into the elements of various levels and to establish the relationships between these elements. The strategy of modern education is to provide opportunities for all students to demonstrate their talents and creativity, suggesting the possibility of personal plans realization. At the moment, the actual problem is to find means of developing intelligence associated with the creative students' work of both collective and individual form of training. Computer technologies play a crucial role when we try to solve this problem.

The theoretical points of didactics of higher school are given, 14 databases, which should be used ideally by an instructor to create a course that meets modern principles of didactics and uses modern teaching methods are sorted out in the work.

Special attention of professionals who deal with mathematics education at school is aimed at modernizing tasks material, which is presented in modern textbooks and usually provide an algorithmic way of solving that restricts operational and informational students' sphere of activity significantly.

The knowledge base has been developed in this work and it helps to solve and work with non-standard mathematical problems, tasks are grouped into methods, it helps to fix and understand these problems. All these databases are used in the program and filled in the first approximation.

The program offers the methods for solving a specific problem or task. Some examples of these methods also provide an opportunity to learn the theoretical part, the formulas of topics, materials. The program has a friendly interface and easy to use. At the moment we are creating the site, access to which would have everybody who is eager for knowledge. The main idea is to give a free access to the database, to the types of problems and methods of solution, each student who has a free access to the Internet will be able to use the theoretical material that will assist him in solving problems and in-depth study of various topics.

The work is illustrated with specific examples. The results are presented in the form of pictures. The structure of the program and how to use the software are described in details. Obviously, the teachers and methodologists themselves have to fill in all bases in each discipline competently in the future.

The results may be useful in software which is introduced in secondary and higher schools on the subject of mathematics.

Teaching experience shows that if students educational activities in the process of solving unusual problems are organized effectively it is the most important method of forming mathematical culture, such qualities of mathematical thinking as flexibility, criticality, rationality, logic, and their organic combination found in specific students abilities, which enable them to carry out creative activities successfully.

The relevance of work is caused by social vision of society on education of a creative person, capable to adapt in quickly changing conditions of the modern life, ready to different activities in different situations, capable to solve non-standard vital problems effectively.

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POSTMODERNE ELEMENTE DER LEBENSWELT DER HEUTIGEN UKRAINISCHEN JUGEND

Die Ukraine ist ein junger, unabhängiger Staat, der sich noch entwickelt und große Absichten auf die Jugend hat. Eben darum hat Soziologie heute eine wichtige Aufgabe, kognitive Modelle, mit denen die ukrainische Jugend operiert, ihre Lebenswelt und ihre Beziehung zur Welt formiert, zu erfassen. Die neue Ära der Postmoderne beeinflusst die Struktur der Lebenswelt der neuen Jugendgeneration.

In unserer Arbeit verwenden wir den Begriff der Lebenswelt von *A. Schütz.* Er nennt die sechs konstituierenden Elemente der Lebenswelt: 1) Beschäftigung; 2) Glaube an die Existenz der äußeren Welt; 3) eine aktive Einstellung zum Leben; und 4) die Wahrnehmung der Zeit; 5) persönliche Selbstidentifizierung; 6) eine besondere Form von Sozialität.

Wir führten Tiefeninterviews unter jungen Menschen im Alter von 18 bis 22 Jahre alt, also unter denen, die schon in der unabhängigen Ukraine geboren wurden. In deren Ergebnis könnten allgemeine Trends festgestellt werden, und zwar, dass der berufliche Erfolg für die jüngere Generation nicht der Schwerpunkt ihres Lebens ist. Arbeit, Karriere, materielles Wohlergehen werden als unentbehrlicher Bestandteil des modernen Lebens, nicht aber als selbstständige Ideale, sondern als eine notwendige Voraussetzung für eine weitere wichtige moralische und berufliche Selbstrealisierung betrachtet.

Positiv werden von der Jugend Beziehungen in der Familie, mit dem geliebten Menschen, sexuelle Sphäre und Kommunizieren mit Freunden bewertet. "Familie", "Freunde", "Liebe", "Gesundheit" stellen die helle Dominanz der

Wertprioritäten unserer Befragten dar. Denen folgen die Werte der beruflichen und persönlichen Selbstrealisierung und des finanziellen Wohlstandes.

Die Jugend betrachtet die virtuelle Welt als real, wo sie aktiv kommuniziert, Bekanntschaften macht, neue Informationen erhält, Geld verdient.

In den Bedingungen der sozio-kulturellen Transformation der ukrainischen Gesellschaft verlieren makrosoziale Strukturen im Alltagsleben an ihrer Bedeutung. Darum verbreiten sich unter den heutigen Jugendlichen subkulturelle Aktivität und zwischenmenschliche Kontakte. Außerdem werden Orientierung auf soziale Passivität und geringe Teilnahme am gesellschaftlichen und öffentlichen Leben beobachtet.

Neue Gegebenheiten diktieren das Prinzip des individuellen Überlebens, der Selbstrealisierung, das zur Grundlage für ein neues Regulierungssystem wird.

Moderne Gesellschaft ist die Gesellschaft des Risikos, maximal beweglich, instabil und unbeständig, so dass die heutigen ukrainischen Jugendlichen nach Strategien für eine erfolgreiche Selbstverwirklichung in der aktuellen Gegenwart suchen und nicht an die Zukunft denken.

Für "Soziales Kapital" halten die jungen Leute in der Ukraine nur ihre Verwandten, Freunde und nahen Bekannten. Junge Menschen sind den Jugendorganisationen und-verbänden gegenüber gleichgültig. Das zeugt von der "Privatisierung" des Lebens und vom Ignorieren der gesellschaftlichen Probleme, von der Unfähigkeit sich und seine Bedürfnisse auf dem konstruktiven Wege geltend zu machen.

Auf Grund dieser Trends können wir schließen, dass die Lebenswelt der heutigen Jugendlichen postmoderne Elemente aufweist. Darunter lassen sich der Wunsch nach Selbstrealisierung, das Ignorieren der Zukunft, die Neigung zu den hedonistischen Werten zu erkennen. Mögliche Gründe für die Verbreitung unter den Jugendlichen solcher Tendenzen können der Globalisierungsprozess und die moderne Massen-Medienkultur sein. Die modernen ukrainischen Medien senden ja die westlichen, mit Ideen der Postmoderne gefüllten Standardmodelle des Verhaltens. Weitere Forschungen eines solchen Themenkreises könnten dazu beitragen, viele Probleme der heutigen Jugend und die unserer Gesellschaft in der Zukunft zu lösen.

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FUNCTIONALITY PROSPECTS OF ANDROID OPERATING SYSTEM

Android is the most popular operating system all over the word. Despite the fact that Android isn't a desktop OS it is even more popular then windows because there are more devices running Android than Windows.

Android is a Linux-based operating system designed primarily for touch-screen mobile devices such as smartphones and tablet computers. Initially developed by Android, Inc., which Google backed financially and later bought in 2005, Android was unveiled in 2007 along with the founding of the Open Handset Alliance: a consortium of hardware, software, and telecommunication companies devoted to advancing open standards for mobile devices. The logo for the Android operating system is an apple green robot designed by California-based graphic designer Irina Blok. The first Android-powered phone was sold in October 2008. It was one year after fist iPhone was released and Apple had much more market share.

The first reason why Android is so popular is that it is an open source and Google releases the code under the Apache License. This open source code and permissive licensing allows the software to be freely modified and distributed by device manufacturers, wireless carriers and enthusiast developers. That means that manufacturer of devises can modify it and even upgrade paying nothing to Google for it. Additionally, Android has a large community of developers writing applications ("apps") that extend the functionality of devices, written primarily in a customized version of the Java programming language. In October 2012, there were approximately 700,000 apps available for Android, and the estimated number of applications downloaded from Google Play, Android's primary app store, was 25 billion. Nowadays the amount of apps available for a devise is the most persuasive indicator when choosing a new phone or tablet computer.

The second reason is that it is easy for developers to make apps for Android. Applications are developed in the Java language using the Android software development kit (SDK). The SDK includes a comprehensive set of development tools, including a debugger, software libraries, a handset emulator based on QEMU, documentation, sample code, and tutorials. The officially supported integrated development environment (IDE) is Eclipse using the Android Development Tools (ADT) plugin. Other development tools are available, including a Native Development Kit for applications or extensions in C or C++, Google App Inventor, a visual environment for novice programmers, and various cross platform mobile web applications frameworks.

The third reason of Android popularity is the amount of brands selling it. So devices running Android vary from the most expansive ones with powerful processors and brand new functions to the cheapest budget ones for those who don’t need the smartest phone. So people can choose a phone or a tablet depending on their pocket and needs.

These factors have allowed Android to become the world's most widely used smartphone platform, overtaking Symbian in the fourth quarter of 2010, and the software of choice for technology companies who require a low-cost, customizable, lightweight operating system for high tech devices without developing one from scratch. As a result, despite being primarily designed for phones and tablets, it has seen additional applications on televisions, games consoles and other electronics. Android's open nature has further encouraged a large community of developers and enthusiasts to use the open source code as a foundation for community-driven projects, which add new features for advanced users or bring Android to devices which were officially released running other operating systems.

The following numbers and calculations of the growth of Android can illustrate its growth. Research company Canalys estimated in the second quarter of 2009 that Android had a 2.8% share of worldwide smartphone shipments. By the fourth quarter of 2010 this had grown to 33% of the market, becoming the top-selling smartphone platform. By the third quarter of 2011 Gartner estimated that

more than half (52.5%) of the smartphone market belongs to Android. http://en.wikipedia.org/wiki/Android_(operating_system) – cite_note-141 By the third quarter of 2012 Android had a 75% share of the global smartphone market according to the research firm IDC.

In July 2011, Google said that 550,000 new Android devices were being activated every day, up from 400,000 per day in May, http://en.wikipedia.org/wiki/Android_(operating_system) – cite_note-143 and more than 100 million devices had been activated http://en.wikipedia.org/wiki/Android_ (operating_system) – cite_note-i.2Fo_2011_stats-144 with 4.4% growth per week. In September 2012, 500 million devices had been activated with 1.3 million activations per day.

Android market share varies by location. In July 2012, Android's market share in the United States was 52%, and rises to 90% in China. As you can see the increase of users is just unbelievable and it is still growing. Android is one of the most popular operating systems all over the world. Creating applications with the integrated software development kit along with widely-spread framework makes Android very attractive for the developer community.

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INTELLIGENT SYSTEM FOR SUPPORTING DECISION-MAKING FOR DISPATCHING LIGHT OIL

Problem statement

"Dnepronefteprodukt" delivers light oil at gas stations by gasoline tankers. We need to make a decision about the importation of light oil products at some gas stations. We also need to find the shortest route f or oil tankers.

The designations

N – the total number of stations

F – the total number of fuel types

f_q – the total cost of q-th fuel type $q = \overline{1, F}$;

c_{iq} , d_{iq} – the volume and "dead" remains of the q-th tank on the i-th station $i = \overline{1,N}; q = \overline{1,F}$.

t_0 – the current time

$r_{iq}(t)$ –the remaining fuel in the q-th tank at the i-th station at time t.

$w_{iq}(t_{0\pm p})$ – the cumulative volume of the imported q-th fuel at the i-th station at time $t_{0\pm p}$;

$s_{iq}(t_{0\pm p})$ – the daily sales of the q-th fuel at the i-th station at time t0 ± p. $t_{0\pm p}$.

There is a relationship:

$$s_{iq}(t) = r_{iq}(t) - r_{iq}(t-1) - w_{iq}(t-1) , \quad (1)$$

$$w_{iq}(t_0) = \sum_{k=1}^{K} \sum_{s=1}^{m_k} b_{ks} x_{ksiq}$$

φ_{iq} – the time until the selling of fuel from the q-th tank from the i-th station stops.

$$r_{iq}(t_0 + \varphi_{iq}) = d_{iq}, \varphi_{iq} \in R^+. \quad (2)$$

K – the total number of fuel trucks;

T – the cost of 1 km run of any fuel truck;

m_k – the number of sections of the k-th fuel truck $k = \overline{1,K}$;

b_{sk} – the volume of s-th section of the k-th fuel truck $s = \overline{1,m_k}, k = \overline{1,K}$;

ρ_{ij} – the distance in kilometers from the i-th to the j-th station $i, j = \overline{0,N}$, (0 – the index of the tank farm)

We should find the two sets of Boolean variables x_{ksiq} and y_{kij}.

The mathematical model

Let us formulate the following restrictions:

$$\sum_{i=1}^{N} \sum_{q=1}^{F} x_{ksiq} = 1, \forall k = \overline{1,K}, s = \overline{1,m_k}. \quad (3)$$

$$w_{iq}(t_0) \le c_{iq} - r_{iq}(t_0), \forall i = \overline{1,N}, q = \overline{1,F}. \quad (4)$$

The variables are related by the following relation:

$$sign\left(\sum_{s=1}^{m_k} \sum_{q=1}^{F} x_{ksiq} \right) = \sum_{j=1}^{N} y_{kij}, \forall i = \overline{1,N}, k = \overline{1,K}. \quad (5)$$

We also need to define a route that begins and ends at the oil tank.

$$\sum_{j=1}^{N} v_{k0j} = 1, \forall k = \overline{1,K} \tag{6}$$

$$\sum_{i=1}^{N} v_{ki0} = 1, \forall k = \overline{1,K} \tag{7}$$

$$\sum_{j=1}^{N} v_{kij} \le 1, \forall i = \overline{1,N}, \forall k = \overline{1,K}. \tag{8}$$

$$\sum_{i=1}^{N} v_{kij} \le 1, \forall j = \overline{1,N}, \forall k = \overline{1,K}. \tag{9}$$

$$\sum_{i \in S} \sum_{j \in S} v_{kij} \le |S| - 1, \forall S \subseteq X_k \tag{10}$$

Where X_k – the set of the indexes of the stations, that are visited by k-th fuel truck

$$X_k = \left\{ i : \sum_{s=1}^{m_k} \sum_{q=1}^{F} x_{ksiq} \ge 1 \right\}, k = \overline{1,K} \ . \tag{11}$$

Optimality criterion

From a mathematical point of view, this problem is the task of the two-criterion optimization:

The first criterion is the integral criterion:

$$I_1(x,y) = \sum_{q=1}^{F} f_q \cdot \sum_{i=1}^{N} \left(1 - \min\{\varphi_{iq}, 1\}\right) \cdot s_{iq}(t_1) \to \min . \tag{13}$$

And the second criterion:

$$I_2(x,y) = T \cdot \sum_{k=1}^{K} \sum_{i=0}^{N} \sum_{j=0}^{N} y_{kij} \cdot \rho_{ij} \to \min . \tag{14}$$

Solution to the problem

We created the graph of the routes to find the distances matrix (ρ_{ij}). It was constructed on the basis of *GIS OpenStreetMap* ©. We also used the Floyd–Warshall algorithm for searching the shortest path. (*APSP*, *All-pairs shortest paths*). The complexity of the algorithm is Θ(n3), so we had to use *nvidia* graphics accelerator.

This is the statistical model:

$$s_{iq}(t+k) = \alpha_k s_{iq}(t+k-1) + \beta_k s_{iq}(t+k-7) + \varepsilon_{t+k}, k = \overline{1,7}, t = 0,1,2,... \tag{15}$$

It consists of seven separated *ARIMA*-models (according to the 7 days of the week).

It demonstrates no more than 5% deviation from the observed data for more than 97% of the time series, and therefore it is acceptable for practical use.

The next model shows the dynamics of remaining fuel:

$$r_{iq}(t) = \max\left\{ d_{iq}, r_{iq}(t_0) - \sum_{p=1}^{\lfloor t-t_0 \rfloor} s_{iq}(t_{0+p}) - s_{iq}\left(t_{0+\lfloor t-t_0 \rfloor+1}\right)\cdot\left(t - t_0 - \lfloor t - t_0 \rfloor\right)\right\}. \quad (16)$$

The examples given above allow us to calculate the criterion (14) value with all constraints (3)-(11) and (13) for any sets.

The dimension of the search space of our problem grows exponentially with the number of the stations. The use of random search leads to different solutions for the same input data. This is explained by the fact that each of these approaches has a probabilistic component.

Conclusion

The proposed optimization criteria are robust to changes in the input data. The successful experience of using the system shows that the current system may be applicable to a wide range of problems in transport logistics in Ukraine.

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INFORMATION TECHNOLOGY OF DISTRIBUTIONS RESTORATION BASED ON ROBUST PROCEDURES

During the processing and analysis of sample data, anomalous observations which values are very different from the others require considerable attention. These observations can affect the results of statistical research significantly. To reduce their impact, it is advisable to apply robust methods of mathematical statistics. Such techniques are studied well, but their software implementation in automated data processing systems is still insufficient.

The paper sets the goal to develop software for solving the task of distribution restoration $F(x,\vec{\beta})$, where $\vec{\beta}=\{\beta_1,\beta_2,\ldots,\beta_s\}$ – vector of distribution parameters, using robust methods.

Software's kernel was created by a computational scheme of estimation the distribution parameters vector $\hat{\vec{\beta}}=\{\hat{\beta}_1,\hat{\beta}_2,\ldots,\hat{\beta}_s\}$ based on robust procedure [1]. The computational scheme can be presented as follows:

1. Find an initial approximation of the estimate of the distribution parameters vector $\hat{\vec{\beta}}^0$ using the least squares method, namely, by means of minimization of the residual variance [2]

$$S^2_{\text{зал}}=\sum_{i=1}^{n-1}\omega_i{}^q\left(z_i-z\left(t_i,\vec{\beta}^q\right)\right)^2, \qquad (1)$$

where $z(t_i,\vec{\beta})$ – linearized distribution function; z_i – empirical value of linearized distribution function; $q=0$ – number of iteration; $\omega_i{}^0=1, i=\overline{1,n}$.

2. Set $q=q+1$.

3. Using the current approximation of the estimate $\hat{\vec{\beta}}^{q-1}$ and the chosen weight function, find the weight

$$\omega_i{}^q=\frac{\psi\left(u_i/_S\right)}{u_i/_S},\ i=\overline{1,n},$$

where $\psi(u)=\frac{\partial\rho(u)}{\partial u}$; $\rho(u)$ – weight function; $u_i=z_i-z\left(t_i,\hat{\vec{\beta}}^{q-1}\right)$; q=1,2… – iteration number.

4. Compute the following approximation of the estimate of the parameters vector $\hat{\vec{\beta}}^q$ by means of minimization of the functional (1), using the weights which were found in step 3.

5. Check the condition $\max\limits_{j=\overline{1,s}}\left|\hat{\beta}_j{}^q-\hat{\beta}_j{}^{q-1}\right|<\varepsilon$. If this condition is satisfied, then we take $\hat{\vec{\beta}}^q=\{\hat{\beta}_1{}^q,\hat{\beta}_2{}^q,\ldots,\hat{\beta}_s{}^q\}$ for the desired evaluation of the distribution parameters vector. Otherwise, proceed to step 2.

