

VOLUME-3, ISSUE-6

REVOLUTIONIZING THE DIGITAL WORLD: EXPLORING THE  
FRONTIERS OF COMPUTER SCIENCE

**Daminov Akbar Asqarovich**

Target international school, high school student

Scientific Supervisor:

**Diyor Naimov,**

Teacher of TIS English department

E-mail: [akbardaminov51@gmail.com](mailto:akbardaminov51@gmail.com)

Day time tel: +998 (90) 956-20-07

**Annotation:** In recent years, the world has been digitalized and is becoming more and more usual for people to operate the technologically built items, and by doing so they are enriching their core budgets. This paper provides validated information about cutting-edge technologies and both of their advantages and disadvantages to the society.

**Key words:** computer science, programming, coding, commenting, robot production, artificial intelligence, fundamentals of coding

The CS - computer science - is becoming more and more widespread in present times. Its influence for the future generation will be irreplaceable because it has already gained its momentum in terms of all branches of education, transportation, and etc. The fundamentals of the computer science were established with the use of various codes, which are grasped from mathematical numbers and calculations. CS is considered to be unrealistic; however, people are creating new things, such as robots that are moving, and providing worth of those creations by enabling them to play on "Question & Answer," which encourage questioners - human beings - to think that even technologies and mechanisms are being able to think without their help. In comparison with the reality, the computer science is like wizards' spells. A good case in point, mixing some properties, the sorcerers create tincture, while the "programmers," encrypting, create codes that later morph into something like sites, programs, and any kind of social media. There are languages that are either easy to write those codes in or, in vice versa, hard to code in. The most famous and easiest one is LISP - LIST Processing. This programming language was invented by John McCarthy in 1959 in MIT university, making it the second oldest language for programming in the world after Fortran. The encryptions there are easier because it is written in mathematical terms. Programming in Lisp is a great fun because of its easy way of coding given in simple mathematical symbols and ability to manipulate other programs as data. Those processes are called "Procedures" of making sites and any coding. Moreover, talking about the essentials of any powerful programming languages, all of them must have those three mechanisms stated below:

- a) **primitive expressions**, which represent the simplest entities the language is concerned with,
- b) **means of combination**, by which compound elements are built from simpler ones, and
- c) **means of abstraction**, by which compound elements can be named and manipulated as units.

To sum up, computational invention is bereft of at least one of those requirements cannot be assessed as enough powerful language that can go ahead of Lisp.

**VOLUME-3, ISSUE-6**

The means of coding will probably disappear over a course of time. Nonetheless, those technologies, which were constructed by codes, will still be in use. This occurrence means that those who do not forbid the fundamentals of these things will be better in the sphere of invention and can invent more newly established “programs” even for those times. The example can be taken from present times as well. For instance, nowadays, the majority is struggling with creating new things like vehicles, but if they learned it from the beginning of the process, they would definitely remember and can make any constructions independently. Therefore, the encryptions we are currently writing are more than just “codes,” and this means the humanity will no longer be rid of code. Moreover, there are bad and clean codes that people can encrypt. Specifically, while the bad workers who cannot obtain balance in programming are in less demand, the clean workers who code everything appropriate to understand for all of the programmers are required more. From the information presented above, the premise can be developed that to invent widely-established programming system, such as programming language, it is highly required to write clean code to be either understandable or written in a well-known format.

In the learning process of the coding, the programmers include the topics how to use special items, files, or any kinds of directories. To give specific details to one another directory, people should name them appropriately, as well as it is done in real life. For example, when an infant is born, his or her parents provide him or her with a name that is tremendously significant to think about because this name will last forever by the time a person dies. The names in web-programming, for instance, are mostly given by the special “IDs” or “Classes”. Then, the names that are encoded inside will be recalled, so that coders will be able to give the properties separately, splitting them differently.

The second most needed property to know about the IT programming or CS as a whole is commenting. The comments can be added, with no data being changed. Nonetheless, its operation is not considered to be used in all positions, especially in bad coding. If we are coding in a clearly understandable way, it, not always, but often, includes comments that help to differentiate encryptions. Those “Comments” can be expressed in several ways: with ‘//’, between ‘<! — and —>,’ and between ‘/\* and \*/’ To give an example, one type of comment can be seen from the coding below:

```
// Check to see if the employee is eligible for full benefits if ((employee. Flags &  
HOURLY_FLAG) &&  
(employee. Age > 65))
```

Furthermore, those “Comments” help people to orientate or provide special data at a point of written code.

The computer science, generally, has been so improved because of the availability of the Internet networking lines. In recent years, the CS has been established as the most important part of people’s lives. In fact, it has a large amount of benefit for people. Instance for this is the technologies’ irreplaceable position. In the sphere of silk production, while materials of hand-work are good enough, those of mechanisms are better due to its straightforwardness of consuming less time (working in a fast pace), staying undamaged (improving well-being of

