

Computers in 2020 essay

[Business](#), [Industries](#)




Thinking about the future is the thing that takes a lot of our time and efforts being computer oriented. We have to imagine, try to figure out what the future will bring us. We are supposed to lead our generation in looking for new and life enhancing technologies to make man's life easier and more enjoyable. How will it look like? [pic]THIS IS THE MOST IMPORTANT QUESTION THAT CAME TO OUR MINDS.


- Will we be able to talk to our computers in the future?
- Will they respond freely? Can they understand us and do what we need before we ask for them?
- Will screens be always touch sensitive?
- Can computers of the future read our minds and maybe face expressions? Although we are not sure, but we will have to wait to see Environmental Friendly? WILL COMPUTERS IN THE FUTURE HELP PRESERVE THE ENVIRONMENT AND MAKE OUR LIFE BETTER OR WILL THEY DESTROY OUR NATURE? Will the rapidly advancing technology make our life easier and more enjoyable and help us live a better life, or will they lead to the destruction of mankind? A lot of controversy arises when this topic is discussed in any community, so what do you think? 2020 - Future of Computing [pic] In this focus: Current research | Links | Archive | Sponsor In the last two decades advances in computing technology, from processing speed to network capacity and the internet, have revolutionized the way scientists work. From sequencing genomes to monitoring the Earth's climate, many recent scientific advances would not have been possible without a parallel increase in computing power - and with revolutionary technologies such as the quantum computer edging towards reality, what will the relationship between computing and science bring us over the next 15 years? This Nature web focus combines

commentaries from leading scientists and news features analysis from journalists assessing how computing science concepts and techniques may transform mainstream science by 2020. Visit

com's newsblog to read and post comments on the future of computing.

Image: Joe Magee <http://www.futureforall.org/computers/computers.htm>

Future Computers | Computers of Tomorrow |  Today's computers operate using transistors, wires and electricity.

Future | | computers might use atoms, fibers and light. Personally, I don't give a | | The Personal Computer Assistant | byte what makes it tick, as long as it does the job. If I could |  accidentally spill my coffee and not have it cost \$848, that would be a | | cool feature. | | I must admit that in some ways I envy Donald Trump. Not because of all the real | But let us assume that you are not still bitter from a recent laptop | | estate he owns or even for his cool private helicopter. No, what I envy most about | replacement.

You might stop to consider what the world might be like, if | | "The Donald" is his apprentice. Who wouldn't appreciate giving any chore that comes | computers the size of molecules become a reality. These are the types of | | to mind, to an eager and competent assistant? After time, a good apprentice might | computers that could be everywhere, but never seen.

Nano sized | | even anticipate your needs. "Pink tie today, Mr. Trump? "

Now apply this same kind | bio-computers that could target specific areas inside your body.

Giant | | of relationship model to the future of computing. | networks of computers, in your clothing, your house, your car. Entrenched | | Future of Computing | in almost every aspect of our lives and yet you may never give them a | | In the future, the number of tiny but powerful computers you encounter every day | single thought. | | will number in the thousands, perhaps millions. You won't see them, but they will be | Complete understanding of the theories behind these future computer | | all around you. Your personal interface to this powerful network of computers could | technologies is not for the meek. For example, my research into quantum | | come from a single computing device that is worn on or in the body. | computers was made all the more difficult, after I learned that in light of | | Aside from providing one 24/7 interface to the myriad of computers and sensors that | her constant interference, it is theoretically possible my mother-in-law | | you will have access to, like a good apprentice, this computing device would come to | could be in two places at once.

| know your personal preferences and sometimes make decisions on your behalf. | If you have the heart, take a gander at this collection of articles and | | The above article is my own vision of the future of computing. Here are views from | links on the most promising new computer technologies. If not, dare to | | more knowledgeable sources | imagine the ways that billions of tiny, powerful computers will change our | | Future of Computing Articles | society.

| Essential Computing - Intel | Quantum Computers | | 2020 - Future of Computing | Optical Computers | | The super-fast future of computing | DNA

Computers | | Microsoft Research Offers Behind-the-Scenes Look at Future of Computing | | Computers to be 'oxygen of the future' Moore's law | | The Future of Computing | Visit any site on the web writing about the future of computers and you | | The Computer Of The Future | will most likely find mention of Moore's Law. Moore's Law is not a strictly | | adhered to mathematical formula, but a prediction made by Intel's founder | | Future Computer: Atoms Packed in an "Egg Carton" of Light? | co-founder Gordon Moore in 1965. | | Scientists at Ohio State University have taken a step toward the development of | Moore predicted that computing technology would increase in value at the | | powerful new computers — by making tiny holes that contain nothing at all. The | same time it would decrease in cost.

More specifically, that innovations in | | holes — dark spots in an egg carton-shaped surface of laser light — could one day | technology would allow a doubling of the number of transistors in a given | | cradle atoms for quantum computing. | space every year, the speed of those transistors would increase and | | manufacturing costs would drop. | | A Computer Like Your Brain | A computer transistor acts like a small electronic switch. Just like the | | A new NASA-developed computing device allows machines to work much like the brain. | light switch on your wall, a transistor has only two states, On or Off. A | | This technology may allow fast-thinking machines to make decisions based on what | computer interprets this on/off state as a 1 or a 0. Put a whole bunch of | | they see. A planetary rover might use this technology to avoid obstacles, select | these transistors together and you have a computer chip.