The computational scheme was implemented to restoration of:

– normal, exponential, Weibull distributions;

– normal, exponential and Weibull spline-distributions with one node.

The following weight functions were used: Huber, Ramsey, Andrews, Tukey and Hampelya.

As a result, the software for distributions restoration by robust methods «RobustProcedurs» was created. Its testing was performed on the simulation data. Test results showed the adequacy of the computational scheme.

The created software «RobustProcedurs» based on the computational scheme forms the information technology of distributions restoration based on robust procedure. That ensures obtaining estimates which are relatively stable to statistical distribution of possible deviations from the theoretical.

The list of references:

1. Дрейпер Н. Прикладной регрессионный анализ: 3-е изд. / Н. Дрейпер, Г. Смит. – М.: Издательский дом «Вильямс», 2007. – 912 с.
2. Бабак В. П. Статистична обробка даних / В. П. Бабак, А. Я. Білецький, О. П. Приставка, П. О. Приставка. – К.: МІВВЦ, 2001. – 388 с.

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THE USE OF MODERN INFORMATION TECHNOLOGY FOR MEDICAL DIAGNOSTICS

Using information technology in the processing of research results is an important and promising. In the modern world the urgent issue of the use and implementation of new information technologies in medicine. This treatment results of medical research helps professionals to put correct diagnosis and save lives.

Timely delivered accurate diagnosis is often easy choice of treatment and increases the likelihood of recovery of the patient. Based on all these considerations, it is natural to try to determine the conditions under which a diagnosis can be made quickly and accurately.In recent years, through the use of modern methods of treatment and diagnosis, based on the latest achievements of science and

technology, the possibility of obtaining successful results increased significantly. If during the diagnosis must take into account a large number of which exhibit significant natural variability, it is very effective for describing complex scheme of their influence there is only one way – using appropriate statistical techniques. If the number of factors or the number of categories of data is very large, it is desirable, or even necessary, to use of the computer to the desired results can be obtained in a relatively short time. This approach in no way diminishes accuracy. Instead, it opens up even more space for the manifestation of these qualities, freeing the doctor from having to deal with such problems, which can be expressed in numerical and logical form and hence solve mathematical methods and using computers.

As the cost of integrated diagnostics is very large, it is important to know how to get the most useful information at the first stage of research, especially at the primary health care level. Among the primary methods of medical diagnosis should allocate a general analysis of blood, because his indicators reflect changes that occur throughout the body. Clinical analysis of blood (total) – quantitative and qualitative research elements forming blood.

In modern hospitals for the overall blood use hematology analyzer. Hematology analyzer designed to conduct quantitative and qualitative research of blood in clinical diagnostic laboratories. Automatic hematology analyzer designed for clinical laboratories is a fully automated device. Able to handle tens of samples per hour with high accuracy and reproducibility, and store test results in internal memory and print them on a printer or transmit to a computer for processing measurements.

After receiving the data on the computer processing. Follows for example, consider the inflammatory disease. Clinical practice has been established that inflammatory disease characterized by increased erythrocyte sedimentation rate (ESR), increased white blood cell count, increased the number of monocytes and a decrease in erythrocyte count, hemoglobin level. To automate the statistical processing, as well as for more rapid and quality processing of survey data there were compiled matrix measurements of blood taken by hematological analyzer, of healthy and sick patients.

To determine the most informative indicators used pair group method of data handling (GMDH). GMDH method was proposed by Academician AG Ivakhnenko. GMDH – an original method for solving structural-parametric identification of models or simulations with experimental data under uncertainty. GMDH differs from other methods of building models because that does not require knowledge of the laws of distribution. Output reduced to one scale measurements by their normalization.

Calculate the conditional probability of recognition errors (P0) through the conditional probability of adoption of norm as the norm (P11) and disease as the disease (P22).

Calculate the probability of an erroneous decision for 10 pairs P^*_{o12} P^*_{o13}, $P^*_{o14}, P^*_{o15}, P^*_{o23}, P^*_{o24}, P^*_{o25}, P^*_{o34}, P^*_{o35}, P^*_{o45}$.This is implemented to using Mathcad, which allows you to process the data and algorithms required to implement.

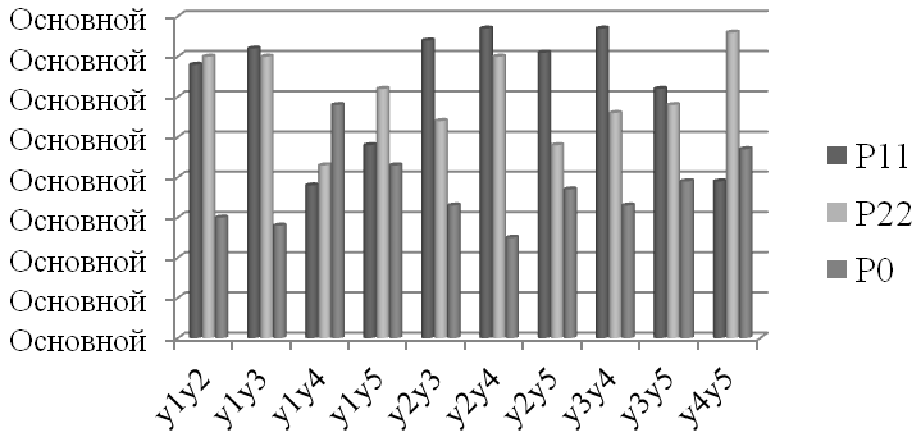

Fig. 1. Conditional probabilities by GMDH

P11-conditional probability norm as the norm, P22-conditional probability of acceptance of the disease as the disease, P0-conditional probability of error. The effectiveness judged by the value of the conditional probability of error. The lower the probability of error is better. During the work it was found that the most informative parameters are the erythrocyte sedimentation rate, number of erythrocytes, quantity of hemoglobin and white blood cell count. Informative was the first pair. Informative, these figures are not only in terms of statistical treatment of results, but also in terms of medicine. In further processing it is possible only on the two parameters

to conclude that the probable condition of the patient. Using statistical criteria such as Student, Snedekora and others criteria.

Conclusions

Application of the proposed information processing research results is very broad and can be used not only for analysis of blood and not just for inflammatory diseases, but also for other forms of medical diagnostics. Application of statistical criteria in the new information technologies is very important and can qualitatively handle large sample measurement, if realize them on the basis of programs like Mathcad and others, you can not write a formula for each treatment, and only change the data measurement and evaluation criteria. Information-measuring technologies improve work diagnosticians but require material costs, but in our country it is not understood and therefore not enough to finance innovation.

The list of references:

1. Малайчук В. П. Математична дефектоскопія / В. П. Малайчук, А. В. Мозговий. – Дніпропетровськ: Системні технології, 2005. – 179с.
2. Малайчук В. П. Інформаційно-вимірювальні технології неруйнівного контролю / В. П. Малайчук, А. В. Мозговий. – Дніпропетровськ: РВВ ДНУ, 2001. – 237с.
3. Малайчук В. П. Обробка вимірювань і сигналів неруйнівного контролю / В. П. Малайчук, О. М. Петренко. – Дніпропетровськ: РВВ ДНУ,2010. – 138с.
4. Малайчук В. П. Основи теорії ймовірності і математатичної статистики / В. П. Малайчук, О. М. Петренко. – Дніпропетровськ: РВВ ДНУ, 2001. – 124с.
5. Научно-технічний портал. – Режим доступу: http://www.ntpo.com/patents_medicine/medicine_17/medicine_274.shtml
6. Справочник по клиническим функциональным исследованиям / под ред. А. Гиттера. – 2-е изд., доп. – М.: Медицина, 1966. – 612с.

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RAPYUTA: ROBOEARTH CLOUD ENGINE

The past decade has seen robots begin to move from factories into household-like environments, folding towels and serving drinks. The demand for these service robots is predicted to grow steadily in the coming decades. But moving from half a century of comfort in structured factory environments to highly unstructured, non-deterministic household environments presents the robotics community with several challenges. Computing power is a key enabler for solving some of these challenges. However, on-board computation entails additional power requirements, which may constrain robot mobility, reduce operating duration, and increase costs. The computational burden of a service robot can be reduced by offloading those tasks that do not have hard real time requirements to a cloud computing infrastructure. These tasks include grasp planning , mapping , and navigation. The rapid increase in mobile data transfer rates makes more and more robotics tasks feasible for execution in the cloud.

RoboEarth is a World Wide Web for robots: a giant network and database repository where robots can share information and learn from each other about their behavior and their environment. Bringing a new meaning to the phrase “experience is the best teacher”, the goal of RoboEarth is to allow robotic systems to benefit from the experience of other robots, paving the way for rapid advances in machine cognition and behaviour, and ultimately, for more subtle and sophisticated human-machine interaction.

RoboEarth offers a Cloud Robotics infrastructure, which includes everything needed to close the loop from robot to the cloud and back to the robot (an operating system, an execution environment, a database, and a communication server). RoboEarth’s World-Wide-Web style database stores knowledge generated by humans – and robots – in a machine-readable format. Data stored in the RoboEarth knowledge base include software components, maps for navigation (e.g., object

locations, world models), task knowledge (e.g., action recipes, manipulation strategies), and object recognition models (e.g., images, object models).

The RoboEarth Cloud Engine makes powerful computation available to robots. It allows robots to offload their heavy computation to secure computing environments in the cloud with minimal configuration. The Cloud Engine's computing environments provide high bandwidth access to the RoboEarth knowledge repository enabling robots to benefit from the experience of other robots.

February 18, 2013 the released of the first public version of the Rapyuta, as well as the framework for applications. The project is created on the principles of Open Source. February 18, 2013 the released of the first public version of the Rapyuta, as well as the framework for applications. The project is created on the principles of Open Source. That allow the project to solve problem of differences between web and robotics applications and develop quickly . Such differences include programming languages, the number of processes (robotics applications contain multiple processes while web applications are typically single processes), and the communication protocols (a request/response based stateless model is sufficient for most web applications, while most robotics applications require servers with stateful protocols to push information asynchronously to the robot).

This technology will make robots smarter, better, faster, and most importantly – cheaper. Which in turn will accelerate the introduction of robots in our everyday lives.

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THE IMPORTANCE OF APPLICATION INFORMATION TECHNOLOGIES IN LIBRARY WORK

In the conditions of transition to the informative society the conflict between the constantly increasing amount of knowledge, generated by the society and intended for distribution in time and space, on the one hand, and by limited possibilities

of Documentary Communications System, the foundation of which is based on the printed transmitters, on the other hand, becomes sharp. The necessity of solving the mentioned conflict requires radical activation of works on creation and implementation of new computer technologies in library activities' practice

Leading direction of libraries' modernization is its informatization. It leads to the creation of new business units, changes in functional responsibilities of employees, involvement of experts from various disciplines.

After examining the actuality of given problem, let's consider some software systems that are created for automation of libraries, and the problems of their choice.

The software system "MARC". Scientific and Productive Association "InfoSystem" (Moscow, Russia), established in 1990, has developed a software of the family "Mark".

Local variant "Mark" is the ideal mean of automation for small and middle-sized libraries, which provides the main library processes: completimg, cataloguing, printing of output forms, bibliographic search. Second generation system – a network variant of "Mark" includes 6 automized workstations: "Completing", "Processing", "Subscription", "Search", "Storage", "Administrator", which work in a local network. It is the best mean for automating middle and large libraries. The system of new generation of "Mark-SQL" – a complex automation of library processes. It allows you to create electronic catalogue, serve readers, keep statistics, perform orders of literature online. A variant "Mark-SQL Internet" is a separate system, through which you access the database of libraries to search and review of documents via the Internet.

Software system ALEPH. The system was developed at the Jewish University (Jerusalem) by the group of programmers, analysts and librarians.

Program Aleph is an integrated, multilingual library program that has a very flexible adaptation machine to the necessity of a concrete library and provides complex automatization of all processes of library technology. Tools allow you to maintain grafic images and full texts of documents; MARC-compatible formats;

ISO-standards, information-reaching languages of descriptor and classification types with available system of the links, authority files, bar codes, data transfer protocols for work in local, corporate and global networks; WWW-server.

Modules: administration, cataloging, book loan; inventory, registrations of periodicals; acquisiton; fines; batch jobs; Servers Web, OCLC, Z 39.50.

Software system LIBER MEDIA. Software system (SS) Liber is developed by French company Relais Informatique International. Liber is running by post-relational database management systems Pick.

SS Liber provides complex automation of the basic processes of library technology. Cataloguing with short, medium and full-screen forms that are created when you install Liber in a particular library, is possible. You can communicate with other systems in MARC-compatible formats.

Functions: cataloguing, completion, search for librarian, budget, printed forms, modem connection, barcodes.

Software system "Biblioteka / UFD". System, that provides automation of main fixed cycles if libraries, is created by the Ukrainian fund house. The main features include records exchange with other libraries in the format USMARC; providing protection of information by user registration on the server with the definition of his powers depending on the group, the distributing of electronic catalogues and thematic catalogues between "owners" – groups of people with the determination of rights for access of other users to these catalogues.

Functions: completing, cataloging, multidimensional search, delivery of documents; support of technologies of work with barcodes, access support to the electronic catalogue on the Internet.

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3D HOLOGRAMS

At Hewlett Packard Laboratories, a team led by physicist David Fattal has found a way to make 3D, hologram-like displays for tiny screens. And they've done it using inexpensive, readily available parts.

The still images and video created are visible from wide angles, unlike other 3D imaging technologies, which tend to limit how far to one side the viewer can be from the hologram. The research appears today in the journal Nature.

"For a mobile device, it needs a wider angle (than a television) because you are more likely to tilt your hand, and we want the feeling of a virtual object in the screen in front of you," Fattal said at a press briefing.

The HP team built the display using a thin piece of glass, a liquid-crystal display and light-emitting diodes (LEDs). First, the researchers etched 500,000 circles – essentially pixels -- into the surface of the glass, each one comprised of a striped grating pattern made from sub-micrometer-sized grooves. Next, they put a layer of liquid crystal display on top of the glass. Then the scientists surrounded the glass with the LEDs. Light from the LEDs was directed into the glass from the side. Once inside, the light bounced around the thin layer of glass and then escaped out the top through the 500,000 etched pixels.

When the light escaped, it came into contact with the grating patterns, which altered the light's direction. The LCD layer was used to control each pixel's brightness.

Different groups of pixels shining in different directions made one part of a 3D image. In fact, 14 different images are combined to make a three-dimensional picture of say.

Scientists at the Massachusetts Institute of Technology built a tiny device that contains a grid of 4,096 miniature antennas (64 by 64) that steer beams of infrared light to create patterns. Their so-called phased array was able to generate an image

"float" it a few millimeters out in front of the grid.

It's the first time anyone has built an array with so many components, as previous attempts only managed 16. It's also the first device of its kind that can steer each beam from an individual antennae in both the vertical and horizontal direction, making it possible to create three-dimensional pictures.

“At a basic level we’re showing that not only can you steer beams actively but also generate new and arbitrary patterns,” said Michael Watts, a professor in the Research Laboratory of Electronics at MIT. That opens up a number of possibilities in holography as well as imaging.

Watts and his colleagues made antennas that control both the phase and intensity of the light it transmits. Two light beams that are 180 degrees out of phase will, if transmitted together, cancel each other out. Meanwhile light waves that are slightly out of phase will interfere with and reinforce each other in certain patterns, making the light look brighter or dimmer depending on how far in or out of phase they are.

That makes an image in the “far field” (it’s some distance away).

Phased arrays aren’t new: modern radar uses them all the time. But Watts and Sun transmitted signals at short wavelengths, in the near infrared as opposed to the radio waves of radar. They also made images, which hadn't been done before with a phased array at those wavelengths.

And because it’s possible to control the phase and intensity of the light, you get more than the illusion of depth from the front: a person standing on any side of the image could be shown a different perspective. A hologram would be truly 3D, and if built with billions of antennas, would produce an image as detailed as any ordinary display. That's because each antennae essentially represents one pixel.

Also you can project an image, It’s the first time anyone has done it with so many pixels. Previous attempts had never managed more than a dozen or so.

Sun and Watts didn't just set records for the size and number of antennas: they did it using ordinary microchip manufacturing methods. That means building a larger-scale device won't require retooling or building whole factories.

The MIT device used near infrared light. To make it work for visible light the only change would be the material the antennas and waveguides are made of -– it has to be something other than silicon. “We’re working on making it in the visible,” Watts said.

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DEVELOPMENT OF SOFTWARE FOR AUTOMATION OF MEDICAL ESTABLISHMENTS ACTIVITY

The scientific and technical progress requires the further implementation of information technology, and medicine is no exception. Introducing information technologies in the system of health care of Ukraine first of all means that the necessary information can be quickly targeted and obtained by medical workers.

Developing programs for medicine is one of the most challenging tasks in many areas of information society. Such programes can provide a significant amount of diversified information about patients which makes it possible to make a diagnosis, prognosis and administer the necessary treatment of a disease. The textual form is inconvenient while analyzing large databases. Important consequences of automation clinic using MIS include reducing the number of diagnostic errors through information control diagnostic process, reducing the time for keeping medical records and reports.

After studying the subject and the problem, it was decided to develop a database using MS Access 2007 and language SQL – queries.

At the first stage of development, it was found that the database should contain the following information: data about patients, diseases, disease statistics, data about employees, types of endoscopic examination.

At the second stage the tables were designed using SQL – queries. The table "Patient" includes patient’s personal data, his medical history, date of treatment

and a diagnosis. The table can add a new patient and modify information. The table "Employees" reflects the personal data of employees (personal ID number, name of employee, address, phone number) that you can edit, add, delete. The table "Types of diagnosis" contains information about endoscopic diagnostic methods used in the department for patient's examination, namely a unique diagnosis code type and name, an employee personal code, a diagnosis code, information about examining a patient. The table "Diagnosis" includes information about the unique ID of the diagnosis, a type of diagnosis (which section gastrointestinal disease is referred to), a diagnosis code of the endoscopic examination office. This table is essential for keeping disease statistics. For each table field a field name, a data type and field properties were defined. The primary key and set relationships between tables were identified.

At the next stage with the help of the SQL language queries were developed by a select, update, delete, add data.

Request "This patient" displays the patient's name, the date of his arrival to the endoscopy office, the date of discharge from the hospital, his diagnosis and diagnostic research results. Request "Finding a doctor to patient" allows you to display information about the doctor who performed the examination of a certain patient. Request "Patient's diagnosis search" allows you to record the number of patients with the same diagnosis that simplifies the process of keeping statistics. Request "Sampling in diagnosis" enables the user to determine what endoscopic examination the patient had, when and what diagnosis was made. "Search patient's diagnosis" gives the information about the diagnosis made. "Finding patients by the endoscopy type" shows all patients undergoing various types of diagnostics.

The report "Diagnosis" provides an opportunity to display and print data on the diagnosis, the endoscopic method used, the patient's name and the date of a diagnosis.

The report "Patient's health record" displays the information about the patients, a diagnosis, a type of ongoing diagnosis, the date of admission and discharge.

