

# The Horizon Newsletter

## September 2019

### **iPhone Hack Exposed by Google**

*By: Shrihan Dadi*

Google's special Project Zero security team discovered a series of websites that have been used to hack iPhone users for over 2 years. Project Zero uncovered 5 different exploit chains that each targeted a specific security flaw. Across these 5 exploit chains, there were 14 vulnerabilities, and phones with iOS 10 through 12 were susceptible to the attacks. Once your phone is attacked, the hackers can access all of your data through the core of the phone. For example, they can access photos, access messages, steal identification, and even discover your



location. One thing notable about this hack is that it doesn't discriminate. Most cyber hacks are targeted towards a specific group, but anyone who accesses these websites can compromise their personal information. Researchers themselves estimate that thousands of people visited the malicious sites each week. The Project Zero team

gave Apple only 7 days to fix this issue because of how serious the hack is. Of course, Apple fixed this right away with a patch, but this issue can raise other flags. We don't know if there is other malware yet to be discovered. Expert's advice is to be on the watch for any malicious websites, apps, or emails.

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## Chandrayaan-2

By: Amuktha Dasari

Every child in America learns about the heroic *Apollo 11* mission in 1969, when two astronauts, Neil Armstrong and Buzz Aldrin became the first humans to ever set foot on the moon. The phrase “one small step for man, one giant leap for mankind”, famously said by Armstrong as he took his first steps in space, will live on in history books until the end of time. America's trip to the moon signified the end of the Space Race, and the beginning of an age of explosive growth and discovery in space. So far, only three countries have made a soft landing on the surface of the moon; America, the U.S.S.R, and most recently, China. However, in July of 2019, scientists at the ISRO (Indian Space Research Organisation) set out to up that number to four. The *Chandrayaan-2* spacecraft was launched on July 22nd, 2019, and was set to make a successful soft landing on the lunar surface on September 6th. The unmanned craft was able to enter into lunar orbit. On the day of the landing,

everything was going smoothly. The orbiter detached from the lander module, *Vikram*, at a height of 30 kilometers. The rough braking phase, designed to bring the lander from 30 kilometers to 4 kilometers, went off without a hitch. Then

came time for the fine braking phase, which would let the lander descend



completely to the surface, making it a historical moment for India, and the fourth time anyone had been able to make a soft landing on the moon. Tensions in the command center were rising, and the electricity in the air was palpable, even to viewers watching on one of the several livestreams set up by news channels all over the world. Unfortunately, this is when tragedy struck. As the lander began its fine braking phase, it descended very quickly to 2.1 kilometers, at which point both the orbiter and the command center stopped receiving signals. When connection was reestablished between the orbiter and command center, it was determined that *Vikram* had crash-landed on the lunar surface, although ISRO scientists are still analyzing data to determine the cause.

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## **Protecting Yourself from UV Rays**

By Sumant Anantha

- Wear Sunscreen everyday to prevent UV rays from entering your body  
In order for your skin to not be burned from the radiation use Sunscreen. This lotion will help prevent rays from affecting your body. Read the instructions carefully on the bottle in order to avoid Skin Cancer.
- Wear protective clothing:  
While your outside in the sun, bring a hat along with some shades so that UV rays won't touch your head. Wearing a Hat is important because it protects the muscles that you use for 5 senses. Sunglasses will let you see because they block rays from your eyes.
- Limit your Radian Exposure  
UV rays are most intense from 10 a.m. to 4 p.m. If you're uncertain about the sun's potency, take the shadow test. If your shadow is shorter, then the rays have a higher exposure. Try to limit your time outside in the bright sun.

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## **Today's Global Warming Is Not the Climate like 2,000 Years Ago**

*By: Sruthi Anne*

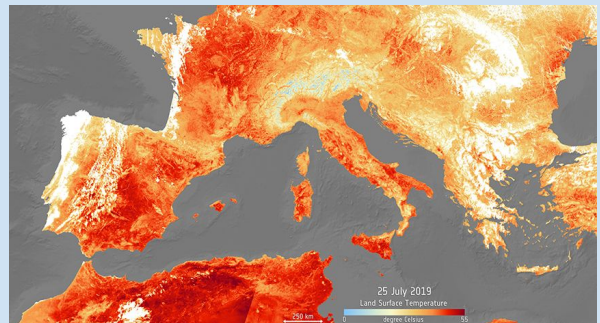
Today's climate is truly bad. And nothing like it has been seen in the past 2,000 years. What's more is, temperatures are very fast. These conclusions come from

many different papers. They examined average temperatures from over 2,000 years ago.