Intel's newest | | scientifically interesting spots to explore just by what it sees and navigate | processor has nearly 1 billion transistors. | | through terrain on its own without review from ground controllers. A spacecraft | Shrinking transistor size not only makes chips smaller, but faster. One | | might use the technology to avoid hazards and identify a pre-selected landing site | benefit of packing transistors closer together is that the electronic | | with very high precision.

| pulses take less time to travel between transistors. This can increase the | | " This may well be recognized as a quantum leap in the pursuit of intelligent vision, | overall speed of the chip. | | allowing machines to be significantly more autonomous," said Dr. Anil Thakoor, | Not everyone agrees that Moore's Law has been accurate throughout the | | supervisor of the Bio-Inspired Technology and Systems Group at NASA's Jet Propulsion | years, (the prediction has changed since its original version), or that it | | Laboratory in Pasadena, California. | will hold true in the future. But does it really matter? The pace at which | | The device works much like the brain, whose power comes from the complex networks of | computers are doubling their smarts is happening fast enough for me.

| | interconnections called " synapses" between brain cells. Networks of these brain | Thanks to the innovation and drive of Gordon Moore and others like him, | | cells, called neurons, allow humans to make instant decisions based on an observed | computers will continue to get smaller, faster and more affordable. [pic] | | image or scene. The new processor captures the same capability to process images in |[pic] | | real time as a scene unfolds.

IBM moves Moore's Law into the third-dimension | | A Computer Like Your Brain | IBM announced a breakthrough chip-stacking technology in a manufacturing | |[pic] | environment that paves the way for three-dimensional chips that will extend | | Nano chip | Moore's Law beyond its expected limits. The technology - called | | The blueprint for a tiny, ultra-robust mechanical computer has been outlined by US | " through-silicon vias" — allows different chip components to be packaged | | researchers. much closer together for faster, smaller, and lower-power systems. [pic] | | Antique engines inspire nano chip |[pic] | |[pic] | Researchers now able to stop, restart light | | Phase-change memory | " Two years ago we slowed it down to 38 miles an hour; now we've been able | | Phase-change memory (also known as PCM Memory), is a type of non-volatile computer | to park it then bring it back up to full speed. " | | memory.

Researchers now able to stop | | Phase-change memory |[pic] | | | youTube video of touch screen software [pic] | | | Video of wall size interactive touch screen [pic] | | | World's TOP500 supercomputers | | | Cloud-computing platforms | [http://www.futureforall.org/computers/quantumcomputers.](http://www.futureforall.org/computers/quantumcomputers.htm)

htm Quantum Computers | The Potential and Power of Quantum Computing | |[pic] | This rather difficult concept is perhaps best explained through an | | What are Quantum Computers? | experiment. Read more at CalTech [pic] | | A quantum computer is a computer that makes direct use of distinctively quantum |[pic] | | mechanical phenomena to perform operations on data. | Quantum Computers: What Do They Mean to Us? | | In a classical (or conventional) computer, the amount of data is measured by bits; in a | This

white paper discusses an overview of the quantum computing world, | | quantum computer, the data is measured by qubits. | and what it means to the computing industry. [pic] | |[pic] |[pic] | | The Bloch sphere is a representation of a qubit, the fundamental building block of | Today's Quantum Computers | | quantum computers. | Here's a look at a few of the quantum computers that have been | | Source: Wikipedia | developed. Easy to read article found at How Stuff Works [pic] | | The basic principle of quantum computation is that the quantum properties of particles |[pic] | | can be used to represent and structure data, and that quantum mechanisms can be devised | Quantum Computer Links | | and built to perform operations with these data.

| Vibrating ions get entangled | |[pic] | Introduction to Quantum Theory | | Why Quantum Computers? Quantum computing: Entanglement may not be necessary | | Researchers have discovered that several classes of computational problems can be solved| Questions for David Deutsch | | in ways that take advantage of quantum parallelism. WhipTech. com [pic] | A quantum leap in computing | | IBM's Test-Tube Quantum Computer Makes History | | <http://www.futureforall.org/computers/opticalcomputers.htm> | | What is a Quantum Computer? | | | Instant Expert: Quantum World | | | World's smallest storage device lies in the nucleus of an atom | | | Computer chips give new spin on saving energy | | | Quantum Memory Leap | | Optical Computers | Photonic Crystals | |[pic] | Researchers at the University of Alberta are developing photonic | | What are Optical Computers? | crystals designed to replace transistors in computers of the future. | | The computers we use today use transistors and semiconductors to control electricity.

| All-Optical Computers Could Soon be a Part of Our Life | | Computers of the future may utilize crystals and metamaterials to control light. Optical | | computers make use of light particles called photons. Optical Computer Made from Frozen Light | | NASA-funded research at Harvard University, Cambridge, Mass. , that | | NASA scientists are working to solve the need for computer speed using light | literally stops light in its tracks, may someday lead to | | Light travels at 186, 000 miles per second.