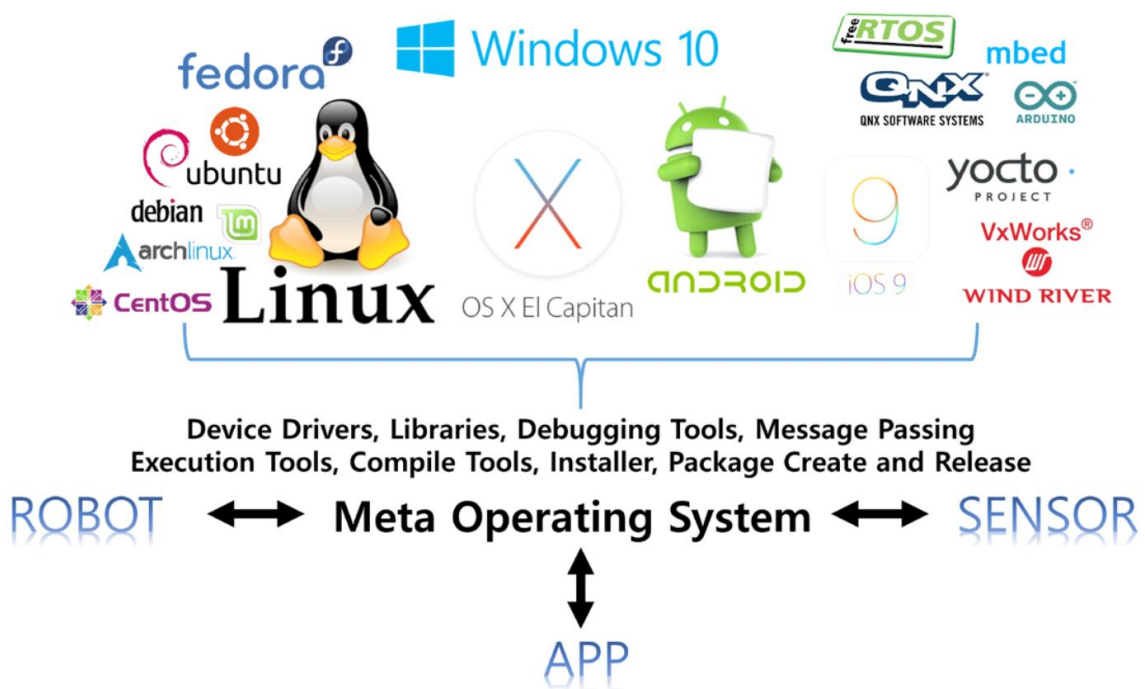
# THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

## VOLUME-3, ISSUE-6

human beings), and making people's lives easier (providing special opportunities with the help of machines, like computers, vacuum cleaners, and etc.) even though it stands a great amount of electricity. There have been established countless innovations with World Wide Web, email, and vast array of digital services.

The use of the embedded systems has paramount importance in our real-time lives. Those mechanisms include the buttons, which we are used to click to switch or type something. This development - as a part of computer science - is called ROS (Robot Operating System). It is becoming increasingly common to function robots, the same as it used to be with smartphones in the beginning of their production. With this reason being true for robot industry development, it is in a vibrant stage for now that enables opportunities to become leaders of this tendency. There are the most renowned platforms to construct robots:

- \* **MSRDS10** - Microsoft Robotics Developer Studio, Microsoft - U.S.
- \* **ERSP11** - Evolution Robotics Software Platform, Evolution Robotics - Europe
- \* **ROS** - Robot Operating System, Open Robotics<sup>12</sup> - U.S.
- \* **OpenRTM** - National Institute of Adv. Industrial Science and Technology (AIST) - Japan
- \* **OROCOS** - Europe
- \* **OPRoS** - ETRI, KIST, KITECH, Kangwon National University - South Korea
- \* **NAOqi OS13** - SoftBank and Aldebaran - Japan and France



This picture is an elaboration of what devices can obtain ROS - the major and best Meta-Operating System - and what can the system create: robot, app, and sensor use mechanisms.

According to another sphere of computer science, the AI - Artificial Intelligence - is spreading fascinatingly fast. Granted that it has crucial role in humanity's onwards promotion, it can pose some difficulties for novice programmers. Although the scientists are creating those types of AI that are purposed to ease human life, it will perhaps overwhelm the majority and make it hard to operate it. There are readily apparent outcomes of the AI usage: when people search or ask something from AI, it is erroring some can identify whether it is wrong or not; however, those who are not enough to distinguish it will forever depend on irrelevant information. This, by the way, can lead to the governmental system crush. In addition, the concerns about the technologies' gaining upper hand over the humanity had been raised by Nick Bostrom (2014), Elon Musk (Kumarak, 2014), Bill Gates (2015), and Stephan Hawking (Osborne, 2017). They concluded that the severe drawbacks of the artificial intelligence trend far exceed possible advantages it can pose. The whole process of AI work is completed importing the data previously purposed to share, then exporting it to the "Consumers," who are mostly in the sake of finding answers to their questions.

Coming back to the computer science itself, the major properties are made using the codes. These codes are initiated from the blinks of flashlight. The flashlights were demanded for a many people in a variety of situations; for example, when the military is on a mission, it cannot reveal its position to enemies. For this coincidence, people invented such encryptions as the light blinks. After people understood that it is not easy to use that tactic, they replaced it with shortened "Blinks," which were created with long and short keeping light on. Once it had happened, its use became more straightforward, and the idea of programming things doing so came into people's minds. Additionally, microchipping and other embodying nanotechnologies are turning more often in use that will have some harmful aspects for people's health.

Ultimately, every human being should enrich the knowledge of CS (Computer Science) or relearn it because the demand for it has recently spoken with the speed of the sunlight.

**List of literature:**

1. Structure and Interpretation of Computer Programs (SICP), second edition, Harold Abelson and Gerald Jay Sussman with Julie Sussman, ©1996 by The Massachusetts Institute of Technology
2. Clean Code, Michael C., Feathers Jeffrey J., Langr Timothy R., Ottinger Brett L. Schuchert James W. Grenning, and Kevin Dean Wampler
3. Ros Robot Programming
4. Human Compatible, Oxford University Press
5. The Hidden Language of Computer Hardware and Software, Charles Petzold, Microsoft Press.