

# NEW DEVELOPMENTS IN BRAIN INTERFACE

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Is there a brain chip in your future? People who say that someday brain implants will allow computers to read minds might be startled to realize that the day is already here.

Neuroscientists at the Brain-Gate consortium made history in 2012, when they inserted a chip in the mind of a person with an amputated arm, allowing him to control a robotic arm with his brain. In 2017, the team developed a thought-to-text system that allowed monkeys to “think” at a computer and have the computer transcribe their thoughts at the rate of 12 words per minute. Later the same year, a similar chip was installed in several people suffering from severe paralysis, allowing them to type on a computer screen at a rate of about eight words a minute.

That was the precursor to installing two sensors, each about the size of a baby aspirin,

each with 100 hair-fine electrodes, into the brain of a man who had suffered a spinal cord injury that left him paralyzed below the shoulders. The sensors picked up his neural signals, which were processed by a computer to decode his brain activity, allowing him to write words on the computer screen at the record-breaking speed of 16 words a minute—about three-quarters of the speed that people achieve when typing on their smartphones. He used the ‘greater than’ symbol on his mental typewriter to denote spaces between words.

Neuroscience still has a ways to go before we are reading each others’ minds. The new mental interface requires a specialized high-performance computer, and a technician to set up the brain-computer interface and run the software. And, of course, it requires brain surgery to insert the sensory devices.

But scientists believe that we are on the edge of creating a version of the technology that would be always available to the user who wanted to type, control the computer, perhaps even neurally communicate with others who have a similar chip. Pets with a similar insertion (remember the monkey) might be able to have more personal communication connections with their adopted families.

Sources:

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# ONE THING TO INCREASE RESILIENCY IN THE EVENT OF A FINANCIAL CYBER-ATTACK

**Y**ou're enjoying a nice weekend with the family and Sunday afternoon you pull up your work email from your phone to check what the week will look like. The app appears to be having some problems, so you close, reboot your phone, you'll get to it later. Right before bed, you check it again and something isn't right. You pull up your computer and it doesn't take long to realize you've been hacked. You don't know if it was a virus, or what, but apparently, Saturday night when you were asleep, the hacking began and they've had nearly 24 hours to do some their damage. You're not quite sure how bad it is, but this is going to be a long week.

Recently, a client had their bank account hacked. They're with a large bank that's a household name. It took three months to receive their money back. Fraud investigations don't move quickly. There was additional disruption to their finances because all their autopayments as well as their paycheck deposits were linked to the account that was hacked. They were required to close all their accounts and open replacements, as well as switch over all automatic debits and deposits. This took time and was further complicated because every

outside financial institutional will require information to verify the legitimacy of the new account(s). It will take anywhere from a few days to a few weeks to receive the things you need, such as checks, a statement or a letter from the bank. Even a delay of a couple days can be frustrating when time-sensitive bills must be paid.

Most everyone is aware that cybercrime is on the rise. According to Security Magazine there is a hacker attack every 39 seconds and is more profitable than the illegal drug trade. The Federal Trade Commission reports that from 2019 to 2020 consumer fraud and identity theft complaints were up 45 percent. The bottom line? It happens frequently and criminals love that they can make boat loads of money with little risk.

There's plenty of guidance on how to reduce the chances of becoming a victim such as multi-factor authentication, etc. But, this article isn't focused on that topic. The purpose of this article is provide a single practical, simple step to increase your resiliency if you're unlucky enough to become the victim of a financial cyber-attack.

*At Living Legacy our philosophical approach to all financial decision-making is to ensure that financial failure is avoided. This means employing techniques and strategies that layer-in re-*

*siliency and minimize single points of failure.*

The way to make yourself resilient in the event this happens to you is to have accounts with two different banks. That way if your account(s) with one bank is hacked then you still have access to your account(s) with the other bank. While it will still be inconvenient to transfer all your autopayments and paycheck deposits, you won't have the additional hassle of setting up a new account(s) while in a time crunch! Also, this further insulates you from a hack not targeted against you, but against the bank itself. If one bank is offline for a period of time you should still have access to your account(s) with your other bank.

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# DOWN STOCKS IN AN UP MARKET

**W**e can probably all agree that 2020 was a unique investment year, with the pandemic ravaging the economy, reducing travel and even removing the normal commute to the office—and at the same time delivering above-average 15.76% returns on the S&P 500 index. But not every company sailed through the pandemic unscathed.

Consider New Residential Investment, a mortgage REIT which specializes in title insurance, appraisal management, and mortgage servicing in the red-hot real estate market. Its stock was down 38.4% last year.

It's easier to understand how Spirit Airlines' bottom line suffered in the pandemic; it is one of the low-price

leaders in the air travel industry, but people weren't traveling, so even the cheap fares didn't result in filled passenger seats. The stock was down 50% last year. A similar fate befell Coty, the health and beauty products company whose customers abandoned its brick and mortar locations for online purchases—apparently buying other products. The stock finished the year down almost 36%—although so far this year the stock is showing a 27% gain. Carnival Cruise Lines basically had to sit out the pandemic with its ships idle, and its stock value fell nearly 50%. But its year-to-date return is a surprising 25.44%.

Other major loses in 2020 are names you might be sur-

prised to see: Exxon Mobil was down 41% last year, and Wells Fargo stock lost 43.5% of its value in 2020.