The report "diagnosis" displays the information about the type of diagnosis (which section gastrointestinal disease refers to). Each diagnosis has its own unique code.

The database begins with the main window where all tables are presented. This is rather convenient because it is assumed that the information can always be updated. The workspace consists of three tabs: "Record", "Staff", "Statistical data" and "Exit from the database".

The developed software is aimed at the full computerization of medical and diagnostic processes, keeping track of patient care staff in the endoscopy department and keeping medical statistics.

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LIFEBOOK

The unique concept, dubbed "Lifebook 2013," comes from designer Prashant Chandra, who submitted the design to a competition held by Fujitsu.

Lifebook is an idea that integrates a tablet, a camera, a mobile phone and a music player. They all collectively form the hardware for a laptop. Each device works independently to support its unique identity and all of them are unified into a magic gadget.

Our life in this IT age typically consists of some digital devices that we use everyday to do our work, entertain ourselves, enjoy our hobbies, save our memories, share information and news, socialize with our family and friends, etc. Presently we buy each of these devices separately and then struggle to keep them all synchronized with our data. As a rule, we always use these devices one at a time and as a result we have a lot of wasted and idle hardware. If there was a gadget that could have all these devices integrated into one, we would buy only one gadget instead of four and in this way we would spend much less money and thereby synchronization would become a single process.

"The proposed Lifebook is a laptop computer concept based on the principle of 'shared' hardware," explains Chandra. "Currently a lot of hardware is wasted when we use separate devices, as there is often a lot of 'repeat' of data stored and features. For example if I have my songs on my music player, why do I have to block the same amount of storage on my laptop? Similarly, if I have a processor sitting in my tablet, why can it not also run/assist my laptop? If I have a fully functional camera with its own memory and image processing power, why do I need to have it repeated in my laptop?"

The idea is to reduce repetitive applications and functions by having all these separate gadgets operate sufficiently on their own and integrate them into a collective form of a laptop.

The laptop does not have a keypad of its own and instead of it there is a slot with a 16-pin connector linked to a tablet interface. As soon as the tablet is docked into the slot, a sensor senses the operation and the tablet itself becomes a full size touch-based QWERTY keyboard. Also as soon as the tablet is plugged in, it starts sharing its hardware and data to a laptop and it can even contribute towards improving the performance of a laptop or, in some cases, even to run a few functions of a laptop completely on its own. The tablet can also be used as a second display (like a larger Nintendo DS) or as a digital sketchpad with a stylus. In a similar way, a mobile phone+music-player is also completely integrated inside the laptop and through a connector it starts sharing hardware and data as soon as it is plugged in. The processor in the tablet runs the laptop, the mp3 player stores music, and the camera handles images.

Additional advantages of such a concept include: single point changing for all devices, low chances of injury as a keypad is not mechanical, no wires are required to sync devices with each other, single point update of all device software, a double display if required by switching a keypad to a tablet mode while on a laptop. The laptop could also be used in a sketch mode with a stylus.

Lifebook is a logical step forward for the next generation of laptops and technology.

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STUDY ON DIFFERENTIAL AND FUNCTIONAL SYSTEMS WITH THE DELAY OF ARGUMENT

The system (1) was considered in the work [1]

$$\begin{cases} y_1'(t) = a_1(t) y_2(t), \\ y_2'(t) = a_2(t) y_3(t), \\ y_3'(t) = a_3(t) y_4(t), \\ y_4'(t) = -a_4(t) f(y_1(\tau(t))), \end{cases} \tag{1}$$

where $0 \le a_i(t) \in C[t_0, \infty)$, $\tau_i(t) \le t$, $\lim\limits_{t\to\infty} \tau_i(t) = \infty$, $i = \overline{1,4}$, $uf(u) > 0, (u \ne 0)$,

$$\int\limits_{+0}^{+c} \frac{du}{f(u)} < \infty, \quad \int\limits_{-0}^{-c} \frac{du}{f(u)} < \infty. \tag{2}$$

The equation

$$y^{(n)}(t) + p(t) y^{\alpha}(\tau(t)) = 0, \ 0 < \alpha < 1 \tag{3}$$

is a particular case of this system (sublinear case).

The differential system with the delay of argument in each equation without the condition (2) was studied in this work. The conditions of oscillation of limited solutions for any character of non-linearity (sublinearity, linearity, superlinearity) from results for equation (3) were received.

Let us consider the system

$$\begin{cases} y_1'(t) = a_1(t) y_2(\tau_2(t)), \\ y_2'(t) = a_2(t) y_3(\tau_3(t)), \\ y_3'(t) = a_3(t) y_4(\tau_4(t)), \\ y_4'(t) = -a_4(t) f(y_1(\tau_1(t))), \end{cases} \tag{4}$$

where $0 \le a_i(t) \in C[t_0, \infty)$, $\tau_i(t) \le t$, $\lim\limits_{t\to\infty} \tau_i(t) = \infty$, $i = \overline{1,4}$, $f(u)$ – non-decreasing function, $uf(u) > 0, (u \ne 0)$.

The theorem for such system was proven.

Theorem. Let the conditions be executed

1) $\int\limits_{t_0}^{\infty} a_1(t)dt = \int\limits_{t_0}^{\infty} a_2(t)dt = \int\limits_{t_0}^{\infty} a_3(t)dt = \infty,$

2) $$\int_{t_1}^{\infty} a_4(t)\int_{s_1}^{t} a_3(x)\int_{x_1}^{x} a_2(p)\int_{p_1}^{p} a_3(s)dsdpdxdt = \infty. \quad (5)$$

Then every solution $y(t) = \{y_1(t), y_2(t), y_3(t), y_4(t)\}$ of the system (4) oscillates.

The condition (5) takes the form $\int_{t_1}^{\infty} t^{n-1} p(t)dt = \infty$ for the equation (3).

It`s a sufficient condition for oscillation of limited solutions not only for equations with delay, but also for equations without one.

That`s why the delay has no effect to the oscillating properties of limited solutions.

The list of references:

1. Hryhorzhevskaia A. Y. Study on differential and functional models on finite and infinite intervals / A. Y. Hryhorzhevskaia, N. V. Vareh, M. Y. Atanova // Матеріали Міжнародної студентської науково-практичної конференції «Інноваційний розвиток держави: проблеми і перспективи очима молодих вчених». – Т. 3: Сучасні дослідження в сфері соціально-гуманітарних наук, Дніпропетровськ: ДНУ, 2012. – С. 45–48.

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MODELLIERUNG DES STAHLSCHMELZENPROZESSES IM ARIS

Problemstellung. Die Prozesse in der schwarzen Metallurgie sind ganz schwierig und unbequem zu steuern. Deshalb sind die heute verfügbaren Modellierungswerkzeuge dazu berufen, diese Aufgabe zu erleichtern. Eine davon ist ARIS. Man kann detailliert einen metallurgischen Prozess (in unserem Fall einen Stahlschmelzenprozess) mittels der Software ARIS strukturieren, indem man Modelldarstellungen dieses Prozesses benutzt. Das wird seine Verständnis und seine Steuerung vereinfachen. Und man kann auch diesen Prozess mithilfe der ARIS Simulationsmethoden dadurch optimieren, dass man EPK-Modelle mit den passenden Attributen ergänzt.

Analyse der letzten Forschungen. Die früher verwendeten Modellierungswerkzeuge ermöglichen Herstellungsprozesse unterschiedlicher Kompliziertheit mittels der vielfältigen Modelle darzustellen. Das bot die Gelegenheit, die Prozesse aus

verschiedenen Blickwinkeln und Aspekten zu betrachten. Jedoch beschränken sich alle diesen Modellierungstools, verglichen mit modernen Tools (wie die Software ARIS), auf die statischen Modelldarstellungen und ermöglichen nicht einen Prozess in der Dynamik wiederzugeben.

Ziel. Das Ziel dieser Arbeit ist die EPK-Modellausarbeitung anhand der Software ARIS Toolset 6.2 und seine Vorbereitung für die weitere Erforschung durch dynamische Simulation.

Hauptteil. Die Hauptaufgabe im Anfangsstadium der Stahlschmelzenprozess-modellierung ist die Modellentwicklung «wie es ist» für die Strukturierung aller Geschäftsprozesse. Das ermöglicht in Zukunft ein Modell «wie es sein sollte» auf Grund der Analyse des schon erstellten Modells zu schaffen. Dafür sollte man sich mit dem Geschäftsplan des Betriebs, mit den Stellenplänen der Werke, mit den

Arbeits- und Dienstanweisungen, mit den Betriebsnormen und mit der übrigen Dokumentation, die mit dem Stahlschmelzenprozess zu tun hat, bekannt machen.

Die Organisationsstruktur des Betriebs (Organisation Chart) zeigt eine Hierarchie von Struktureinheiten, Dienststellungen, bestimmten Personen und verschiedene Verknüpfungen zwischen ihnen und ist auf dem Abbildung 1 dargestellt. Die wichtigste Rolle im Stahlschmelzenprozess spielt ein Konverterwerk, der sich eine Fallkenabteilung und ein Kalkbrennenwerk untergeornet sind. Das Konverterwerk ist eine große Organisationseinheit und besteht aus den kleineren Organisationseinheiten.

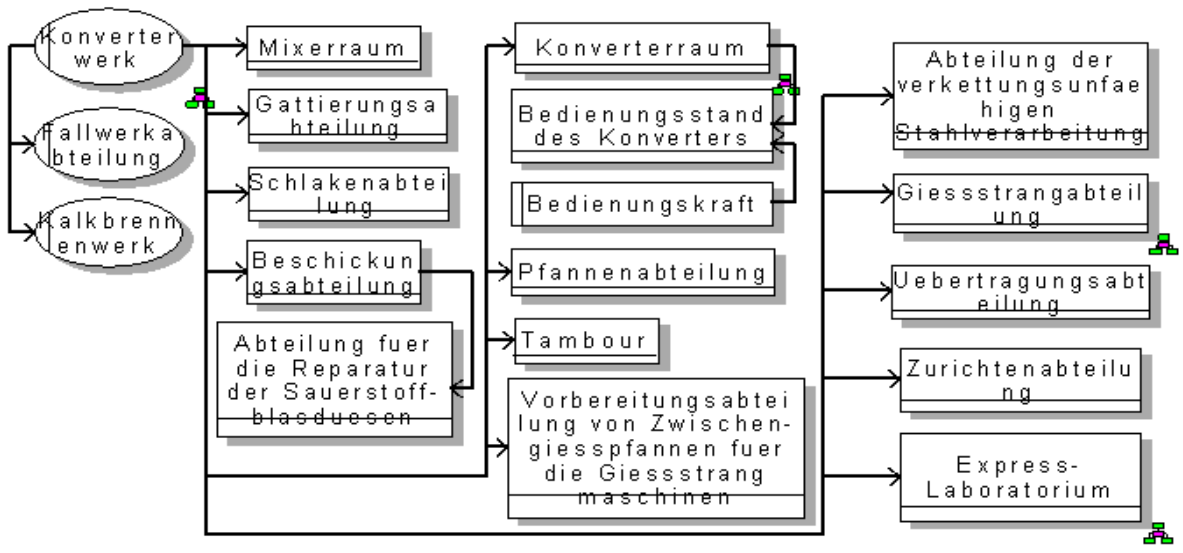

Abb. 1. Organisationsstruktur

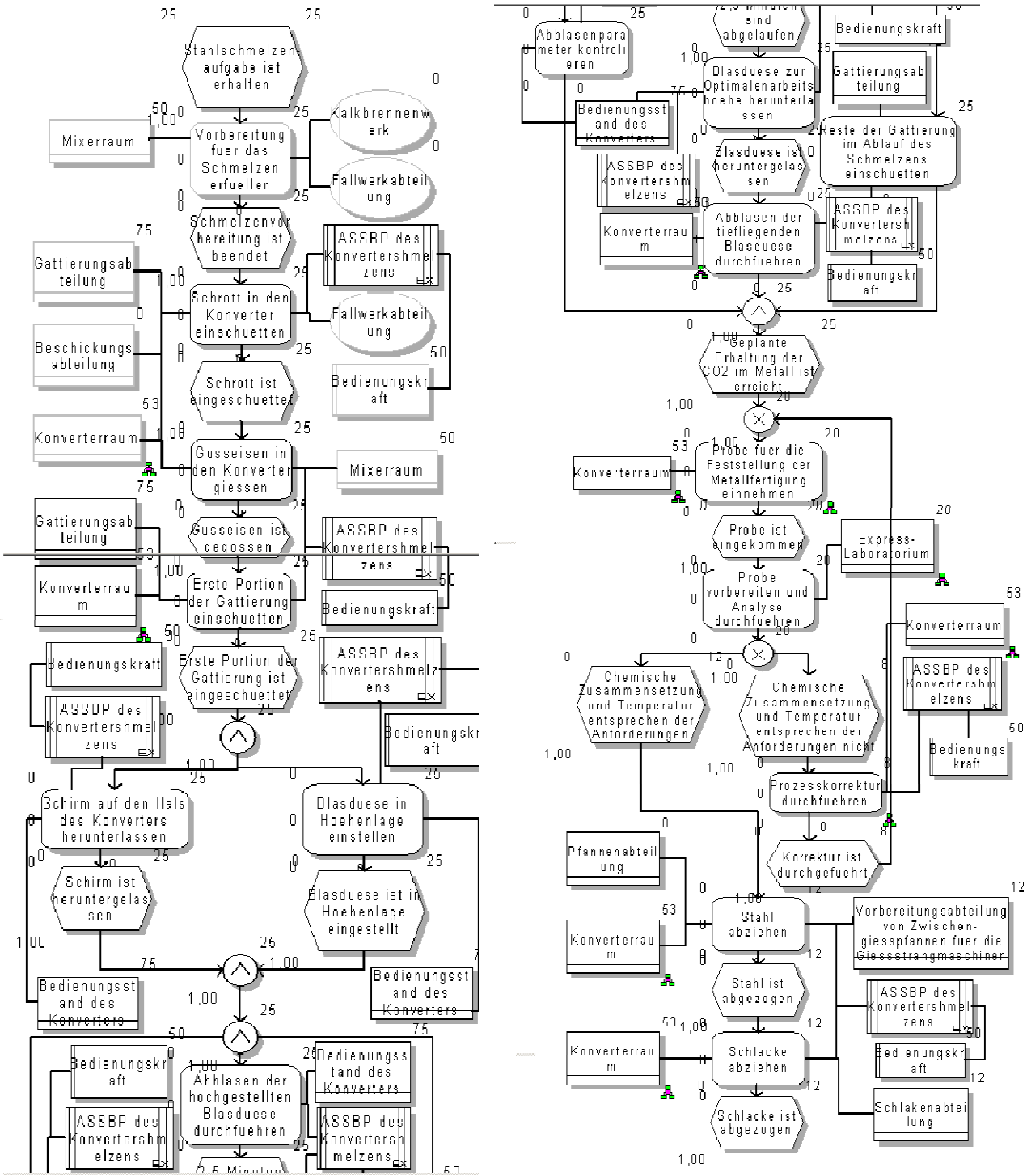

Abb. 2. EPK-Modell des Stahlschmelzenprozesses

Die Ereignisorientierte Prozesskette EPK ist für die ausführliche Beschreibung von Arbeitsprozessen bestimmt, die von Organisationseinheiten oder einzelnen Mitarbeitern erledigt werden. Das EPK-Modell stellt eine Funktionsreihenfolge in

Rahmen des bestimmten Geschäftsprozesses, die von Organisationseinheiten erfüllt werden (Abb. 2). Auf Basis des EPK-Modells, kann die Simulation durchgeführt werden. Dieses Prozessmodel bildet Stahlschmelzenphasen in Anbetracht inliegender Unterabläufe nach und macht möglich, einen Modellablauf im Modus der Zeitsimulation zu realisieren. Um die nützlichen Simulationsergebnisse zu bekommen, muss die Untersuchung zusammen mit den Metallurgen vorgenommen werden. Dadurch kann man vernünftig die folgenden Simulationswerte definieren: statische Wartezeit, Orientierungszeit, Verarbeitungszeit der Funktion, Initialisierungsfrequenz des angegebenen Prozesses, Stundenlöhne der Mitarbeiter und so weiter.

Schlussfolgerungen und Perspektiven für die weitere Forschung. Ein Modellierungsprozess des großen Industrieunternehmens erfordert die gemeinsamen Anstrengungen einer großen Gruppe von engagierten Fachleuten mit verschiedener Spezialisierung, um eine adäquates Modell zu erhalten. Das entwickelte EPK-Modell stellt die Hauptphasen der Stahlproduktion dar und könnte in Zusammenarbeit mit den Hüttenarbeitern für die simulationsorientierte Optimierung der unterschiedlichen Varianten vom Stahlguss angewendet werden.

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ADVANTAGES AND PROSPECTS OF USING 3-D GRAPHIC ART

The specialists dealing with business sphere and marketing have long admitted the significance of graphic art for representation of complicated data, which is also right for a scientific sphere. Although static bar charts are a comfortable way to depict various data about trade matters, they cannot always be used to represent the research in formation. Sometimes to depict mathematical principles, natural phenomena and biological structures we need a three-dimensional animation, for the realization of which it is necessary to have very complicated systems, gigabytes of data and a high level of programming.

The term 3D (3-dimensional) means that all the objects are characterized by three parameters, i.e. width, height and depth. In computer graphic art objects exist only in the computer memory. They do not have any physical form, in fact – they are huge combinations of numbers and mathematical formulas, as well as electrons "running" inside the computer.

Modeling of the scene includes some categories of objects:

- geometry (built with the help of different techniques, e.g. a building);
- materials (information about visual properties of the model, e.g. wall color and reflecting/refracting ability of windows;
- light sources (installation-specific settings of direction, power, light spectrum);
- virtual cameras (the choice of point and angle of projection);
- powers and effects (installation-specific settings of dynamic object distortions);
- additional effects (objects imitating atmosphere phenomena: the light in the fog, clouds, flame).

The graphic 3D-processor can perform the following functions:

1. Texture mapping. This is the most widespread effect for surface modeling. For example, the front of the building would need the representation of many verges for modeling many bricks, windows and doors. However, the texture gives more realism but requires fewer calculating resources because it allows working with the whole front as a single surface.

2. Bilinear filtration – the method of removing image distortion. While slight rotating or object movement, we can notice the skipping of pixels from one place to another, which causes flickering. To reduce this effect in bilinear filtration for representation of the surface point, we need to take weighed mean of four adjacent texture pixels.

3. Trilinear filtration is a bit more difficult. To get each pixel image, we take the weighed mean of the results of bilinear filtration two levels. The image received will be more clear-cut and less flickering.

Due to its advantages 3-D graphic can be applied in many spheres. One way to apply the computer graphic art in the sphere of scientific researches is the systems of

weather modeling. Three-dimensional graphics allows us to demonstrate high and low regions of pressure, air flows, precipitations and other factors for exact weather modeling.

