INTERACTIVE

Imagining 2076: Connect Your Brain to the Internet

By Thomas Lin and Jon Huang
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The future, it turns out, starts in 2020.

Far enough in the distance to dream, yet seemingly within arm's reach, that year was attached to more predictions of technological innovations from readers than any other in the interactive, crowd-sourced timeline published online with "The Future of Computing," last week's special issue of Science Times.

Holographic displays. Robotic restaurants. Computers that replace doctors, translators and drivers. If it's proximate science fiction you want, you'll have it, it seems, at the end of the decade.

Looking at 2020 and beyond, readers imagined a future with cures for intractable diseases, direct links between brain and computer, automated everything, contact with alien life forms, sentient machines and no language barriers.

Readers were invited to make predictions and collaboratively edit this timeline, which was divided into three sections: a sampling of past advances in computing, predictions that readers could push forward or pull backward in time with the click of a button (but not, of course, into the past), and a form for making and voting on predictions. Tens of thousands of edits were made.

Starting with predictions from experts like Sebastian Thrun, Georges Nahon, Larry Smarr, Drew Endy and David Patterson, the timeline grew in scope and creativity with the addition of selected reader suggestions as word of the project spread socially via sites like Twitter.

Optimistic predictions far outpaced negative ones — a wishful view, perhaps, of technology as panacea. The most popular reader-submitted prediction came from Roy in Italy, who wrote that by 2020, “Google will provide everyone with the ability to communicate with everyone else, regardless of the specific language they speak, via their smartphone, with real-time language translation.”

Pushing and pulling dates on the timeline, readers said it would take 65 years to connect our brains to the Internet via Wi-Fi, as D. Moysey of Boston predicted, “granting nearly unlimited memory and communication ability, provided you don’t lose the signal.”

Not all predictions were rosy. In David Gibson’s dystopian view, “humans will become so integrated with electronics that more people will die from computer viruses in a year than from biological viruses.” Readers suggested this would happen about 2170.

Many of the negative forecasts were bullish on technological growth, just skeptical about our ability to control it. In 2021, Steve Williams wrote from Calgary, Alberta, “computers will become so ubiquitous that they will be relegated to appliance status like toasters, as people strive to put the misnamed ‘social media’ aside in favor of face-to-face human connections.”

Some predictions, good or bad, were open to interpretation. Within 10 years, wrote Ian Breckheimer, “more people will enter into romantic relationships with people they met online than people they met in person.”

Predictions about the far future — 2100 and beyond — took a broader view of changes that might affect all of humanity. Will we speak telepathically? Maybe by 2484, readers said. Will we be governed by an all-knowing artificial intelligence? In 2267, perhaps. Live forever? That could happen as soon as 2100, according to Jay Snipes of Pickerington, Ohio, who predicted, “Medical and computer sciences will learn to map the human brain, preserving the memories, knowledge, and wisdom of selected individuals before they die.”

When, if ever, will these flights of fantasy become fact? Perhaps the most accurate prediction of all belongs to R. Campos of Brazil, who wrote that in the year 2025, “we’ll be laughing at these predictions.”

More predictions follow.

2012: COMPUTER ON A CHIP “The high-end microprocessor of 2020 will be an entire computer on a single chip: processor and main memory versus the many processor chips and DRAM chips of today.”

David Patterson, a professor of computer science at the University of California, Berkeley. Readers moved this date 906 times.

2013: ELECTRONIC INK “Electronic ink becomes as flexible and thin as paper. A new print revolution starts.”

Ziad Youssfi of East Lansing, Mich. Readers moved this date 800 times.

2019: ONLINE SCIENCE “Scientific publishing will move away from the current journal-and-conference model to a model that takes better advantage of online tools.”

John Hersey

Scott Aaronson, associate professor of electrical engineering and computer science at M.I.T. He predicted 2026. Readers moved this date 836 times.

2019: UNIVERSAL MEDICAL DATABASE "Your entire medical history from birth till death will be collectively combined in one universal system and available to all your different doctors."

Chelsea of New York. Readers moved this date 443 times.

2022: HALO OF DATA "Personalized descriptions of what and who is around you will be available at the push of a button on your smartphone, and also by default. A 'halo of data' will constantly accompany you. This represents the next step beyond

augmented reality."

Georges Nahon, chief executive of Orange Labs and founder of the Orange Institute. He predicted 2016. As of Monday morning, readers moved this date 674 times.

2023: CURING CANCER "By 2020, the most common forms of cancer will be treated with a personalized therapy based on genetic sequencing. A patient's therapy will be retargeted every six months as a result of resequencing the cancer to track its inevitable evolution."

David Patterson, a professor of computer science at the University of California, Berkeley. Readers moved this date 1059 times.

2024: PRACTICAL ROBOT CARS "By 2018, freeway car pool lanes will be opened to robot-driven cars."

Larry Smarr, the founding director of the California Institute for Telecommunications and Information Technology. Readers moved this date 646 times.

2026: PROGRAMMABLE ORGANISMS "By 2030, reprogrammable tissue and organismal development will arrive. Scientists will design a life on a computer and print it out in a laboratory."

Drew Endy, assistant professor in bioengineering at Stanford. Readers moved this date 621 times.

2031: FULL LIFE RECORDING "Most people will own and use a Personal Life Recorder which will store full video and audio of their daily lives. This will be a fully searchable archive that will radically augment a person's effective memory."

Jean DesRosiers of Montreal. Readers moved this date 699 times.

2039: DIGITAL 'LIFE' AND EVOLUTION "Systems grow so complex that new computer viruses spontaneously evolve from stray bits of code and transcription errors."

Tim McGovern of Chicago. Readers moved this date 453 times.

2056: CASH IS OUTLAWED "Cash will become illegal, replaced with electric currency."

S. Morris Rose of Vancouver, British Columbia. Readers moved this date 993 times.

2058: CYBERNETIC INTELLIGENCE "Enhanced intelligence will be available to most people through a combination of nanotechnology and embedded processors."

Jason of Washington. Readers moved this date 598 times.

2060: FLYING CARS "By 2040, more people will use personal air vehicles for their daily commute than cars."

Sebastian Thrun, developer of Google's self-driving car. Readers moved this date 1338 times.

2063: ARTIFICIAL INTELLIGENCE "A computer program is created that has all the features of human intelligence, including emotion, creativity, the ability to learn and self-awareness."

D. Moysey of Boston. Readers moved this date 980 times.

2114: MEMORY BACKUP "Human memory backup system: the whole brain can be synced to the cloud. Humans can restore and backup their memories to the system. The system can even restore memories into a new body after end of the original owner's life."

Andrew Kuo of Taiwan. Readers moved this date 952 times.

2259: COLLECTIVE LEARNING "Old knowledge will not have to be learned; only new knowledge will need to be created. Learning will become obsolete. All known knowledge will be contained on a supercomputer. Individuals can download all known knowledge pertaining to any subject directly to the brain."

Red Dog of Florida. Readers moved this date 336 times.

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