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**EUROLANGUAGES-2018:
INNOVATIONS AND DEVELOPMENT**

**XIV INTERNATIONAL STUDENTS' CONFERENCE,
DEVOTED TO
THE EUROPEAN DAY OF LANGUAGES**

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**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НТУ «ДНІПРОВСЬКА ПОЛІТЕХНІКА»
ІНСТИТУТ ЕЛЕКТРОЕНЕРГЕТИКИ
КАФЕДРА ПЕРЕКЛАДУ**

**ЄВРОПЕЙСЬКІ МОВИ-2018:
ІННОВАЦІЇ ТА РОЗВИТОК**

**XIV МІЖНАРОДНА СТУДЕНТСЬКА КОНФЕРЕНЦІЯ,
ПРИСВЯЧЕНА ЄВРОПЕЙСЬКОМУ ДНЮ МОВ**

Збірник студентських наукових робіт

Електронне видання

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After that the leaves are washed with distilled water. The washed parts of the plant are dipped into 70% ethanol for 10-15 seconds. Next, the leaves are moved to the Sodium hypochlorite solution and washed with distilled water. Having been washed, the leaves are transferred to the Petri dish with absorbent paper for drying.

To cultivate the plant material, the leaves should be cut into explants of 5-10 mm with a sterile scalpel and transferred to a nutrient solution.

The cups with plant material are cultivated in the thermostat without lightning. Optimal sterilization conditions are determined in 4-7 days.

The viability of culture is assessed in 25-30 days according to the callus formed on the explant.

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QUANTUM COMPUTERS: PROSPECTS FOR CHANGING THE WORLD

Quantum computers are a class of physical devices that follow the quantum mechanics laws to perform high-speed mathematical and logical operations, storing and processing quantum information. The main purpose of studying these computers is to solve the problem of energy consumption in computers.

People who are at least somewhat familiar with quantum mechanics find this sphere very intricate because sometimes it confounds even experienced scientists. At the quantum level, phenomena occur that break the laws of the physical macro-world, but thanks to this feature there is an opportunity to create incredible technologies. Quantum mechanics has once again completely changed the present world, because a simple understanding of quantum physics of solids led to the transistor build-up which all electronics are today based on. So, it is logically to dwell on the following thesis: if just a basic understanding of quantum mechanics has fundamentally changed the modern world, then what happens if we start manipulating individual quantum objects and quantum states.

Due to the fact that quantum computers have many advantages that can't parallel classic computers, in recent years, most countries and various corporative technology giants such as Google, IBM, and Intel have spent a lot of money on research and development of quantum technologies. China invested more than \$ 100 billion in this sphere in 2015, this country aims to create a full-fledged quantum computer as soon as possible.

The prototypes of quantum computers are at IBM and Google, and in November 2016, Microsoft created a separated division, which will be engaged in such device creation. The first quantum computers designed to solve everyday problems will appear in about ten years.

The next question arises, how powerful a quantum computer could be. President of the Chinese Academy of Sciences Bai Chun-li explained that the set of equations (which the most powerful present supercomputer can solve in 100 years) quantum computer will solve within a hundredth of a second. This is quite a significant

performance boost. Understanding its prospects, many countries and IT giants entered the quantum race, the winner in which can get an incredible superiority over everyone else. The benefits of quantum computing are available now. Today, there are various expensive highly specialized pseudo quantum computers on the market. But the creation of full-fledged universal fully functional quantum computers in the opinion of scientists is expected in about a decade. Although the mentioned about quantum computer versions will also perform highly specialized tasks only, this is still quite enough to radically change the world.

Prospects of quantum technologies introduction include:

- Drug manufacturing. Today, in order for a single medical product to be marketed, long animal testing is required, and then developmental testing with humans follows. The whole process takes about 10 years and sometimes costs billions of dollars. Quantum computing allows sequencing and gene analyzing and therefore drug personalization acceleration.

- Unlimited hacking. That country or corporation that first creates a full-fledged quantum computer can easily hack the whole world. The most sophisticated cryptographic methods that today are provided by primitive machines can be hacked by a quantum computer within seconds. Quantum technologies will at the same time provide us with virtually unbreakable cybersecurity methods. Sharply increased computational speed will allow resisting even the most sophisticated hacking methods; quantum computers will be able to predict hacker steps in millions or billions of possible iterations.

- Quantum sensors will make it possible to accurately understand how the individual cells of our body work and understand how brain neurons interact with each other.

Risks of quantum computer introduction include:

- According to the researchers' conclusion on the arXiv.org, most modern cryptographic protocols that provide security for online transactions, financial transactions and crypto-currency, in particular, bitcoins are potentially vulnerable to a fairly large quantum computer.

- Quantum computing threatens absolutely all systems of computer security, which are based on public key cryptography, and not just blockade. Quantum computers will be able to handle these security methods. Every security system, including BlockChain systems, should take into account post-quantum cryptography to ensure data security. Quantum programming will jeopardize current computer encryption and let illegally seize information stored in any world registers and institutions.

The third question to be considered is quantum computing as a commodity for regular users. The average person does not perform calculations computed in more than 1 sec using a regular computer. Practically, there is no real need to invest in a quantum computer for everyday users. However, IBM predicts that quantum computing can be available to consumers over the next decade. Most likely, these quantum computers will be used for corporate business and governments.

Quantum computers are the pioneering invention. But, as most great invention, there provide lots of disadvantages. Misused, they can lead to unpredictable results.

Therefore, laws must be advanced to ensure safe technology use. As IBM was one of the leading companies having invested in computers from the very beginning, they are one of the leading inventors of supercomputers, and now they are one of the leading researchers in the field of quantum computing. By default, this leads to the conclusion that quantum computing has astonishing prospects, as IBM is one of the oldest and most intuitive computer companies.

To sum up, quantum computing is the future of computing. There is no doubt about this. In the tendency of computer development it is clear that its opportunities in every sphere are huge and even unthinkable.

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ARTIFICIAL INTELLIGENCE AS A POWERFUL TECHNOLOGY COMBINATION

Artificial intelligence is a set of cybernetic systems and logical-mathematical software used to solve problems that require human intellectual abilities. The purpose of this study is to analyze the current status of the artificial intelligence and consider its prospects for the nearest future.

The purpose of AI is to create computer software and hardware allowing it to perform the following operations:

1. to imitate human creative process;
2. to automate robot behavior;
3. to provide conversational communication with computer users.

AI includes many subsystems. The most common now are machine learning and neural networks, which allow a computer to ‘learn’ and to apply the gained knowledge based on the data obtained. The development of these systems allows people to simplify their life, maintains the emergence of such functions as speech recognition, object recognition, translation in combination with smartphones or other technology making our life more comfortable.

Nowadays AI is divided into several types. The first type – weak AI – works with information tasks, for example, *Apple's Siri*. It can perform simple tasks such as language processing, query interpretation, etc. The second type – strong AI – implies that a computer does not simply operate with information, but in a certain sense understands it. One of the criteria for a strong AI is the Turing test. If, while communicating with a computer, a user cannot determine that his interlocutor is a computer, then it is considered that such a computer interlocutor really thinks. And although many chatbots and systems designed to pass the Turing test have been created, so far no AI has been able to pass it. An example of such a system is the recent experience with the *Microsoft Tay chatbot*. It worked on Twitter and on instant messengers, but after a day of communicating with human users, the chatbot became aggressive, it started praising Hitler and cursing the Jews.

ЄВРОПЕЙСЬКІ МОВИ-2018: ІННОВАЦІЇ ТА РОЗВИТОК

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