New technologies of three-dimensional modeling are also used in the sphere of medical research. One of the most impressive achievements is the elaboration of the most exact three-dimensional model of human body, the level of detailed elaboration of which couldn't even be imagined earlier.

The latest abilities of three-dimensional technologies are used while creating flight simulator to imitate a plane control precisely. Such systems are very useful in educating pilots because we can program weather conditions with dangerous meteorological conditions or with mechanical breakage of a plane. The flight simulator allows the pilot to be put under extreme conditions which may appear in real life.

And finally, while describing three-dimensional technologies, we can't but mention the virtual reality (VR). The abilities of this unbelievable technology are really unlimited, from distant controlling of surgeries to various films and games.

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DESIGN OF HOUSES

The usage of solar light and heat is known to be a clean, simple and natural way of obtaining all the required forms of energy. It is with the help of solar collectors and proper use of the sun that the heating of dwelling houses, hot water and power supplies are feasible.

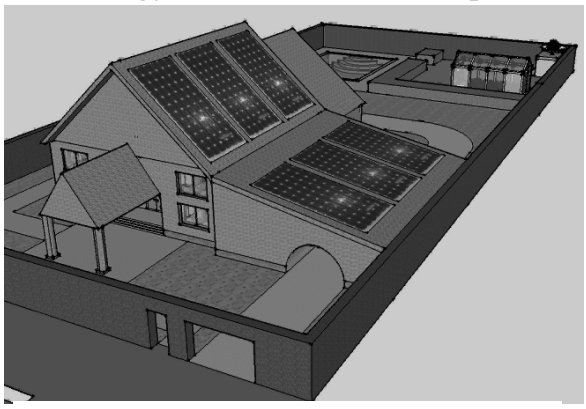

Fig. 1. Cottage

With the help of IT I've made a model of an up-to-date cottage which uses in full active and passive solar energy. There are also models of a green-house

and a shower on the territory of the facility, where the use of the new technologies is suggested in order to improve power supply.

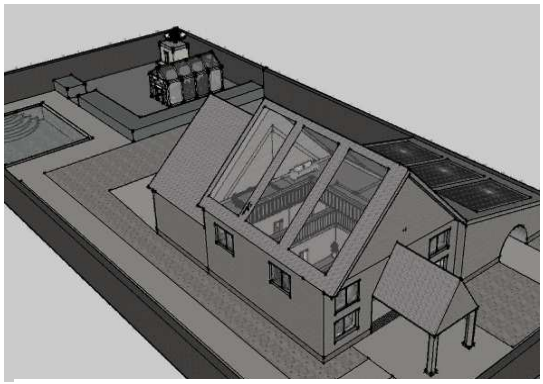

Fig. 2. Cottage

Solar energy that comes to the house hits the solar batteries installed on the roof and changes directly into electric energy. This process is called photoelectrical effect. In such cases the autonomous photoelectrical elements are usually used. They are able to utilize this energy or collect it in special batteries. From within the structure there are large premises where a lot of solar light comes through the glass roof.

The shower is an excellent example of solar energy use for heating household water. My construction of the object helps to direct and concentrate sun rays with the help of dished spherical surface (solar concentrator). The water tank is specially painted in black for better light absorption.

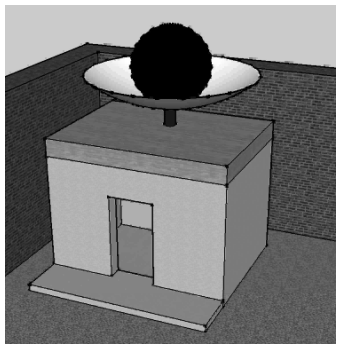

Fig. 3. The shower

Green-houses in cottages are the best assistants in gardening. During its designing I've added several innovations to improve its functions. First of all some sections are made not just of transparent glass but also covered with semi mirror tape that partially reflects sun rays. Secondly, (as water has the highest thermal capacity) there are black tubes filled with water settled along the whole perimeter. Those tubes are to accumulate the heat at daytime and return it back at night. That would enhance a greenhouse effect and accelerate the growth of the plants.

This model is worked out with the use of SketchUp program which is an illustrative example of modern technologies for objects construction usage. Since the solar energy has already started to work up today's market, its use in the presented project is quite topical and actual.

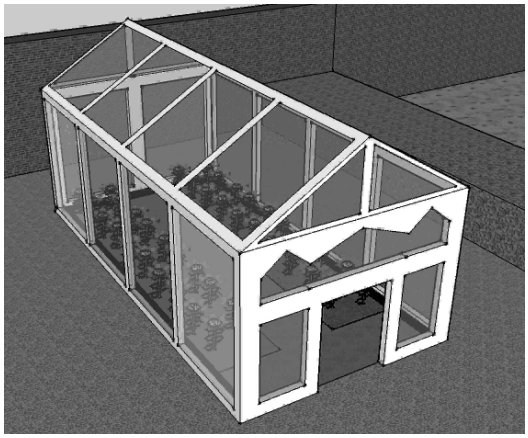

Fig. 4. Green-house

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RESEARCH AND SELECTION OF THE OPTIMAL METHOD OF LAUNCH VEHICLE FUEL TANKS INTERNAL CAVITIES CLEANING AFTER WELDING-ASSEMBLY OPERATIONS

Relevance of the chosen topic is caused by the needs of Ukrainian space rocket industry to fulfill international orders and projects. The transition to international standards enhances cleanness of tank cavities, pipelines and other pneumo and hydro systems.

Analysis of the assembly – welding operations revealed possible sources of contamination and its character. During the assembly-disassembly operations and machining work using hand electrical equipment, brush, scraper, etc. according to the technological process different sorts of dust, abrasive particles, chips and other things on the surface of structural elements can get on the parts surface. Welding operation goes after edges preparation – removal of the oxide film (mechanical, chemical methods), degreasing. These methods of preparation before welding are also sources of pollution. Test work such as endurance test and calibration tank leave behind residue in the form of dust and dirt on the inner walls. Workshop walls, floor, ceiling and equipment may also be sources of pollution. Poor ventilation in the room provides a basis for the emergence of fine dust. Exploring the nature and sources of pollution shows ways to reduce and prevent them. There are mechanical, physical, chemical, physico-chemical, and thermal methods of cleaning the surface from contamination. Not all existing cleaning methods can be used in removing dirt from the tank inner cavity. This is due to the specific design and difficulty getting inside. Usually the only way to get inside is manholes and technological holes for chokes and valves. To clean the inside cavity of the fuel compartment hydrodynamic cleaning method is used. The cleaning process takes place on a vertical hydraulic testing bench using washing head. There is a hydro-motor inside of the washing head body that allows it to rotate around its axis and transform the kinetic energy of translational motion into the kinetic energy of

rotational motion. Jet washout quality depends on the physical properties of the fluid and the environment, their viscosity and surface tension. To achieve the required level of tanks internal cavities purity and high quality of surface preparation before test for leaks in the design documentation in degreasing and cleaning surfaces from mechanical impurities introduced using 0.0 -0.02% aqueous solution of potassium dichromate in distilled water. Explosion safety, incombustibility and chemical inertness of this solution allows it to be used in devices for mechanized cleaning due to hydrodynamic jet effects.

To achieve the required surface purity the following must be considered:

- specific consumption of washer fluid for 1m2;
- fluid heating temperature;
- nozzle device inlet pressure;
- the distance from the nozzle to the surface to be cleaned;
- area of effective action;
- an indicator of purity;

As a result of experimental studies it has been revealed that compatibility and range of jets depends on the diameter of the nozzle, turbulent flow stabilizer design in the flume and fluid pressure. Nozzle with “z-element + mesh" flow stabilizer type, hole diameter of 4 mm has better performance in comparison with nozzles with outlets diameters 1.5 mm, 2.0 mm, 3.0 mm, 5 mm. For nozzle with d0 = 4 mm optimal pressure is P0 = 0,5 ÷ 0,6 MPa, and for the nozzle with a diameter d0 = 2 mm – pressure P0 = 0.2 ÷ 0.3 MPa. Effective action range for liquid jet is 40-85mm. The most effective treatment is during the first few seconds. This guarantee removal of 92–93% of contaminants, following treatment increases the purity of the sample not more than for 3–5%. When cleaning with hot water (40-50C) with pressure P0 = 0,5 ÷ 0,6 MPa and specific consumption of 80 – 90 l / m 2 over 98% of contaminants can be removed, while with specific consumption of more than 450 l / m 2 almost 100 % of impurities may be deleted. However, during the organization of regular spacecraft parts jet cleaning it is necessary in each case to perform technical and economic assessment of feasibility of increasing the cost of heating washer fluid to reduce the duration of treatment cavities.

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INFORMATION TECHNOLOGY AS THE KEY TO ACCELERATING ADVANCES IN MENTAL HEALTH CARE

Many major medical and scientific advances occur in association with technology. Cochlear implants, prosthetics and the human genome project have all come about because of investments in materials, electronics and biotechnologies, combined with medical and clinical knowledge. Computers, and indeed the Internet, are listed as some of the greatest inventions of all time, which have transformed medicine, the sciences and society. From the early 21st century, the Internet was seen to be transforming medicine, by improving communications between patients and clinicians, providing new devices, and facilitating information dissemination. Interestingly, papers written in the early 2000s in major journals such as the Journal of the American Medical Association now seem incredibly conservative in their predictions for Internet-enabled technologies and their use in health care (e.g. Baker et al., 2003).

In medicine, the recent NSW review chaired by Peter Wills (2012) and US-based reports on science highlight biotechnological developments as key drivers of innovation (Macilwain, 2010). However, information and communication technologies are just as likely to be as important as biotechnology, and particularly in population and mental health. More people own mobile phones than computers. In the developing world, mobile phones have overtaken laptops in volume, and provide the major source of communication technology. In Uganda alone, 10 million people, or about 30% of the population, own a mobile phone, a number that grows rapidly every year (Fox, 2011). Some 35% of the American population have ‘apps’ on their smartphones (Purcell et al., 2010) and tablet use is growing at a faster rate than smartphone devices (Online Publishers Association, 2012).

Mental health: qualitative leaps or just quantitative?

Within this context of medicine and technology, two questions have long interested researchers in mental health. The first is the extent to which mental

health interventions have been transformed by technology (or what can we now do that we could not before?). The second relates to the extent to which the disciplines of mental health and psychiatry have especially benefitted relative to other disciplines such as medicine (or is technology especially useful in psychiatry and mental health?). In the remainder of this Debate, we address these two issues in turn, highlighting new ways that health professionals and health consumers can do things and how psychiatric and psychological treatment might particularly benefit from these innovations.

Conclusion

Because of space, other activities facilitated by technology cannot be described here. These include: the role of social media in promoting mental health; population-based approaches to understanding aspects of mental health, such as geospatial mapping of suicide clusters; and the great opportunity online dissemination has to improve T2 translation (Woolf et al., 2008). T2 is translation that seeks to improve access, develop higher quality clinical care, and help consumers. The impact of technological developments will become clearer over a very short time. In the meantime, we will continue to see transformations of all aspects of medical and psychological ‘transactions’, new infrastructure to manage interactions between patients / consumers and a broader range of providers, new devices and ‘apps’ which have the potential to extend, make more efficient and add value to mental health care.

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THE FEATURES OF THE INNOVATIVE PROCESSES IN EDUCATION

The unsatisfactory state of education led to the necessity of reformation. Objectives and tasks, which appeared before modern education in the informative society, are changing, gradually traditional education system is replaced by

personality-oriented one, traditional methods are replaced by innovative, which foresee a displacement of emphasis in training activity, its focus on the intellectual development of students by diminishing the fate of reproductive activity , the use of tasks to test different types of students activity, increasing the number of tasks and so on.

The most important part of the learning process are not computers, but teachers, armed with techniques of computer technologies.

Computer technologies can be used in an educational process to improve its efficiency and development of students. Some software can help teachers to develop general-educational, and also special skills in students and thinking skills of high level faster and more efficiently than by using traditional means. For example, using in the educational process of multimedia presentations, publications and websites, created by students, it is possible to develop such educational skills in students:

- presentation: oral presentation before the audience, the ability to formulate succinctly their opinion, the use various multimedia facilities and possibilities;

- publication: use of complete sentences, designed for one person reading, combining of text and images, and periodic coverage of results of researches;

- web site: publication of current information or research results, communicating with a wide audience, gathering information from different regions.

To implement in practice the introduction of new information technologies in the educational process, it is actual their studying by future teachers in the universities. To this end, the Faculty of Applied Mathematics DNU has developed guidelines for studying the section "Linear operators".

The speciality "Applied Mathematics" has a well-balanced curriculum, in which what to teach is formed. One of the basic and important courses is a course "Algebra and Geometry". During the existence of the speciality it is very organically formed for teachers, unlike the differentiated teaching of two separate courses of algebra and analytic geometry.

In order that the course "Algebra and Geometry" takes place, the coherence in the work at reading lectures and conducting workshops is necessary. The limited

number of lectures and a large volume of material makes the teachers, who prepare this course, allocate even theoretical material between lectures and workshops. It requires high qualification of teacher, who leads workshops, because some of the ideas, which were raised on lectures, must find a continuation on workshops.

Updating of methodical teaching within the framework of Bologna process should take place in direction of an individual approach to improve the quality of education and the development of creative capabilities of students majoring in "Applied mathematics". In this context, an integral look on the educational process as a system of interaction of contents, forms and methods of teaching is required.

I believe that studying of such a course provides an possibility in future to re-use own knowledge for development of intellectual and creative capabilities of students, which later will allow them to become apt at self-realization, to work on solving of important problems both independently and in a group. Due to it the role of the teacher in the educational process is very responsible and quite different from the one that is focused on traditional training.

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VIDEO GAME: HISTORY OF DEVELOPMENT

Video games have become the fastest-growing segment of the world entertainment industry. Probably sector of economy experienced so many shocks and technological revolutions in such a short period of time. Now video games have proven right to exist – they began to expand into other areas of life and have become an important part of mass culture. American researcher Jessie Herz was probably the first to draw attention to the phenomenon of video games. In 1997 he published a book “Joystick Nation: How Videogames Ate Our Quarters, Won Our Hearts, and Rewired Our Minds”, in which he tried to analyze what could be the result of total social fascination about video games. Hertz came to conclusion that

“video game genie” had just been let out of the bottle. No one knows how “he” will behave and what will be the results of this process. During last years it has become clear only that video games are becoming more and more popular and concerns about their negative influence do not decrease. The “history” of the video games is, first of all, the history of chance and scientific discoveries, which gradually became a big business history.

It all started in 1958. Willy Higinbotham, a physicist and a nuclear weapons officer of Brookhaven National Laboratory (he was an avid tennis player) and once he set out to invent a kind of entertainment, which would allow demonstrating the potential of science to the visitors of the laboratory. In three weeks a video game “Tennis for Two” was created. "Ball" bounced off the horizontal line at the bottom of the screen it had to be sought off with a short line at the top of the screen. To control the "racket" there was product a control unit with two buttons "left" and "right." The game was wildly popular but short-lived: Higinbotem had to disassemble his device. In 1961-62. three people of Massachusetts Institute of Technology (MIT.edu) whose the ideologist and inspirer is now considered Steve Russell, created the first interactive computer game “Spacewar”. For the first time in the game the man struggled with not the computer, and with another man. The players controlled two spaceships, trying to destroy each other with rockets. This game scenario was not chosen accidentally all students were ardent fans of science fiction. However Russell and his colleagues didn’t patent their invention, because they considered it meaningless. That is why the father of video games is considered Ralph Baer – American inventor of German origin, who in 1966 became proposed the idea of creation an "interactive TV" – a game console which was compliant with TV. The idea and concept of the device were patented. And the first home video console, Odyssey (with 12 games) went on sale in 1972. Because of the high cost of microchips was offered to costumers for $ 100. The 1980-s became the era of an 8-bit game console. The first trendsetter in the world of video games, was Nintendo company (its console Nintendo Entertainment System gave the opportunity to play more complicated and high-quality games, also it possessed high quality of images

and music), then came NEC and Sega. Nintendo almost monopolized video game market in 1985-1989. It held 95% of the North American video game market, and 92% of the Japanese market. NES console was copied illegally in large circulation, especially Russia in which was a strange and closed market to Nintendo. Local companies sold NES clones openly and very successfully. The most famous of them is Dendy console. In fact it is not an independent console, but its illegal clone. No one knew what Nintendo or NES was, but children distinguished very well Dendy Junior and Dendy Classic. Successful sales of Dendy consoles inspired other distribution networks – "Lamport" and R-Style, which brought to the home market other NES clones- Kenga and Bitman. But competitors have failed seriously to challenge "Stipler."- the first company making delivers to Russia. In order to have legitimate position, "Stipler" signed a dealership agreement with Nintendo. According to it's terms, "Stipler" had to buy several branded game cartridges along with the company console, which cost from $ 40 per unit and significantly increased the price of the final set. In spring of 1996 Dendy's official history ended with "Stipler" shutdown.A new wave of technological revolution – was the appearance of 32-bit and 64-bit games. In the global video game market new players appeared, for example Japanese electronics giant Sony issued its console PlayStation (for the first time the players had the ability to play the games created not only by the console manufacturer, but also by the third party developers). Besides Microsoft company, released an Xbox console. Xbox provided higher quality of images. Apart from it, the market is dominated by three console systems – Sega Dreamcast, Sony PlayStation 2 and Nintendo GameCube. 1289-bit consoles have become the last innovation.

Conclusion

As we see, the developers of game consoles conducted a fierce war with each other throughout the whole history of their existence. Too many companies tried to enter this market, but not all of them managed to do it. Many of them suffered huge losses and went out of this difficult but very profitable business. As an example we can take an Atari company, with its after Jaguar 64 failure, Atari

decided to leave the market of video game systems, and began to developing and publishing games. The present- day situation is the following. Sony with its PlayStation 2 “runs the show”. Besides, Sony is supported by the best fashionable designers and editors releasing – exclusive projects on PS2. The second place is occupied by Xbox from Microsoft. This console is kept well in the market and it can boast a rather large number of high-quality games. Finally comes Nintendo GameCube. The life cycle of game systems is small – only 5-6 years. Moreover it decreases, with each new generation. As many analysts state the world is not ready for the arrival of a new generation of game consoles. Still, the potential of PlayStation 2, Xbox and GameCube's is not used to the maximum, and the games played on it appear to be quite modern… However, the market is arranged in such way that if someone reports about the face-coming release of a new console, he declares war against his competitors, and they must respond immediately. This time, the war was declared by Microsoft, which reported about preparations for the release of the Xbox 360. Sony responded immediately, showing PlayStation 3 to the public. After them, Nintendo come with “Revolution”. Who will win this race? How will the new generation of games look like? How will the game world change? These and many other questions are asked by both journalists and ordinary people. But only time can give the answer to this question.