If there's a point here, it's that unexpected events like the pandemic can have disproportionately good or bad results on individual companies. The value of a diversified portfolio is that it will mitigate those occasional disasters, and catch the upwinds of the occasional above-average returns.

Source:

<https://investorplace.com/2021/01/9-worst-investments-of-2020-for-careful-investors/>

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# INVESTING IN SPACE

Space is the final frontier. Our military now has a space force. We are about to get a full report from the government on what it knows about UFOs. Space is in the news, from space tourism to the long-shot prediction by Elon Musk that humans will soon colonize Mars.

But is space a growth industry worth investing in?

For now, the answer is: probably not, but we are getting close to the time when ordinary tourists will venture beyond our atmosphere. The major players in the space tourism market haven't yet proven that they can safely deliver a space experience to their passengers, though Jeff Bezos' Blue Origin is expected to launch its first crewed flight when its new Shepard rocket launches on July 20. Virgin Galactic, a part of Richard Branson's Virgin Group, plans four test flights of its SpaceShipTwo system before it attempts to begin commercial service in 2022. The first full revenue flight, where the Italian government has booked members of the Italian Air Force at \$500,000 per seat, will fly later this year. Elon Musk's SpaceX, meanwhile, is focusing on a different market, launching Starlink satellites that are expected to provide internet service to earthbound consumers. So far, the company has launched 1,500

interconnected orbiters.

The economics of these ventures don't look promising. SpaceX is selling Starlink internet packages for \$99 a month, but these are preorders that are fully-refundable. It is going to take a lot of \$99 orders to pay for just the launches that have taken place so far. Meanwhile, competitor Iridium Communications already has 66 low-Earth orbiting satellites which are providing voice and data connectivity everywhere that SpaceX plans to serve.

Virgin Galactic recently reported a loss of \$55.9 million in the first quarter of the year, after losing \$59.5 million in the last quarter of 2020, and \$63.6 million in the quarter before that. Its upcoming flight will generate just \$2 million, which means the company would have to book at least 35-40 flights a year to break even—and one has to wonder how big a market there is for tourists lining up to pay up to \$500,000 for a trip that would barely graze the top edge of the atmosphere.

A more plausible business model is Aerojet Rocketdyne's; the company's Space Launch System is paid for via aerospace and defense contracts, rather than upscale tourists looking for a thrill. Another defense contractor, Northrup Grumman, focuses on a Mission Extension Vehicle initia-

tive, which refuels satellites in space and returns them to operational status. Others look more questionable. Nokia Corp. has landed a contract to establish a 4G cellular network on the Moon, should NASA eventually find a way to colonize it.

Meanwhile, competition is on the way. A rocket builder called Astra, housed in the former U.S. Navy Air Station Alameda, CA, has already launched its 40-foot Electron rocket into space, and has plans to reach orbit next year. The company anticipates charging \$2.5 million per launch, carrying communication satellite payloads up to 300 kilograms into low-Earth orbit. The company is going public through acquisition by a special purpose acquisition company, but is not currently trading on any exchange.

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# OLYMPIC BUST

**A**fter being postponed for a year, the Olympic Games are scheduled to begin on their revised schedule on July 23 in and around Tokyo, Japan. But it looks like the games will be held without the usual crowds of spectators. The Japanese government has banned international travelers from entering Japan to attend the games, and is mulling a similar ban on domestic viewers.

Nobody seems to be disagreeing with the ban on in-

ternational spectators. The U.S. State Department has recommended that Americans not travel to Japan at all for the foreseeable future, due to the possibility of catching one of the COVID variants during their stay. Australia, whose citizens are frequent travelers to major sporting events, has imposed a similar ban.

Just 5 percent of the Japanese population is currently vaccinated, and there have been recent outbreaks in

Tokyo—the fourth wave in a country that has largely avoided the large-scale infections suffered by other nations. In all, there have been 715,940 infections and 12,308 deaths from the virus in Japan, numbers which could see a dramatic increase if the country ultimately decides to permit the Olympics to open up to crowded sports arenas.

Source:

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# STATE GDP EQUIVALENTS

It is sometimes not easy to realize just how big the U.S. economy is compared with the rest of the world. But a recent graphic published by the GZero organization gives a pretty good hint.

Look at the map, and notice that North Dakota—one of the smallest states in the U.S. in terms of economic activity (total population: 762,000, roughly the same as Denver, CO), has a state GDP the size of the nation of Latvia. Nearby Minnesota's economy equals all of Ireland's, and Wisconsin's equals Israel's. The Texas economy, all by itself, is as large as Canada's, as is New York's. California's economic activity amounts to roughly the same as the United Kingdom's—the fifth largest economy in the world.

Every US state shown as a country with similar GDP



Even little Rhode Island has a country-sized GDP, about the size of Senegal's.

the U.S. is falling behind the rest of the world might find these two charts somewhat reassuring.

In total, the United States makes up 24.42% of the world's aggregate economic activity, rivaled only by China (16.34%), with number 3 Japan (5.79%) a very distant third. Another perspective, this time putting countries on a circular "globe" with the size of their economies represented by area, shows not just the economic size of individual countries but also different global regions. Anybody who worries that

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