That's 982, 080, 000 feet per second — or | breakneck-speed computers that shelter enormous amounts of data from | | 11, 784, 960, 000 inches. In a billionth of a second, one nanosecond, photons of light | hackers. pic | | travel just a bit less than a foot, not considering resistance in air or of an optical | | fiber strand or thin film. Just right for doing things very quickly in microminiaturized | IBM milestone demonstrates optical device to advance computer | | computer chips. | performance | | IBM announced that its researchers have built a device capable of | | Dr. Donald Frazier monitors a blue laser light | delaying the flow of light on a silicon chip, a requirement to one day | | used with electro-optical materials | allow computers to utilize optical communications to achieve better | | " Entirely optical computers are still some time in the future," says Dr. Frazier, " but | performance. | | electro-optical hybrids have been possible since 1978, when it was learned that photons | | can respond to electrons through media such as lithium niobate.

Newer advances have | Researchers have known that the use of optical instead of electrical | | produced a variety of thin films and optical fibers that

make optical interconnections | signals for transferring data within a computer chip might result in | | and devices practical. We are focusing on thin films made of organic molecules, which | significant performance enhancements since light signals can carry more | | are more light sensitive than inorganics. | information faster. Yet, “ buffering” or temporarily holding data on the | | Organics can perform functions such as switching, signal processing and frequency | chip is critical in controlling the flow of information, so a means for | | doubling using less power than inorganics. Inorganics such as silicon used with organic | doing so with light signals is necessary. The work announced today | | materials let us use both photons and electrons in current hybrid systems, which will | outlines just such a means for buffering optical signals on a chip. | | eventually lead to all-optical computer systems.

[[pic] | | [[pic] | |]” What we are accomplishing in the lab today will result in development of super-fast, | Era of High-Speed Optical Computing is Approaching | | super-miniaturized, super-lightweight and lower cost optical computing and optical | Physicists at Oregon State University have discovered a way to | | communication devices and systems,” Frazier explained. | manipulate the transmission of optical signals in tiny wires, | | Article and image from: | dramatically slowing, stopping or even speeding them up to velocities | | | faster than the speed of light - a major advance that could open the | | | door to a new era of computing and information processing based on | | | optics. pic] | | [[pic] | | | Optical Computer Links | | | Scientists Move Optical Computing Closer to Reality | | | Optical Computers | | | Optical Components and Storage Systems | | | How They Work and Why We

Will See Them | | | Light shines in quantum-computing arena - optical device produces | | | quantum computing | | [http://www.futureforall.org/computers/dnacomputers. tm](http://www.futureforall.org/computers/dnacomputers.tm) | Using ' Nature's Toolbox,' a DNA Computer Solves a Complex Problem | | DNA Computers | A DNA-based computer has solved a logic problem that no person could | |[pic] | complete by hand, setting a new milestone for this infant technology | | What are DNA Computers? | that could someday surpass the electronic digital computer in certain | | DNA computers use DNA to store information and perform complex calculations. DNA has a | areas. | | vast amount of storage capacity computers might tap the vast storage capacity that | The new experiment was carried out by USC computer science professor | | enables DNA to hold the complex blueprints of living organisms. The storage capacity of | Dr.

Leonard Adleman, who made headlines in 1994 by demonstrating that | | a single gram of DNA can hold as much information as one trillion compact discs. | DNA — the spiraling molecule that holds life's genetic code — could | |[pic] | be used to carry out computations. | | DNA Computing | DNA Computer | | Is there a computer in your genes? A team led by Dr. Leonard Adleman has shown that DNA |[pic] | | can be used to solve complex mathematical problems. In Adleman's lab at USC, | Purdue researchers stretch DNA on chip, lay track for future computers | | one-fiftieth of a teaspoon of deoxyribonucleic acid (DNA) has solved two modestly | Researchers at Purdue University are making it easier to read life's | | difficult problems—the " Hamilton Path," or " Traveling Salesman," problem and the | genetic blueprint. They have precisely placed strands of DNA on a |

|" Customer Satisfaction" or " NP-complete 3-SAT" problem. His experiment has been heralded| silicon chip and then stretched out the strands so that their encoded | | as the " start of a new era," forging an unprecedented link between computational science| information might be read more clearly, two steps critical to possibly | | and life science.

[pic] | using DNA for future electronic devices and computers. |[pic] | DNA on chip | | ' DNA computer' cracks code |[pic] | | A ' DNA computer' has been used to find the only correct answer from over a million | DNA Computer Links | | possible solutions to a computational problem. [pic] | A Glimpse at the Future of DNA: | |[pic] | M. D. ' s Inside the Body | | Living computers | DNA basis for new generation of computers | | Researchers genetically engineered the bacterium E. coli to coax its DNA into computing | DNA computers to fight diseases | | a classic mathematical puzzle known as the burned pancake problem.

[pic] | Computer Made from DNA and Enzymes | | | Will Future Computers Be Made of DNA |