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THE EFFECTIVE WAYS OF PROCESSING AND SORTING INFORMATION

Today there is a wide variety of problems, attached to processing and searching some information, which are solved faster, easier and more effectively, if data saves in computer memory as sequences. Perhaps, there is no one other task, which has given birth to so multitude of different ways of solving the same

problem, as sorting. Is there any “universal”, the best algorithm? No, there is not. Though, if you have an approximate description of input data, you can match the optimal method.

The methods of sorting are appreciated by the following criteria:

1. Time of sorting – it is main parameter, that characterize the speed of algorithm.

2. Memory. Some algorithms require additional memory for temporary storage of data.

3. Stability – stable sorting does not change the relative position of equal elements. This feature can be very useful if they are made up of several fields.

4. Natural behavior – the method effectiveness in processing already sorted, or partially sorted data. The algorithm works naturally and better, if input sequence supports this feature.

Another important property of the algorithm is its scope. Here, two basic positions:

- internal sorting works with the data in RAM;
- external sorting arranges the information located on external storage. It imposes some additional restrictions on the algorithm:

- Access to the storage is carried out sequentially: at any time it can be read or written only one element that stays after the current;

- Data capacity does not allow elements to stay in RAM

Furthermore, access to the data on the storage is much slower than memory operations.

This class of algorithms is divided into two main sub-classes:

– Internal sorting operates with arrays, small enough to fit entirely in RAM. Data is usually sorted right away without any additional cost.

– External sorting operates with storage devices with high data capacity, but access is sequential (e.g. file sorting), it means that at the moment we 'see' only one element and the time required for rewind is unnecessarily large compared to memory. For this reason there are special methods of sorting that use extra disk space.

Basic methods of sorting linear data structures include:

- selection sort,
- bubble sort,
- insertion sort,
- bucket sort,
- Shell sort.

Here are the most effective and most commonly used in practice methods among all ways of sorting.

- Quicksort, was designed by the English informatic Charles Hoare at MSU in 1960, one of the fastest in practice internal sorting algorithms general purpose, simple in implementation;
- Heapsort, was proposed by J. Williams in 1964, the algorithm is stable and works effectively for sufficiently large size of data;
- Merge sort, was invented by John von Neumann in 1945, this sorting method is a good example of the principle of "divide and rule".

Certainly, it is obviously to use very fast sorting algorithm. Simple sorting algorithms do not provide the desired performance of the program. However, developers always have to remember that every fast sorting algorithm may contain some drawbacks along with their advantages. So, young professionals of computer science have to understand that all variety of modern sorting methods allows programmer not to get hung up on only one and to choose the most optimal, related to his problem.

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THE TECHNOLOGY OF AUGMENTED REALITY

Nowadays Augmented Reality has become a popular trend. That technology is very promising, and actual: the wide use of smartphones and wireless internet creates fertile soil for the development of augmented reality. It can be useful for many purposes, such as scientific research, education, medicine, military area, navigation, commerce, entertainment. It can be used for many social and common tasks.

Augmented Reality is a term used to describe all projects designed to augment reality with virtual components like sound, video, text, graphics, GPS data, and sensory input. Augmented Reality is designed to enhance one's perception of reality.

Most advanced Augmented Reality technologies are computer vision and object recognition. They help make information of surrounding world interactive, and create a virtual layer of artificial information. Those technologies are based on mostly visual capture of real world objects, analysis, and processing of gathered information using special algorithms. In case of image, software has to derive real world coordinates using camera images, recognize places, buildings, etc. Software detect interest points, optical flow, and then use feature detection methods: corner detection, edge detection, blob detection, and image processing methods to gather data to restore coordinates from image. Known object geometry (architecture of certain buildings, for example) present in the scene is assumed to make process of recognition easier. Today there a lot of systems those rely on this technology: QR-codes, tagging systems, AR-browsers. Augmented Reality systems also use many other technologies. They are using accelerometers, compasses, gyroscopes, GPS, wireless internet connection, etc.

Now main platforms for Augmented Reality systems are smartphones operating systems like iOS, Android, Windows Phone. Now exist many Augmented Reality applications and services. Basic types of them are: tag systems which use QR-codes, or other markers to deliver links, show specific data like text, images, graphics. And

AR-browsers those display digital information on the top of what you see through your camera (they can recognize real word objects like buildings, landmarks, logotypes and show information about them), show what is around you on the map.

Initially intense development of Augmented Reality started in the military area. In military sphere the application of Augmented Reality is in combat pilot head-up displays which provides information without distracting pilot, and in lifelike experience training systems. In the future it can be used to provide networked communication and navigation systems into the soldier goggles.

Development of Augmented Reality also started in medicine and industry and soon was transferred to an entertainment and commercial areas. And now it's becoming usable in other areas as well, and it has a great perspective of applications. In medicine it will be able to provide surgeon information about patient state in his glasses, let combine X-ray, tomography, and ultrasound images with a real picture. In architecture and design it can simplify planning by live visualization of projects. In education it can advance interactivity giving students possibility to see experiments, theoretic models, and historical events sites, get in another workspace and interact with distant teachers in simulation. In office work it can improve productivity and make work more convenient. It can provide advanced commerce, navigation and live translation of speech and text. This technology can make possible free viewpoint television and cinema. In everyday use it can put useful information in field of view, provide organizer and navigator functions, live internet connection, phone calls, etc. All of these capacities can be realized with Augmented Reality goggles, which now is under development.

Nevertheless, it has some drawbacks. Integration of such technologies in our lives will increase influence of media and corporations on us, increase amount of information we'll have to handle, and so stress level will grow as well. Privacy may be threatened. People can get too reliable. And live communication may be replaced by virtual.

So in conclusion, Augmented Reality is a very perspective technology that can find many applications in many areas and make peoples life more comfortable, but it requires careful and wide usage.

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ADVANTAGES AND DISADVANTAGES OF OBJECT-ORIENTED PROGRAMMING

All programming languages is only a tool for solving of well-defined range of tasks. The choice of the tool and the way of operating with it is determined basically by specific of the problem, requirements for it and by all available resources –first of all human and financial.

OOP was created as the result of ideology of procedure programming (1)), where data and routines (procedures, functions) of their treatment are not formally linked. For further development of object-oriented programming concepts, the meanings of EVENT are very important (so-called event-oriented programming (2)) and the component (component programming, CPC (3)).

The first programming language, which proposed the principles of object-orientation was Simula (1967). This programming language offered a truly revolutionary ideas, such as: objects, classes, virtual methods, etc. However, most of the concepts were developed by Alan Keyem and Dan Ingalls in the language Smalltalk (1970). It language that became the first widespread used object-oriented programming language.

• Procedure-driven programming (1) is the paradigm of programing based on the conception of the procedure call. Procedure, also known as subroutines, methods, procedures or functions simply contain a sequence of steps for implementation.

• Event- oriented programming (2) (SOP) is a paradigm of programing in which implementation of the program is determined by events: the user's steps, messages of other programs and flows, operating system events.

• Component-oriented programming (COP)(3) is a set of classes and language constructions classified by common attribute.

According to Alan Kay, creator of Smalltalk, who is considered to be one of the founders of the PLO, an object-oriented approach is based on the following set of main principles:

1. Everything is considered to be an object.

2. All calculations are carried out by the interaction (data exchange) between objects in which one object requires another object to perform some action. Every object has independent memory, which consists of other objects.

3. Each object is the representive of a class that expresses the common properties of objects (such as integers or lists).

At the same time, the PLO has a number of disadvantages and shortcomings:

1. It is necessary to understand the basic concepts, such as classes, inheritance, and dynamic binding (linking).

2. Reusable requires the programmer to meet with large class libraries

3. Class designing is far more complex than their using.

4. It is very difficult to study classes, not being able to "touch" them.

Alexander Stepanov is an fervent critic of OOP(well-known expert on programming, which helped to create the C + + with Bjarne Stroustrup), completely disillusioned with the OOP paradigm, in particular, he writes: "I am sure that the PLO is methodologically incorrect. It begins from the the construction of classes. It is the same as mathematicians would start with axioms. But nobody really begins with axioms, everybody begin with the evidence. Only when you found a set of suitable evidences, only on this basis an axiom could appears. So you only could finish with axiom in math».

No need to look at programming from a purely technical point of view programmers solve business challenges and problems of the people first, and what way and by what tools they do it care customers at last.

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MODERN DATABASE REVIEW

The bases of existing information systems are database. A database is a means of storing information in such a way that information can be retrieved from it. There are two main classes – relational and non-relational databases

The relational database was first defined in June 1970 by Edgar Codd, of IBM's San Jose Research Laboratory. Relational databases have been around for over 30 years. A relational database is essentially a group of tables. Tables are made up of columns and rows. Those tables have constraints, and relationships are defined between them. Relational databases are queried using SQL, and result sets are produced from queries that access data from one or more tables. Multiple tables being accessed in a single query are "joined" together, typically by a criterion defined in the table relationship columns. Normalization is a data-structuring model used with relational databases that ensures data consistency and removes data duplication. Normalization was first proposed by Codd as an integral part of the relational model. It encompasses a set of procedures which in turn prevents loss of data integrity. The most common forms of normalization applied to databases are called the normal forms.

A relational database is created using the relational model. The software used in a relational database is called a relational database management system (RDBMS). Almost all database systems we use today are RDBMS, including those of Oracle, SQL Server, MySQL, Sybase, DB2, TeraData, and so on.

The reasons for the dominance of relational databases are trivial. They have continually offered the best mix of simplicity, robustness, flexibility, performance, scalability, and compatibility in managing generic data.

Non-relational databases are also known as Next Generation Databases, mostly addressing some of the points: being non-relational, distributed, open-source and horizontally scalable. Next Generation Databases can be divided into such functional

groups: Wide Column Store / Column Families; Document Store; Key Value; Graph Databases; Multi-model Databases; Object Databases; Grid & Cloud Database Solutions; XML Databases; Multidimensional Databases; Multi-value Database.

The original intention has been creating modern web-scale databases**.** The movement began in early 2009 and is growing rapidly. The most important characteristics are: scheme independence, easy replication support, simple API, consistency, a huge amount of data and more.

One type of the non-relational databases is commonly called a key-value store.

Relational databases and key/value databases are fundamentally different and designed to meet different needs. Key/value databases are item-oriented, meaning all relevant data relating to an item are stored within that item.

There are two clear advantages of key/value databases to relational databases. The first benefit is that they are simple and thus scale much better than today's relational databases. The database provides a relatively cheap data store platform with massive potential to scale. The second benefit is that they are more natural fit with code

Relational data models and Application Code Object Models are typically built differently, which leads to incompatibilities. Developers overcome these incompatibilities with code that maps relational models to their object models, a process commonly referred to as object-to-relational mapping.

Taking into account all things mentioned above, we can define three reasons why you would choose a non-relational key/ value database platform for your application:

1. Your development environment is heavily object-oriented, storage utilization type key-value will reduce the size off amount of additional code to convert the data.

2. The data store is cheap and integrates easily with your vendor's web services platform.

3. Your foremost concern is on-demand, high-end scalability.

However in making the decision, remember the database's limitations and the risks you face using a non-relational databases.

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MERCHANDISING AT THE RESTAURANT BUSINESS

Merchandising is a branch of marketing theory and practice concerned with maximizing product sales by designing, packaging, pricing, and displaying goods in a way that stimulates higher sales volume. The underlying assumption in merchandising is that consumers may have a general need for (or interest in) a certain class of product, and it is the merchandiser's task to present the product in a way that best captures consumers' attention and persuades them that the product will fulfill their needs and wants.

Merchandising at the restaurant business – is the psychological ways of influencing the customers behavior. They formulate the establishment’s profit and make customers more loyal. The main elements of restaurant merchandising are: advertisements at the places, merchandising menu, directing the service, sampling, psychological influence on customer’s behavior

Let us consider in this article such elements of psychological influence on customer’s behavior as sound, smell, light and color.

Lighting – is an important element of designing the restaurant because the light helps to create necessary atmosphere and can influence the food improving its value.

According to the American Lighting Association restaurants should have no less than 2 levels of light consisting of task and accent lighting, with a high recommendation of dimmable light bulbs and systems. By using multiple lighting fixture types a design image can create brilliant displays of decor, and architecture while providing a primary focus on the dining table. The dining table is where light balance becomes crucial for a restaurant. If a table is poorly lit, food can appear dull and unappealing despite flavor and presentation. Meanwhile over illuminated tables can be too bright and distract from a pleasant dining experience.

Color. Color combinations can make guests hungry, depressed, happy and agitated, eat fast, or eat leisurely. Changing the color scheme of a dining room can noticeably increase (or decrease) business. Color can be used to change the shape and add interest to the rooms. For example during the eating, white color influenced on customers more positive than the colored one. But after meal orange color causes a pleasant feeling, and even mild euphoria.

The colors are divided on some groups: stimulant or warm (red, brown, orange), neutral (yellow, green, grey), calm or cold (blue, violet). The warm colors stimulate the physic activity and make a pleasant atmosphere. But cold colors are relaxing.

Sound system. Sounds are the part of a restaurant atmosphere. Kitchen noises, customer voices (talking, laughing), traffic noises, and dish bussing all add to the atmosphere. Noise in a dining area is not always undesirable. The correct type of background music puts customers in a good mood. Foreground music, loud enough to be easily heard over the ambient sound of the room with out interrupting conversation, is used in most type of cafes. Recreational music, loud enough to dominate the atmosphere of the room is used for bars and discotheques. The higher alcohol sales in a restaurant, the greater the customers toleration and need for louder music.

The psychologist say that the fast music make people move faster in front of the rows of stalls and slow music increase the time spending for choosing goods. MacDonald’s use such principles inside the restaurants. Special worker analyses the quantity of customers at the restaurant. Then he makes a decision of what music will play. If there are lots of visitors they play fast music in order to empty the paces for other visitors. But if there is a few people the quite music is playing. Its stimulate the customers to spend more time at the establishment and to spend much more money.

Smell involves both pleasant and unpleasant odors. Smells can positively contribute to the atmosphere. The aroma of fresh brewed coffee, oven-baked bread, fresh cut flowers, and a pine scented breeze can heighten the appetite.

But we must know that the perception of smell by people depends on the specific of their culture. The same smell can cause different fillings. For example the smell of church incense can excite the Europeans. But for the Indian Buddhist this smell will mean nothing.

So sound, smell, light and color are the main parts of restaurant success.

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NEW FUNCTIONAL CAPACITIES OF HAND GADGET

There are two reasons to wear a watch: fashion and function. Over the last 100 years, designers have been working furiously to create high-fashion watches but the function has basically remained the same: telling time. But now we can do more. Just recently we have seen some incredible advances in the watch functionality department, example is Pebble.

So, what is Pebble? It's not a smartphone for your wrist, as we have seen attempted before. In fact, it's far less complicated than you might expect – the lightweight device reads out basic text, lets you skip through music tracks and, of course, displays the time.

With this watch you can also do many things, for example: read texts or see who is calling you, or scan Twitter or VK feeds and yes, check the time, while walking through the park, barbequing a steak or, as he was doing when he conceived of the idea, riding a bike when his phone began to ring.

For many people it would be appropriate when they are running, or are on the subway, on metro, anytime when they want to see what’s on their phone without pulling it out of their pocket.

But there are some problems connected with its functionality. The functionality of Pebble is not on so level that we want. Creators must fix some bugs and optimize operating system.

As it is known, Migicovsky's company found money for their start-up. It has become popular to put forward their ideas on the site Kickstarter to collect the required amount to start producing and selling the product. So it was with the company Pebble Technology.

Migicovsky's company Pebble Technology launched a Kickstarter campaign on April 11, 2012, with an initial fundraising target of $100,000. Backers spending $115 would receive a Pebble when they became, effectively pre-ordering the $150 Pebble at a discounted price. Within two hours of going live, the project had met the $100,000 goal, it was something amazing. But in next six days, the project had become the most funded project in the history of Kickstarter, raising over $4.7 million with 30 days left of the campaign.

On May 10, 2012, Pebble Technology announced they were limiting the number of preorders. On May 18, 2012, funding closed with $10,200,000 pledged by 69,000 people.

There are some advantages of Pebble watch. The fact that Pebble can work a week without charge lies in the technology of electronic ink. Pebble and supports its processor ARM Cortex-M3 and the battery in 140mAch. On the small screen with a resolution of 114 * 168 is placed 20,000 pixels, so you can easily read the letter and read the time in different ways. The display looks good both indoors and outdoors. Practically without smartphone Pebble can’t do anything. To use it, you always will need a device to iOS or Android. All settings, updates, and the like, require a connection via Bluetooth smartphone. At Pebble is Bluetooth 4.0, due to which information is passed quickly, and the energy is lost very little.

All interaction between Pebble and smartphone goes one way – from smartphone to watch – with one exception. You can control the music on your phone: pause, turn on and switch tracks. But on the clock there is no volume control, which is probably substantiated lack of space under the buttons.

Synchronized clocks, all further settings are made from the application on your phone. You can, for example, set to receive notifications of incoming calls, messages (SMS, Google +, VK), reminders in the calendar. It is also possible to

look the part of the email. To read the entire message and answer it, you get a smart phone. When the watch receive the notification mails, they vibrate, turn on the backlight for a few seconds and show a window with the text.

Though functionality of the device is still rather limited, given the fact that it has only just started, it was to be expected. But it would be great if the creator makes the Pebble more functional. We expect that creators will find new ways to improve the new technology.

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MPI TECHNOLOGY

Many of those, who are seriously engages in programming, certainly ran into such sort of tasks decision of which due to the known algorithms occupies the enormous amount of time. Even the most modern and powerful computers need weeks, months, and even years are needed in order to execute the enormous amount of calculations which are necessary for a decision of similar tasks.

In these cases the so named concurrent programming comes for the programmers to help. The methods of the concurrent programming allow us to distribute necessary calculations between the processes of different computers, allowing us through that to unite their calculable power in-process on the one problem. MPI is now the most widespread technology of programming for parallel computers with the up-diffused memory. The basic method of parallel processes interaction in such systems is passing of messages to each other. It is reflected in the name of this technology – Message Passing Interface(interface of passing of messages). The standard of MPI fixes an interface, which must be observed by both the system of programming on every calculable platform and user during creation of the programs. Modern performances mostly correspond to the standard of MPI according to version 1.1. The standard of MPI- 2.0, considerably extending functionality of

previous version, appeared in 1997-1998. However until now this variant of MPI did not get wide distribution and in full is not realized none of the system one.

MPI supports work with Fortran and C languages. However knowledge of both language is not fundamental, as basic ideas of MPI and the rules of registration of separate constructions for these languages are in a great deal similar. The complete version of interface contains the description of more than 125 procedures and functions. My task is to describe the idea of technology.

The interface of MPI supports creation of the concurrent programs in style of MIMD (Multiple Instruction Multiple Data), that implies the association of processes with different original texts. However writing and debugging of such programs are very difficult, therefore in practice programmers use much more often SPMD — (Single Program Multiple Data) of the concurrent programming, within the framework of which the same code is used for all parallel processes. Nowadays more and more perfomances of MPI support work with filaments.

As MPI is a library, then during the compiling of the program corresponding library modules are needed to be linked. It can be done in a command line or be used the commands or scripts mostly foreseen. For example, mpiCC for the programs in language of C++. Option of compiler of "- o name" allows setting the name for the got executable file, executable file is named a.out by default, for example:

mpiCC – o program program.f

After the receipt of executable file it is necessary to start him on the required amount of processors. For this purpose the command of start of MPI-applications mpirun is usually given, for example:

mpirun – np N <program with arguments>,

where N is a number of processes which it must be not as much as the number of processes settled in this system for one task. After a start the same program will be executed by all started processes, the result of implementation which depends on the system will be given out on a terminal or written down in a file with the predefined name.

All additional objects: the names of procedures, constants, predefined types of data etc., used in MPI, have prefix of mpi_. If an user does not use in the program the names with such prefix, then conflicts with the objects of MPI certainly will not exist. In the C language, in addition, a register of symbols is substantial in the names of functions. Usually in the names of functions of MPI the first letter after prefix of mpi_ is written in an upper case, subsequent letters – in lowercase, and the names of constants of MPI are written down wholly in an upper case. All specifications interface of MPI are collected in the file of mpif.h (mpi.h) therefore directive # include "mpi.h" must stand at the beginning of MPI –program.

MPI-program is a great number of parallel interactive processes. All processes are generated once, forming parallel part of the program. During execution of MPI program the generation of additional processes or elimination of existing ones is shut out (in MPI – 2.0 such possibility has appeared). Every process works in its address space, there are not any general variables or data in MPI. The fundamental method of co-operation between processes is an obvious parcel of reports.

For localization of interaction of parallel as it is possible to create the groups of processes, providing them with a separate environment for associetion – a communicator. Structure of the formed groups is arbitrary. Groups can fully coincide, penetrate one in to another, not intersect, or intersect partly. Processes can co-operate only inside of some communicator, reports, sent in different communicators, do not intersect and do not interfere with each other. Communicators have the predefined type of mpi_comm in the C language.

At the start of the program it is always considered that all descendant processes work within the framework of all-embracing communicator, which has the predefined name of mpi_comm_world. This communicator always exists and serves for all the started processes of MPI -program. Except it at the start of the program there is a communicator of mpi_comm_self, containing only one current process, and also communicator of mpi_comm_null, containing no one process. All interprocess communications flow within the framework of certain communicator,

reports, transmitted in different communicators, in any way do not interfere with each other.

The basic concepts and work principles of MPI technologies are like these, which allow solving of any task quickly having a sufficient amount of computers.

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ANIMATED MATHEMATICS

Research is dedicated to creating a program that contains a collection of animated short cartoons in mathematics on various topics, and handy for the quickly creation of their own cartoon.

The program was created in the programming environment Delphi 7 with using standard and non-standard components. The program used non-standard components like: Shockwave Flash, which allows you watching the videos in *.swf format; Cartoons created in Macromedia Flash 8; Adobe Photoshop.

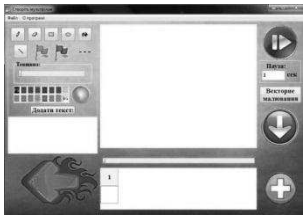
This program is designed in order to interest children because using the information technology diversifies the traditional forms of teaching and solves a variety of tasks: markedly increases the visibility of studying, ensures its differentiation, facilitates the control of students' knowledge and increases the interest to the subject and the cognitive activity of students.

Actuality of the theme lies in the fact that many children are losing their desire to study the subjects, such as mathematics, saying that it's a boring science. With its work author wanted to emphasize the beauty of mathematics and to encourage pupils' interest. Roger Bacon said: "The one who does not know mathematics can’t learn any other science and can’t even reveal its ignorance". In fact, you can't live without mathematics now, just because it is one of the main subjects at passing examinations at admission into higher education institutions. Therefore math teachers try to make lessons beautiful not only on the merits of mathematical thought, but also by its presentation form.

As a result of working on the topic "Animated mathematics" was created a program that allows teachers to conduct more interesting lessons by rendering material.

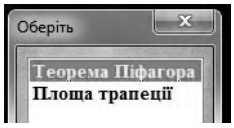
By clicking the inscription "Main Menu" you will get to the menu of the program. When you're pointing to a specific menu item, it is highlighted and then by clicking it you proceed to appropriate section.

The program consists of four main sections: "Create your own cartoon", "Collection of cartoons", "Applications", "Help" and button "Exit".

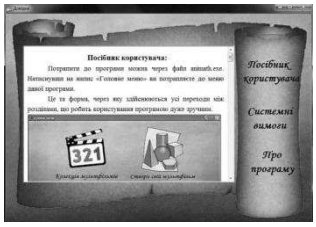


In the section "Create your own cartoon" the user can frame by frame create a short cartoon by using drawing tools, color changes and text, and save it in the format of the author. You can also set your desired interval between frames and then view your created material. For more advanced drawing, as an additional feature, was created a small vector editor.

In the section "Collection of cartoons" you can view the cartoons presented in the list and also download cartoons created in the program. Information is presented in Flash-player and in the player with the format of the author. Choosing a specific menu item from the list of video files, loads the video you need to the window of video player.



In the section "Applications" user can use his mathematical knowledge to solve puzzles, which allows the user not only use his knowledge in practice, but also spend time with the benefit and pleasure.



With the help of section "Help", the user can view the information about using the program, the system requirements for the program and actually about the program itself.

The program is primarily intended to be used by teachers to explain the material. But students can also use it at home. This work is very useful for using it’s during the mathematics lessons at the educational

institution of information technology. In general, the program can be used by all concerned people.

This research work has a great chance to become a top class educational program. In perspective: increasing the number of video files, increasing opportunities for creating cartoons and increasing interesting material. We believe that this work will bring many benefits to students and teachers who want to diversify the forms and methods of studying.

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IT IN STATE EMPLOYMENT SERVICE

The growing rates of unemployment and increase of its duration require a rise of the efficiency of activity in state employment service, and first of all of its lower units, clear organization of their activity. Scientifically grounded technology of service of the unemployed population in the employment centers with application of a Unique informativeanalytical system of employment service of Ukraineis directed to fulfill this task.

The Unique informativeanalytical system of employment service of Ukraine is a global informative system, which combines all Ukrainian employment centers, and provides IT support in providing of social services and organization of work with personnel.

A primary purpose of theUnique technology of service of unemployed population is creation of an important element of a new system of social protectionand self-protection of population, adapted to the terms of market; an increase of work efficiency of state employment asfor providing of social services for unemployed people and employers.

A primary purpose of creation of the Unique informative analytical system “Service of employment of Ukraine” is providing of:

- realization of the national policy of employment, professional orientation, training and retraining, employment and social support of citizens, which are temporarily unemployed in labour activity.

- analysis and prognosis of demand for labor, informing of population and state self-government departments about the state of the labor market.

The Unique informative analytical system of employment service of Ukraine is intended for informative supporting and automation of business processes.

The Unique informative analytical system of employment service of Ukraine consists of the following components:

- group of subsystems “Social Services and Fund”;
- group of subsystems “Informing” (internet-portal of the State employment service of Ukraine, www.dcz.gov.ua)
- group of subsystems “Budgeting”;
- group of subsystems “Accounting and analytics offinancial activity”;
- group of subsystems “Accounting of time and wages”;
- group of subsystems “Record-keeping”.

Thus, introduction of the Uniqueinformative analytical system of employment service of Ukraine forms a unique informative space with the aim of more effective regulation of employment of population.

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THE IMPACT OF SOCIAL NETWORKING SITES ON THE LIFE OF YOUNG PEOPLE

One of the online success stories of recent years is the spectacular spread of social networking sites. These sites, including VK and Facebook, allow you to connect to your existing friends and to make new ones. What exactly is the attraction of them, and is there anything to worry about in the popularity of this phenomenon?

The idea of these sites is quite simple, and the ease of use is one of things that attracts people to them. Firstly, you set up your own page and add information about yourself. This might include a photograph, as well as things like educations or work information, hobbies and your interests. Some people like to add links to other things that say something about them, such as music videos they like.

Once you've created this online presence, it's time to search for friends. Each of these websites keeps a large database of people who have joined. Using your friends' names or email addresses, it's possible to search this database to find people you know. You can then add them to the list of friends on your profile page.

Once you've found all the people you know, then there are various ways in which you can use these sites. It's a good way to keep in touch with friends you don't see every day perhaps because they live in another city or country. You can post photos that show what you've been up to, or send a message to let everyone know what's happening in your life. Social networking's have a lot of variety groups. And you can join in this group. For example, you can find a group about your favorite singer, actor, painter, etc. Apart from that, you can also find people you don't already know who share the same interests as you or like the same things as you. Then, you can send a friend request to them and watch as your online social life grows.

It sounds simple and harmless enough. However, some people have raised concerns about these sites. First of all, the question what it is doing to young people's social lives. It is claimed that meaningful relationships are being replaced by shallow connections with people you are unlikely ever to meet. Friendship can be much more than simply sharing likes and dislikes and swapping links to music websites. People whose only social life is through sites like these may be missing out on real interaction with real people.

Whereas in real life your popularity (or lack of it) might not always be so obvious, on social networking sites it is reduced to a number: the number of friends you have. This, plus the use of the sites as means of communications, means that some young people are at risk of being made fun of by others. It might

seem like harmless fun at the time, but this kind of thing makes many teenagers' lives miserable.

Another problem that has been highlighted is that these websites waste a lot of time. That might not matter at home, but some businesses have reported serious problems. When employees spend up to two hours a day updating their profile and searching for friends rather than getting their work done, companies suffer. In fact, many firms have introduced rules banning their workers from using Facebook and VK during office hours.

As with most things online, it seems that users need to be sensible about how they use these websites. It's a good idea to be careful about who you allow to become your friend. This really just using the same kind of caution as you would in real life. You might also consider limiting how much time you spend on social networking sites.

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SOFTWARE DEVELOPMENT USING THE .NET FRAMEWORK

Software development with the help of the Microsoft.NET Framework is considered to be one of the most potential branches of application engineering. According to the Netmarketshare resource, Microsoft Windows is the leader of the world desktop operating system market, with part of 91.62% market share. The .NET Framework is intended to be used by the most new applications designed for the Microsoft Windows framework. Considering that Microsoft provides an integrated development environment (Visual Studio) for the framework and interacts with the designers via Microsoft Developer Network, software building with the help of the .NET technology is commonly widespread.

Microsoft Visual Studio is an integrated development environment from Microsoft. It is used for the development of console and graphical user interface

applications along with Windows Forms applications, web-sites, web-applications, and web-services in both machine and managed code for all frameworks supported by Microsoft Windows, Windows Mobile, Windows CE, .NET Framework, .NET Compact Framework and Microsoft Silverlight. It can also allow the development of Windows Presentation Foundation (WPF) application. Visual Studio supports different programming languages by means of language services, which allow the code editor and debugger to support (to different extents) almost any programming language, that in case of existence of the language-specific service. Visual Studio includes a large number of visual designers which aid in the development of applications, such as Windows Forms Designer, WPF Designer, Web designer, Class designer, Data designer and Mapping designer.

The .NET Framework uses the Common Language Infrastructure (CLI) and the Common Type System (CTS) in order to permit several programming languages to be used in application designing for different frameworks despite the specific character of hardware architecture. The Microsoft.NET allows to develop software using the CLI programming languages, such as C#, Visual Basic .Net, F#, C++/CLI , Delphi, IronPython, IronRuby, etc.

The most widespread CLI language is C# – a multi-paradigm (imperative, structured, functional, object-oriented, event-driven, and generic) simple general-purpose programming language with strong type checking, array bounds checking and automatic garbage collector. C# is the programming language that reflects directly the basics of the Common Language Infrastructure; the most part of its intrinsic types corresponds to value-types implemented on the Microsoft.NET Framework.

The second main CLI language is Visual Basic .NET, which is a structured, imperative, object-oriented and declarative programming language. It is a more developed version of Visual Basic, implemented on the .NET Framework.

F# is a strongly typed programming language which uses functional, imperative and object-oriented programming techniques. F# is most often used as a cross-platform CLI language, but can also be used to generate JavaScript and GPU code.

The .NET Framework has specific tools for the creation of desktop applications, such as standard class libraries, which are organized in a set of namespaces. The libraries provide a large number of common functions, such as graphics drawing and rendering, file input and output, interaction with XML documents, SQL database manipulation, etc. The Microsoft.NET class libraries are available to all .NET CLI programming languages.

Windows Form is a graphical application programming interface which helps to create native Microsoft Windows interface elements. Using Windows Form API, the developer can enhance a blank form with controls, thus designing a unique user interface. The .NET Framework grants access to Windows Form API via the System.Windows.Forms namespace. The Graphics class (the System.Drawing namespace) contains methods for drawing images, icons, shapes to the display.

The System.Collections namespace supports interfaces and classes for operations with various sets of objects, such as stacks, queues, lists, arrays and hash tables. The System.Text namespace provides classes and methods for work with ASCII and Unicode and for conversion characters or strings into blocks of bytes. The System.Data namespace grants access to classes for managing data from various sources, such as SQL Server, ODBC, Oracle, etc. The System.IO namespace contains types that allow reading and outputing to streams, compressing data in streams, and managing isolated data banks. The System.Threading namespace provides types, classes, and methods that enable multithreaded programming and simplify the work with asynchronous code. The System.Diagnostics namespace methods interact with performance counters and logs, system processes, event logs, code analysis tools, application monitoring and instrumentation. The Microsoft.CSharp, Microsoft.JScript, Microsoft.VisualBasic, and Microsoft.VisualC namespaces contain classes that support compilation and code generation using the C#, JScript, Visual Basic .NET, and C++/CLI languages, respectively.

The System.XML namespace contains types, classes and methods for processing Extensible Markup Language and supporting XML documents or streams. The

System.Web namespace contains classes that provide interaction with browsers or servers, as well as interface for ASP.NET forms authentication and application configuration, dynamic data, HTTP processing, JavaScript Object Notation serialization. The System.ServiceProcess namespace contains types, classes and methods that enable implementation, control, installation and extension of support during the development of Windows service applications.

The System.Runtime namespace contains types and classes that support the interaction of the application with the Common Language Runtime, as well as the types which enable such features as application data caching, advanced exception handling, application activation within application domains. The System.Management namespace contains types, classes and methods that grant access to management information and provide management of system events, devices, and applications instrumented to the Windows Management Instrumentation infrastructure. The System.Security namespace contains classes and methods that control access to the securable objects, allow authentication, provide cryptographic services and control access to operations and resources.

The Microsoft .NET Framework is the main implementation of .NET technologies. However, there exist other implementations for the framework elements, such as Mono, the .NET Micro Framework, and Portable.NET

Mono is an open-source project which grants access to .NET Framework-compatible instruments, such as C# compiler and Common Language Runtime. The purpose of Mono is the platform-independent launch of Microsoft.NET applications and to improve the use of software development tools for Linux developers. Mono can be run on many software systems including Android (and the most part of other Linux distribution packages), BSD, iOS, OS X, Windows, and on various game consoles, such as PlayStation 3, Wii and Xbox 360.

Portable.NET is a free software with open source code aiming at building the portable runtime for Common Language Infrastructure applications. The project focuses on the support of base class libraries for .NET, XML, and Windows Forms. The .NET Micro Framework is an open source .NET platform for resource-

constrained devices.

The .NET Framework provides software developers with an in-built set of instruments for building desktop applications and web services quickly and cost-effectively; it also supports object-oriented programming; the .NET Framework is provided with a well-designed integrated development environment, it supports multiple programming languages and grants effective data access. Thus, the framework is one of the most convenient development tools for creating applications and services.

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INNOVATIVE TECHNOLOGICAL PROJECTS FOR PEOPLE WITH DISABILITIES

This world is full of people with disabilities: the visually impaired, hard on hearing, people with limited physical activity. In recent years the issues of social adaptation of people with disabilities began receive more attention. In everyday life we often do not think about the life of people with disabilities, what problems they have to face. Information technology and the Internet give a new chance to people with disabilities. Young people will benefit most of all because they know the advantages of information technologies. However, they encounter serious obstacles using the gadgets. The world of such people often shrinks to the size of the apartment they live in, and the range of communication is limited to only the closest relatives. Until recently, the only "window to the world" for such citizens was television or radio. However, with the rapid development of technology, the life of people with disabilities is simplified. First of all, it is necessary to adapt such resources as media, distance learning and educational portals, sites of the government, important Internet services, such as online banking.

According to the statistics 19% of Internet users are users with disabilities. The problem of accessibility of web sites for people with disabilities has been

known for a long time. The first set of standard rules of the world Internet Consortium (W3C, w3.org) – WCAG 1.0 – appeared in 1999. At the moment the intensive work on the second version of the standard – WCAG 2.0 is going on. These standards provide a set of rules to follow that can optimize the structure and content of the site for people with disabilities. For example, all images are initially available for the blind, so they should have an explanatory text.

Every year on the world wide web there are more and more social networks, special systems, different portals, which are designed for disabled guests and simply for those who want to participate in the life of other people. In such social networks, people can communicate, find new friends, etc. Interface is specially adapted for people with disabilities.

In the same way, the applications that allow defining a man's face only with the help of a webcam have been developed. Through this mechanism, authorization is performed in various online resources. It takes much less time and does not require much effort. Due to specific technologies, such an application can also play coming warnings and answer them with microphones or other devices. This greatly facilitates the work of the people with the Internet and improves the security of accounts.

There are developments such as gloves that can translate the sign language into a usual voice form. The device contains a complex system of sensors, gyroscopes and accelerometers that translate hand movements when talking to deaf into the speech form. The system capabilities allow you to create your own system of gestures and program relevant phrases. The information about the position of the hands in space and gestures is broadcast on the laptop, tablet or smartphone. Special program converts the received signals into words and sentences. This project allows people who do not know the sign language, freely understand people with disabilities.

New technologies also open wide educational prospects for people with disabilities. Thus the various systems for distance learning for such people are broadly implemented in the world. They are popular because they are easy to use and take into account all the nuances for people with disabilities. Many major computer companies, the giants of the IT-market, seek to ensure that the use of its

products and services is simple and convenient for everyone.

All things considered, it is necessary to mark that such technologies allow people with disabilities to live a more fulfilling life in the modern society which was not possible ever before. No doubt, regardless of the problems the people with disabilities face, they can participate in public life, as well as any other member of the society, if lifted barrier are removed. It is an essential need to attract more investment in the area of software development.

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STATISTICAL PROCESSING OF ULTRASONIC NONDESTRUCTIVE TESTING WITH HONEYCOMB STRUCTURE

At present more often increasingly composites are being used in various industries. So, they are used in the aerospace industry to reduce the weight of aircraft. For example, the usage percentages of fiber-reinforced composite materials in the latest Boeing B787 and newly-designed Airbus A350-XWB reach 50% and 52%, respectively.. One of the most used composites is honeycomb structures.

Honeycomb structures are mostly sandwich. They consist of such parts: the upper casing and the lower casing and honeycomb core between them. Honeycomb fillers possess high performance stability and considerable rigidity to bending.

Manufacturing technology is the following. Parallel strips of glue are applied on paper impregnated monomer; sheets glued to a thick block, alternate strips of adhesive, block stretched honeycomb, after which the monomer undergoes polymerization honeycomb plate is glued between sheets of plywood, plastic or metal, forming a sandwich-like structure.

The main type of defects in the manufacture is a bundle sheathing of honeycomb panels and non-glued cladding to honeycomb core. At present, almost all methods of monitoring cellular panels are directed to the discovery of bundles. The main types of controls that are used, is a thermal control, a holographic control,

ultrasonic inspection.

So, there are several types of ultrasonic testing techniques: impedance method, free vibration, echo method and the shadow method.

Ultrasonic nondestructive testing is the most commonly used. However, for high-quality data processing it is necessary to use information technology. As a result, of control get the sample of measurements. Some sample measurements are obtained also known are that characterize the normal state of the object and Defective condition.

It is necessary to define modalities under which the indicators are used to assess the effectiveness of recognition when the maximum and minimum values will take place. Working patterns are different types of PKM: plating, stainless steel and aluminum honeycomb, Kevlar and paper honeycomb paneling and others.

For monitoring of composite materials flaw detector UD2-16 is proposed. This flaw detector is used to manually control the echo, shadow and mirror-shadow method, and can be used in thin-route control mechanized units. It allowed finding defects, such as continuity and uniformity, non-glued layers. In particular, with the help of this flaw detector, the honeycomb structure with non-contact ultrasonic shadow was control. This type of control provides high accuracy, since the method does not have the deep uncontrolled area.

For managing, analyzing and mathematical treatment of the results acoustic control, "portraits" working samples were made. Acoustic "portrait" is a special matrix, where the maximum amplitude of the ultrasonic signals passing through the sample was taken. These signals were recorded by flaw detector. Heterogeneity and discontinuity of the composite material has a significant influence on the amplitude of the received ultrasonic signal. The acoustic "portrait" was carried out in seven-color changing colors with a resolution of 60 mV was taken for comfort study. This portrait contains information on the physical and mechanical properties of the sample and its integrity.

To assess the quantitative characteristics of the acoustical transparency of the sample the arithmetic mean value of the received amplitude and the average

attenuation was also detected.

This technique allows the processing of the information to identify the most likely defects such as non-glued in conjunction honeycomb paneling, or delamination in the hull, as well as to judge the development of work processes in the manufacture of FRP with honeycomb core.

For assessing effectiveness it is proposed the decision rule formulated by the smoothed delta functions.

Let us formulate decision rule on the status of cellular structures with recovery the laws of distribution smoothed delta functions.

In this expression, the function under the limit is called the smoothed delta function. If now in terms of the Dirac delta function is replaced by a smoothed delta function, we can express the unknown probability distribution law with a sample of $|x| = |x_1 x_2 x_3 ... x_n|^T$ near the smoothed delta functions:

$$W^*(x/|x|) = \frac{\alpha}{\sqrt{2\pi}n} \sum_{k=1}^{n} \exp\left(-\frac{\alpha^2 (x - x_k)^2}{2} \right) \quad (1)$$

α – he smoothing parameters.

In real conditions the control sample measurements satisfy the inequality: $10 \le n \le 100$. Using a linear approximation of the dependence we get formulas for estimating the smoothing parameters.

Estimates of the expectation and estimate of the variance were also determined.

Probability distribution law is restored by the formula and it is determined the decision rule.

The conditional probability of error is determined by the conditional probability of making rules (P_{11} *) as the norm for marriage and marriage (P_{22} *), Efficiency of recognition (P).

The studies were conducted in a software environment MathCad.

After studding, it is clear that this Method to recognize is very convenient because it does not require knowledge of the laws of probability distributions,

which allows determining only informative indicators. The conditional probabilities in the research and their effectiveness are high levels. It should be noted that the greater the number of measurements in the sample, the more effective exponential estimates of probabilities.

The list of references:

1. Братухин А. Г. Технология производства изделий и интегральных конструкций из композитных материалов в машиностроении / А. Г. Братухин, В. С. Боголюбов, О. С. Сироткин. – М.: Готика, 2003. – 516 с.

2. Малайчук В. П. Математична дефектоскопія / В. П. Малайчук, А. В. Мозговий. – Дніпропетровськ: Системні технології, 2005. – 179 с.

3. Малайчук В. П. Інформаційно-вимірювальні технології неруйнівного контролю / В. П. Малайчук, А. В. Мозговий. – Дніпропетровськ: РВВ ДНУ, 2001. – 237с.

4. Малайчук В. П. Обробка вимірювань і сигналів неруйнівного контролю / В. П. Малайчук, О. М. Петренко. – Дніпропетровськ: РВВ ДНУ, 2010. – 138с.

5. “Structural Health Monitoring for Composite Materials” Jian Cai, Lei Qiu, Shenfang Yuan, Lihua Shi, PeiPei Liu and Dong Liang, In-Tech, 2012

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THE COMPUTER THAT NEVER CRASHES

OUT of chaos, comes order. A computer that mimics the apparent randomness found in nature can instantly recover from crashes by repairing corrupted data.

It seems to be fantastic for many people, but University College London (UCL) proves that systemic computers could allow drones to reprogram themselves to cope with combat damage, or help create more realistic models of the human brain.

Everyday computers are ill suited to modelling natural processes such as how neurons work or how bees swarm. This is because they plod along sequentially, executing one instruction at a time. "Nature isn't like that," says UCL computer scientist Peter Bentley. "Its processes are distributed, decentralised and probabilistic. And they

are fault tolerant, able to heal themselves. A computer should be able to do that."

Systemic computation adopts a holistic analysis approach of systems embracing the significant importance of the interactions of their fundamental elements and their environment. Its intention is to resemble natural computation, in order to simulate biological processes effectively, by following a set of simple conventions:

1) everything is a system,

2) systems may comprise or share other nested systems,

3) systems can be transformed but never destroyed or created from nothing,

4) interaction between systems may cause transformation of those systems according to a contextual system,

5) all systems can potentially act as context and interact in some context,

6) the transformation of systems is constrained by the scope of systems, and finally,

7) computation is transformation.

It doesn't sound like it should work, but it does. Bentley will tell a conference on evolvable systems in Singapore in April that it works much faster than expected.

The interaction of two systems can be described by the systems themselves and a third “contextual” system (which is referred to as context) which denotes how/if the interacting systems are transformed after their interaction. The notions of schemata and transformation function are used to describe the interaction. Each system comprises of three parts, two schemata and one transformation function (Fig. 1). The function consists of an instruction from the SC instruction set (more advanced SC implementations may allow a transformation function to comprise multiple instructions). Both systems may change after an interaction, which implies circular causality (each system may affect the other). The scope here, as in nature, is an important factor. The scope of a system defines the neighborhood (which can be other than spatial) in which the system can interact with other systems in a certain way, denoted by the context. Systems are represented as binary strings.

Pairs of systems always interact with a context; these systems constitute a

valid triplet. The schemata of the context provide templates for the operand systems to match in order to interact, provided that all three systems belong in the same scope. Thus all computations involve:

• finding valid triplets (context and two matching systems in a shared scope) and

• updating the two systems according to the transformation function in the context.

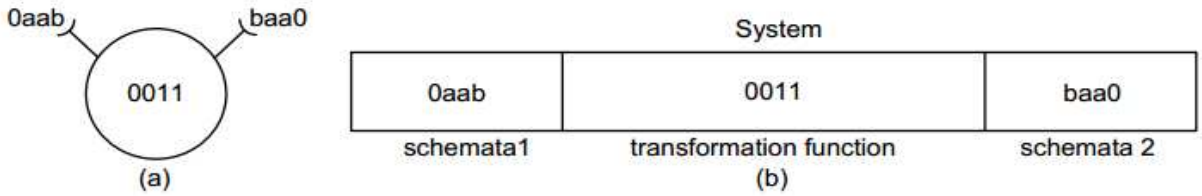

Fig. 1. SC notation and systems representation:
a) graphical representation of a system; b) the three elements of a system

The pair are now working on teaching the computer to rewrite its own code in response to changes in its environment, through machine learning.

"It's interesting work," says Steve Furber at the University of Manchester, UK, who is developing a billion-neuron, brain-like computer called Spinnaker (see "Build yourself a brain"). Indeed, he could even help out the UCL team. "Spinnaker would be a good programmable platform for modelling much larger-scale systemic computing systems," he says.

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INFORMATION SECURITY OF COMMERCIAL BANKS

Nowadays, due to the overall informatization and computerization of banking area importance of information security of banks increased repeatedly. In the 1970-80 century data of the banks’customers or the bank’s activities were the object of information attacks. Such attacks were rare, their clients range was narrow, and the damage could be significant only in special cases. Currently, as a result of the spread of

electronic payments, plastic cards, computer networks, object of information attacks is money both banks and their customers. Anyone can become a theif, you just need a computer connected to the Internet.

In a study published in 2009 by the American firm ClearCommerce [1], Ukraine is called a “hotbed” cibercrime as the majority of fraudulent with credit cards happens here. Conclusions of the study indicate that 20% of all orders coming from Ukraine are fraudulent. It means that “customers” use stolen information of credit card information. So, while network of users of banking institutions is expanding and access to them is becoming easier, the number of threats to computer systems as well as to the financial institution increases. The spread of so-called computer crime in the banking and credit area is explained very easily – huge funds are concentrated in this area, which are primarily interesting for criminals.

The objects of information security of commercial banks are:

1) data on personnel (management, responsible agents, employees);

2) information about the technology used by the bank;

3) information resources including:

- information on the activities and financial condition of the customer;

- information on all bank transactions and financial statements of the bank;

4) confidential electronic banking network.

The main purpose of information security is to ensure stable work of the bank and prevent threats on its security, protection from unlawful acts, disclosure, loss, diversion, distortion and destruction of proprietary information, malfunctioning hardware, software production activities, including equipment information.

Information security of banks provides information and analytical support for decision-making and for counteraction of attempts of unauthorized gathering of information which is the property of the bank, its customers or partners.

Information and analytical support of management decisions is made by collection and analytical processing of information about the condition and possible prospects of the business banking market. The purpose of this activity is to avoid the possibility of an unexpected occurrence of adverse factors and threats to the bank and to

ensure management decisions that can minimize the effects of impact areas of the bank. To achieve this commercial exploration is used targets which targets are competing structures, as well as persons who may be or are bank customers.

One of the most promising directions in technical protection of information is the use of cryptographic systems [2]. Cryptographic information security system "Autograph 3.0", presented in 2001, is successfully used in commercial banks. It is the basis for the organization of systems of secure system of transmission and storage of information and allows identification function, integrity control and shelter data content.

The list of references:

1. Сайт організації ClearCommerce.Research [Електронний ресурс]. – Режим доступу: http://www.clearcommerce.com

2. Петренко С. Методические основы защиты информационных активов компании [Електронний ресурс] / С. Петренко. – Режим доступу: http://citforum.ru/security/articles/ zahita_aktivov.

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KEY POINTS IN THE 3D MODELING

The development of computer technology and hardware improvements have allowed us to create sophisticated and at the same time effective programs. In this regard, the IT industry has increased sharply, which allowed to develop computing business in different directions. These factors gave us 3D graphics and the notion of 3D technology. In this report you will immerse into 3D graphics world.

What does 3D mean? It is 3 Dimensional, in other words we show the object in three parameters, which are: width, length, and depth. Look around, and you can see that everything is three-dimensional (walls, chairs, people, animals etc.). While working in the 3D programs, static and dynamic scenes are created as a result of long work. Static scene is the definite collection of geometric objects – flat and

volumetric. They are three-dimensional, that is described by three coordinates x, y, z. Dynamic scenes are described by the new parameter – time. And "image" is a result of the work on static three-dimensional scene. The output of dynamic scene is a set of "pictures" or animation sequence depending on the time.

History. The phrase “Computer Graphics” was coined in 1960 by William Fetter, a graphic designer for Boeing. In 1960-1969 Many scientists have been developing their projects towards 3D graphics: Ivan Sutherland (1961 – created program called Sketchpad), Steve Russell (1961-created the first video game, Spacewar), E. E. Zajac(created a film called "Simulation of a two-giro gravity attitude control system" in 1963), Ralph Baer (came up with a home video game in 1966 that was later licensed to Magnavox and called the Odyssey) and many others. It was a big step into the Digital future.

Where we use 3D graphics? Today, 3D graphics are evolving very fast and have a lot of ways of their implementation. In medicine they are used to create 3D models of bones, skull, teeth, etc. It is need for recovery of injured tissue. In architecture 3D graphics are used to create accurate drawing and show the preview of future building [1]. It is also used in car, furniture modeling and other branches which need accurate drawings. In car modeling it helps to configure machine-tools which create finished car body.

And finally today 3D graphics evolving very fast in greatest branches which gave it a life. This branches are cinema, games, cartoons, and 3D cinema like IMAX 3D. In 1976 one of the first computer animation displays was “Futureworld”, which included an animation of a human face and a hand —produced by Ed Catmull and Fred Parke at the University of California. Than in 1974 Lucas gathered the best engineers, programmers, mathematicians and other different professionals. With their help, he created a huge center for special effects. He has created film which turned the representation about 3D graphics and opened its full potential. In 1977 the film was released in movie theatres. It was “Star Wars“.

The key point in the 3D modelling is the algorithm. Tjomin G. [4] considered

the algorithm which consists of four steps. After my study of many programs (3Ds max Studio, Autodesk Maya, Zbrush, Autodesk Mudbox, Xfrog, MindAvenue AXELedge, Blender) the new algorithm was created.

In this work we suggest to consider the algorithm which consists of 13steps.

1. Computation of geometry that means when you want to create some model you must know your computer System Requirements. Preceding from this you can calculate how many points, ribs and faces you can control without overloading of your computer. It will help you in future when you start to move or modify your model. In this section you also the paper drawing of your future model is needed. It should look like carcass of ribs. If your model has point where it will be moving or modifying you should improve its mesh in this point.

2. Type of geometry. At first you need to choose type of geometry the segment or wire-frame model. Segment model consists of standard primitive objects (cube, sphere, etc.). This type of modeling is used to create very simple model which don’t overload computer. Wire-frame model looks like carcass of ribs. Wire-frame type is used to create high detailed model.

3. Method of creating geometry. In 3D programs you can create model by any mean. It can be: line, plane, NURBS (non-uniform rational B-spline), standard primitive objects (cube, sphere, etc.). Line and NURBS are basically used to create figure of rotation and also to create wire-frame model.

4. Creating Geometry. Having known how many points, ribs and faces you can control and viewing your future mesh. You can start to work with software. Everything starts from simple geometric objects – flat and volumetric. And then you need to modify it until you get what you need. Sometimes you need to merge a few objects working with very difficult models.

5. Create UVW unwrapping texture. UVW mapping is a mathematical technique for coordinate mapping. "UVW", like the standard Cartesian coordinate system, has three dimensions; the third dimension allows texture maps to wrap in complex ways onto irregular surfaces. In 3D program you can convert your model

in UVW map and then repaint map and upload it back.

6. Texturing and overlay maps. Having created your 3D model you need to give it a color. For realistic models it is main part because it gives life picture. If you think that you need only one map I have to disappoint you because you also need diffuse map, opacity map, bump map, reflection map, glossiness map, specular map and others. It will help you to create a very realistic model.

7. Creation of the skeleton. In in this part you should count the place where your model will bend. On this basis you can create a skeleton for your model. Skeleton is made up of simple objects and hierarchical linking.

8. Setting up the skeleton. Move the skeleton inside a mesh model. Then set up the skeleton using the program which thinks that the mesh of a model is skin and gives each bone of skeleton a weight. (Weight – control area of points on mesh).

9. Muscles. Now when you set up skeleton you should create the muscles. It will help you to deform your model properly. It also creates a realistic bending and realistic model of a physical structure [2].

10. Rigging. In this part we will use a script language. We use it to create a link with slider or control panel. It also is used to create a new hierarchical linking. It will help you to control all bones of skeleton and simplify your work in animation.

11. Debugging lights, film cameras. You should set up lights and film cameras. Lights will help you to show your model in a good light. It is also used to create the atmosphere and environment effects like sun rings, sun light, create shadows and etc. Film cameras will help you to capture your model and then render (visualize) it.

12. Custom Animation. In this section you start to move your model or bones of skeleton and set the animation keys. Any 3D program has animation graphics which show motion of objects on the axes. You should always watch for it.

13. Visualization. Any 3D program has a built-in-visualizer. When you finished your work you need to see the result. Visualizer will help you. But you need to choose the quality of image or video, choose bit rate, format, stream size, color space, display aspect ratio, frame rate and etc. in 3D programs visualizer, also called the Render.

The suggested algorithm helped us to create: 1) The items7,8,10 are not needed

for creation the realistic facial animation; 2) The items7,8,9,10 are not needed for creation the rain animation; 3) To create an animation of the character's movements all the points have been used.

Review of 3D modeling done in this study revealed the presence of a typical algorithm for constructing 3D models. Algorithm which develops 3D modeling includes 13 points. The developed algorithm is used to create static and dynamic scenes. The obtained result is the following:1) files which describe the geometry; 2) the frame or sequence of them.

The list of references:

1. Web resource. – Access mode: http://www.autodesk.com/products/autodesk-autocad-architecture/overview

2. Web resource. – Access mode: http://area.autodesk.com/tutorials-tips

3. Kelly L. Murdock 3ds Max 2010 Bible / L. Kelly. – Wiley Publishing, 2009. – 1312 p.

4. Темин Г. 3D Studio Max 5. Эффективный самоучитель / Г. Темин. – Diasoft, 2003. – 464 с.

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CHARACTERISTICS OF THE INFORMATION FLOWS OF AN ENTERPRISE

Improving of the process of transmitting information influences directly the improvement of an enterprise management system as a whole, and can provide a better level of its development. The volume, complexity and intensity of information exchange increases every year, so much attention is paid to the issue of inventing methods of description, analysis and studying of the information flows.

The study of the information flows will help to form a general estimate of the effectiveness of a management system and to identify the elements of the information display of the object, the structure and dynamics of the information flows.

The concept of "the management system of the information flows" is inseparably

linked with the term “management of the information system”. Considering the fact that an information flow in the management system plays a role of the link that connects all the elements together and with the environment, we can assume that these two concepts are synonymous with the only difference that the term “the information system management” usually presupposes the system of hardware and software techniques, telecommunications, databases and data banks, data processing techniques, personnel management, and the concept of “the management system of information flows” covers the process of disseminating information through the use of various tools and personnel.

The information flow is the flow of messages in oral, written or electronic form organized in a certain direction within the information system [1].

Information flow has the following characteristic features:

1) direction of the information flow;

2) amount of the information flow;

3) time of the information flow;

4) cost of the information flow;

5) intensity of the information flow;

6) adequacy of the information flow;

7) informativity of the information flow [2];

8) structure of information flow;

9) integration of information flows of different departments [3].

Thus, the information flows of enterprises have quantitative and qualitative characteristics that can make the classification mechanisms handle information management.

According to the information above it is clear that the information flows have both common characteristics that are inherent to other types of flows (material, financial, etc.), and the features that are inherent only to the information flows.

The analysis of the Ukrainian enterprises has revealed typical deficiencies of the information flows of a company: the lack of relevant information, distortion and duplication of information, the lack of an unambiguous division of responsibility

for documents, providing information late or non-receipt at all.

Information accumulated in the management system for further analysis and processing, must meet the following criteria: timeliness, accuracy, relevance, usefulness, completeness, clarity, regularity of income.

The sector of the information flows management needs further development of both theoretical principles of the information flows management of an enterprise, and practical approaches to the use of modern information technologies with a view to improve the structure of the information flow in management system and to lower the cost of their service.

The list of references:

1. Мельник Л. Г. Экономика и информация: экономика и информация в экономике : энцикл. слов. / Л. Г. Мельник. – Сумы: Унив. книга, 2005. – 384 с.
2. Войтко С. В. Менеджмент у телекомунікаціях: навч. посіб./ С. В. Войтко, К. П. Ангелов; за наук. ред. В. Г. Герасимчука. – К.: Знання, 2007. – 295 с.
3. Румянцева З. П. Общее управление организацией. Теория и практика: учеб. / З. П. Румянцева. – М.: ИНФРА-М, 2009. – 304 с.

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NEW INFORMATION TECHNOLOGIES

> Decree № 1497/2005 from 20.10.2005
> About high-priority tasks task of implementing new nformation technologies
> To establish that development of information society and the introduction of new information technologies in all spheres of social life, activity of government bodies and local governments is one of the priorities of state policy in Ukraine.
>
> President of Ukraine V. Yushchenko

Today, we try to convey and reveal the essence of the issue "New Information Technologies" using the method "from the simple to the complex". Firstly let's take a tour to the emergence of information technology. Among the variety of tools that mankind has invented during the time of civilization, the concept of technology is

general and bulk value, for example, the technology of production of food and consumer goods, heavy industry, and others. In a broad sense, the technology is a set of technical, organizational, economic and material resources, which ensure the transformation of one form (condition) of matter to another. To understand this, we can bring technologies familiar to everyone: fermentation substances, sugar refining, production of iron, steel, etc. Information technologies take a very different place in the hierarchy of technologies, as they are intellectual sense of conversion of matter, which is called information. By its nature, as an outstanding cybernetics Norbert Wiener noted in his writings, information is neither matter nor energy, so information technology is the technology connected with the main technological operations of the information process, namely: the adoption of information, its memorization, processing information and its issuance. A global network, which is superhighway the Internet should be distinguished among the latest international information technologies. This is due to the fact that the technology of the network Internet, call it IT, incorporated the latest achievements of the previous technologies: from the technologies of the "videotext" to the technology of "Conference Call" system. It should be noted that the prospect of the development of IT technology has an effective balans for the next 5–10 years. A now let's look at all on the examples.

2.1 New information technologies in education

Certainly one of the most revolutionary achievements in the past decade, which considerably influenced on the educational process in the world, became the creation of the World Wide Web, called the Internet, which literally means "international network". Let's consider an exampleof the use of the different ways to work with computer training programs at the lessons of foreign languages.

a) Studying of vocabulary.

When entering and developing the thematic vocabulary, such as shopping (food, clothing, etc.), you can use the computer programs "Triple play plus in English", "English on holidays", "English Gold" and some others. Stages of using a computer program are the following: demonstration, consolidation, control.

b) Training of pronunciation

Many training programs include operations with a microphone. After listening

to the words or phrases a student repeats the speaker and the screen displays a graphic representation of sounds of a speaker and a student, comparing which you can see all the mistakes. A disciple seeks to achieve graphic image of the pronounced sound as close to the sample as possible.

c) Training of dialogue speech

Example of a computer program with a dialogue is "Triple play plus in English". Choose one of 12 proposed dialogues, for example, "In the Café". A few pictures – scenes of dialogue appear on the screen.

d) Training writing

This type of work solves two problems at once: the correct spelling of English words and mastering the keyboard. Computer training program "Bridge to English" helps to solve these problems. Almost every type of task envisages typing of English words and sentences on the keyboard.

e) Training of grammatical phenomena

All educational software otherwise considers the practicing of certain grammatical structures. The program "Bridge to English" consists of 20 lessons and different grammatical phenomena are worked out in every lesson: affirmative, negative and interrogative sentences, degrees of comparison of adjectives, participles, pronouns "some" and "any", the structures "there is / there are", prepositions, etc.

As the students' surveys show, new information technologies attract them, and they are one of their main interests. Therefore, the use of information technology in educational process will contribute to form a positive motivation to study.

2.2 New information technology in government. Questions of using a global information network the Internet is one of the priorities of the state policy in the field of information. Informally Ukrainian segment of the Internet began its development in the late 1990 p., but official domain UA was registered in December 1992. The results of the survey of Ukrainian segment show that every six months the number of hosts in it increases an average in 1.47 times. Analysis of the intensity of traffic through the external channels of access to international resources of the Internet indicates that the incoming traffic is in 3-4 times more intense than the out coming. This

means that the internal users of the foreign information resources would get much more information than foreign users try to find us. Building of the information society in Ukraine is one of the most actual tasks of our time. Diverse actions were implemented directly to the solution of this problem. In particular, it concerns the development of sections "Information Society" and the "protection of information about the person". Programs of Ukraine's integration in the EU, preparing the proposals with the working plan of implementation of the EU Strategy on Ukraine, measures aimed at implementing the protocol decision of the Second Meeting of the Ukrainian part of the Cooperation Council between Ukraine and the EU.

For informational providing of work efficiency of the tax system in the State Tax Administration a lot of centralized information systems are used, in particular for the proper provision of accounting of taxpayers – both legal entity and individual, accounting of benefits of certain categories of the population and so on. To procure the exchange of information between the databases of the State Tax Administration and Customs Service operates automated interagency information system.

In many countries of the world, state agencies (mainly the U.S., UK, Sweden, Denmark, Norway, and Estonia, Latvia, the Czech Republic, etc.) are already enjoying the benefits of information technology as in the management process and in the provision of administrative services for the population. The U.S. government provides a variety of services to citizens through the Internet: the issuance of licenses, taxes, etc. In England, the registration of companies through a network requires filling only one form. Finland and Singapore offer their services to citizens through mobile communications.

For example, the Supreme Court of Singapore sends SMS to citizens to recall the date of the meeting. In addition, those citizens of Singapore, who are authorized on the site may electronically sue in small claims cases. An online tax service of Ireland allows companies to receive information about taxation, pay taxes, filling out the appropriate electronic form, and receive a tax credit. Site of Land service of the same country provides companies with information about the real property and

to carry out any operations connected with the land and real property. Website of the Federal Employment Agency of Ireland contains information about the labor market for employers and employees, and the site of Registration Chamber allows you to register a company of any organizational-legal form, to registere name of the company, to make changes of statutes, to issue financial documents, legalizing foreign documents. The Internet-portal "Today I decide" (Tana otsustan mina) was created in Estonia, through which the citizens of the republic may take part in the ruling of the government – to express their views about the current processes in the country, to propose amendments to bills, and so on. This portal also allows users to express their opinions about the current events in the country, to amend the bill and vote. If the idea of an amendment or another proposals contains a grain of truth and maintained by other Internet users, Estonian Prime Minister sends the proposal with his resolution to the appropriate ministry. Today, the Bulgarians, thanks to a new IT-system uniting the passport department with the Department of the Interior, the police and the criminal justice system can get a passport within 5-10 minutes. Usually it takes at least several weeks.

Obviously, that information technology in government is beneficial not only to the government but also to the citizens and the state in general, their use leads to increasing of the organization efficiency and functioning of the public authorities.

Electronic flow of documents. There was decided to switch completely to internal electronic flow of documents by Dnepropetrovsk Regional State Administration management through the use of automated system of electronic flow of documents "DOC PROF 2.0".

Electronic (digital) signature. Dnepropetrovsk is the first region of Ukraine where a regional accredited certification center of electronic keys was created. Leaders of Dnepropetrovsk and Odessa regions signed an agreement on scientific and technical cooperation and relationship to use electronic keys. For document there exchange has been used protected "transport" system "West", the developer company is "Aviantur" Odessa, which allows to make the exchange of electronic documents on the Internet through the open communication channels. The new

standard format of message when exchanging electronic documents was applied in Ukraine for the first time, one of the main developers of which is the technical partner of the project company "SITRONICS Information Technology Ukraine."

Electronic Village. The project "Electronic Village: new information technologies to improve the efficiency of local government of Dnepropetrovsk region" is actively been implementing in Dnepropetrovsk, which aims at the development of rural areas. The main initiators of this process are the Dnepropetrovsk regional council, fund "Eastern Europe", Project Coordinator the OSCE. As a result, it was possible not only to merge all local councils into a single information network, but also give them access to the Internet, to the system of regional e-mails and legal base. The project is deployed on the basis of the wireless Internet.

2.3 New information technologies in the economy. The use of IT technology, in particular – modeling, in industry allows to deal without expensive test, reduces the time of production. The system of electronic data transfer allows to manage the company more effectively, to conduct fast correspondence among the partners, allow to create working groups within the corporation, which aren't united territorially, and even due to the difference of time zones to extend the work on the project. Development of market relations has led to new business activities and, above all, to the formation of companies engaged in information business, the creation of information technologies and their improvement, distribution of component of IT, including software products that automate the information and computational processes. Widely adopted at present IT, which are referred to the electronic office and expert support solutions. These two options of IT are oriented to the use of the latest progress in the area of integration of new approaches to automation of work of specialists and managers, implemented in a particular job and office in general.

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DIE ANWENDUNG DER AUTOMATISIERTEN PERSONALMANAGEMENT-SYSTEME IN DEN UNTERNEHMEN

Die Einführung des automatisierten Personalmanagement-Systems erlaubt wesentlich die Arbeit der Personaldienste zu beschleunigen und zu erleichtern. Die Personalmanagement-Programme helfen nicht nur wirksam die Arbeitsressourcen zu verteilen und das Kapital zu verwalten, sondern auch sind eine Quelle, aus der die Angestellten die Nachrichten wie korporativ, als auch individuell bekommen können.

In der Praxis geschieht die Automatisierung dieser oder jener Prozesse des Unternehmens nicht so glatt. Bei den Leitern der Unternehmen wie auch bei den gewöhnlichen Mitarbeitern gibt es eine Reihe der Gründe, der Automatisierung des Personalmanagements entgegenzuwirken. Sie können nicht verstehen, warum ist es notwendig, Zeitmangel zu haben; die Personalprozesse können schlecht beschrieben und identifiziert sein; endlich, sowohl die Leiter, als auch die Untergebenen können glauben, dass die Automatisierung ihre eigene "Bedeutsamkeit" und "die Wichtigkeit" auf dem Unternehmen verringern wird.

Der Markt der Informationstechnologien bietet die breite Auswahl der Softwareprodukte für die Lösung der aktuellen Probleme des Personalmanagements an. Zum Beispiel, die Programme des Personalmanagements «Персонал», «АиТ: Управление персоналом», «СофтПроект-Кадры» erlauben:

– die Archivkopien der Daten zu schaffen;

– die Kontrollarbeitszeiterfassung, der erfüllten Arbeit und der Berechnungen mit dem Personal zu führen;

– die Berichte verschiedener Stufe der Komplexität zu bilden;

– den Prozess des Drucks der Auskünfte der Arbeitsplätzen zu automatisieren;

– den Personaldokumentendurchlauf zu führen;

– die Personalreserve zu bilden;

– das vereinheitlichte Steuer- und Rentenberichtswesen zu bilden;

– die Attestation der Fachkräfte durchzuführen;

– die Berechnung des Arbeitsdienstalters, der Krankenscheine, Urlaube zu führen.

Auch existieren auf dem Markt die Programme, die den Prozess der Einschätzung des Personals vereinfachen. Darunter das Programm «Профессор», das die Einschätzung des Personals nach einigen Methodiken, nach der Methoden OCAI, «Assessment-Center», «die Diagnostik 360 Grad» durchführt. Die Auswahl der Texte verwirklicht man nach der Entwicklung des Profils der Forderungen zum Mitarbeiter.

Auf dem Markt existieren auch die komplexen Programme, die sowohl das Personalmanagement, als auch die Einschätzung der Mitarbeiter, und den Prozess der Personalauswahl aufnehmen. Als Beispiel solches Programms ist «1С:Зарплата и Управление персоналом 8», einschließend die folgenden Systemgruppen:

– die Gehaltberechnung;

– die Steuerung von der Finanzmotivation des Personals;

– die Berechnung durch die Gesetzgebung reglementierten Steuern und Beiträgen aus dem Fond der Arbeitsentlohnung;

– die Darstellung des angerechneten Gehaltes und der Steuern in den Aufwänden des Unternehmens;

– die Steuerung von der Geldberechnungen mit dem Personal, einschließlich die Deponierung;

– die Berücksichtigung der Fachkräfte und der Analyse des Personals;

– die Automatisierung der Personalschriftführung;

– die Planung des Personalbedarfs;

– die Versorgung des Unternehmens von den Fachkräften;

– die Kompetenz- und Attestation-Steuerung der Arbeiter;

– die wirksame Planung der Personal-Beschäftigung.

Bei der Anwendung der Programme nach dem Personalmanagement wird die

Leitung die volle Geschehenüberwachung auf dem Unternehmen haben, kann die Struktur des Unternehmens wirksamer bilden, sowie die Verwaltungslösungen aufgrund der vollen und glaubwürdigen Information fassen.

Die mächtigen analytischen Berichte werden dem Benutzer die Information in verschiedenen Schnitten gewähren.

Der Personaldienst wird das wertvolle Instrument der Automatisierung der routinemäßigen Aufgaben bekommen, auch die Möglichkeit, die flexible Berichte über die Arbeiter mit verschiedenen Auswahl- und Sortierungsbedingungen zu gestalten.

The list of references:

1. Гукова А. И. Автоматизация системы управления персоналом / А. И. Гукова // Матеріали міжнародної науково-теоретичної конференції молодих учених і студентів "Актуальні проблеми еуономічного та соціального розвитку виробничої сфери" : в 2 т. – Т.2. – Донецьк: ДВНЗ "Донецький національний технічний університет", 2009. – С. 98–100.

2. Официальный сайт компании «АиТ Софт» [Электронный ресурс]. – Режим доступа: http://www.aitsoft.ru/products.html

3. Официальный сайт компании «Браво» [Электронный ресурс]. – Режим доступа: http://personal.bravosoft.ru/_biz.html

4. Официальный сайт компании «Альфа-Ком» [Электронный ресурс]. – Режим доступа: http://www.alpha.com.ua/products/1c-predpriyatie-8/21.php

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INFORMATION TECHNOLOGY OF PANSHARPENING REMOTE SENSING IMAGES

Pansharpening has been an actual research topic in the last few decades and numerous methods have been developed. These methods are generally categorized as arithmetic combination based (AMC) and component substitution (COS) techniques. The AMC methods involve direct arithmetic operation such as multiplication, addition division, weighted adding, etc. on the low resolution multispectral (MS)

images to obtain high resolution images. The commonly known methods are Brovey method, Syntheic Variable Ratio (SVR) method, and high pass filtering. The COS-based substitution methods are performed after taking spectral or spatial transformation of the low resolution MS image. The popular COS approaches are the intensity-hue-saturation (IHS), the principal component analysis (PCA), and Multiresolution Analysis (MRA) basedpansharpening.

The PCA approach has been very commonly used for spectral transformation due to its ability to optimally compress the high dimension data. For this approach, the first principal component (PC) is substituted with the high resolution histogram-matched Pan image. However, the PCA approach is data dependent. For images with mostly vegetation/agricultural contents, this method yields very poor results with high spectral distortion. To alleviate this problem, we proposed a PCA-wavelet merger pan-sharpening method that took the advantage of the component substitution and the currently popular multiresolution approach. The transformation obtained by this method is very data dependent.

In this paper, we present new fusion alternatives based on the same concept, using the multiresolution wavelet decomposition to execute the detail extraction phase and the intensity-hue-saturation and principal component analysis procedures to inject the spatial detail of the panchromatic image into the multispectral one. The multiresolution wavelet decomposition has been performed using both *decimated* and *undecimated* algorithms and the resulting merged images compared both spectral and spatially. These fusion methods,as well as standard IHS-, PCA-, and wavelet-based methods have been used to merge Systeme Pour l'Observation de la Terre (SPOT) 4. We have estimated the validity of each fusion method by analyzing, visually and quantitatively, the quality of the resulting fused images. The methodological approaches proposed in this paper result in merged images with improved quality with respect to those obtained by standard.

In our opinion, the evaluation of a pan-sharpened image should be conducted under an application task, where we focus on the usefulness of the image data rather than its pixel value fidelity. The three applications on linear unmixing, detection,

and classification explore the pixel spectral information within the spatial context of an image scene. This means that the spatial and spectral information are jointly evaluated. Based on the multiresolution wavelet decomposition experiments with different image scenes, we also conclude that the performance of a pansharpening technique may be varied with sensor and image content.

The alternative image-fusion methodological approaches presented in this paper, based on the intensity-hue-saturation transformation and the principal component analysis using the the multiresolution wavelet decomposition, allow to obtain merged images of higher quality than those obtained applying the IHS and PCA standard mergers. This higher quality is due to a selective incorporation into the multispectral image of just the spatial detail of the panchromatic image missing in the former, instead of performing a whole substitution. In addition, the injection of spatial detail extracted from the PAN image into the MS one just once when these methods are used results in images of higher spectral quality than those obtained applying standard wavelet-based merging methods where each MS band is fused with the PAN image separately.

As expected, artifacts are not detected in merged images when a translation-invariant *undecimated* algorithm is used to perform the MWD.

In the particular case of SPOT 4 images fusion, where the spectral bandwidth of the sensor mode does not overlap with the entire range of bandwidths. The bands, the methods based on PCA lead to better results than those based on the HIS transformation.

ЗМІСТ

СУЧАСНІ ДОСЛІДЖЕННЯ В СФЕРІ СОЦІАЛЬНИХ НАУК

НОВІТНІ ІНФОРМАЦІЙНІ ТЕХНОЛОГІЇ

Наукове видання

Мови видання: англійська, німецька

АКТУАЛЬНІ ДОСЛІДЖЕННЯ В СФЕРІ СОЦІАЛЬНО-ЕКОНОМІЧНИХ, ТЕХНІЧНИХ І ПРИРОДНИЧИХ НАУК ТА НОВІТНІХ ТЕХНОЛОГІЙ

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