Previous temperature highs and lows were mainly caused by natural causes, such as powerful volcanic eruptions, the research shows. Modern global warming is caused by the increasing amounts in our atmosphere produced by various human activities. These mostly come from the burning of fossil fuels.

Michael Mann, a climate scientist at Penn State University in State College, Penn, notes that studies findings aren't very recent ones. In 1998, he and his colleagues published a famous study in *Nature*. It can sometimes be referred to as the "Hockey Stick" Paper. This paper reveals a dramatic tick in upward temps of the 20th century. This pattern, when plotted on a graph, takes the shape of a hockey stick.

"It's gratifying that independent, international teams using entirely different approaches have come to virtually identical conclusions," Mann says.



Raymond Bradley is a climate scientist at the University of Massachusetts Amherst. He coauthored the hockey stick study. He also agrees with Mann. "In that paper, we were widely criticized for saying the last decade was the warmest in the last 1,000 years," he says. Now scientists conclude that the last decade was the warmest in the last 2,000 years.

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## Germany's \$330,000 Underwater Observatory Has Gone Missing

*By: Arya Bharti*

Germany's GEOMAR science organization has had its hands on a fishy potential thief this month. After an observatory off the German Baltic coast stopped transmitting data last month, divers were sent to investigate. All they found was a shredded cable and lonely waters where it once used to be. The station consists of a power unit, connected by a cable to the coast alongside an instrument unit which together weighed over 1,700 pounds. The sheer weight of the station would have made it nearly impossible for currents or any known aquatic animal to have destroyed or carried it away, as researchers now suspect foul play. The

observatory was established back in 2016 and is currently owned by the company GEOMAR and the Helmholtz center Geesthacht, which is currently Germany's largest scientific organization. According to The BBC, the station was located in restricted waters as boats, ships and fishing vessels were not permitted into the area called Eckernförde Bay (where the observatory



is located), which is about 44 miles south of the Danish border. The German instruments on deck were used to measure seawater quality, temperature, oxygen levels, nutrients and other different types of heavy relied information about the health of the bay. "The data we get from it is priceless," said Prof Hermann Bange, head of oceanographic research at Geomar. The observatory sent its final transmission at 8:15 p.m on August 21, 2019 to Geomar in Germany.

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## Apple Premier Event

*By: Harvik Kolla*

There are two days to go until Apple unveils its next-generation iPhone on Sept. 10 in Cupertino. The iPhone 11 will probably be a whole lot like the X. This means that on Sept. 10, Apple is going to try to get us excited about a lot of upgrades: more advanced cameras, faster chips, the next version of the operating system, iOS 13, which is out in beta currently, and perhaps new colors (including dark green). And yet, the flagship iPhone 11 is likely to cost just as much as the iPhone XS, with a starting





price around \$1,000. They are expected to include a "budget" successor to the iPhone XR, a midrange flagship like the iPhone XS and a supersize model in the vein of the iPhone XS Max. The anonymous Twitter account that correctly leaked the names of last year's iPhone XS, XS Max and XR reported that the next iPhone will be called the iPhone 11 Pro. The biggest change coming to this year's iPhone will likely be the camera setup. Since last year, we've been hearing that Apple would give at least one of the 2019 models three rear-facing lenses. With this new improvement, Apple continues to stay at the top in the race for flagship phone camera quality.

Apple is also releasing iOS 13 on Sept.19. This new software update brings a variety of changes. The iPhones that are compatible with these updates are every iPhone above the

5SE. The most exciting feature that iOS 13 brings to the table is dark mode. Other android phones have already implemented this and now Apple is jumping on the train.



Dark mode inverts the color scheme to black and green(or a color of your choice). Apple is also implementing the 'swipe to type' feature. Just like the previous feature, other android phones already have this. Swipe to type allows users to send a text message by just swiping so you will never have to lift your finger from the keyboard. This sounds so minuscule, but this is a feature that Apple users have been waiting for for a long time. They are also implementing a sign-in with the apple feature. This is like a sign in with google/facebook, but with apple. Apple is way more secure, especially with the whole facebook crisis. Sign in with Apple generates a fake and temporary email so you don't have to disclose your actual email to the app or service. Personally, I have iOS 13 Beta, and I absolutely love iOS 13 and recommend it to everyone. All in all, with iOS 13 coming out and the

release of the new flagship premier of the iPhone 11, the launch event on September 10, should be on everyone's calendar.

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## **Does Music Make You Smarter?**

*By: Abhiram Dasari*

We've all heard it from people trying to get us to pick up an instrument: "Music makes you smarter." But does playing a musical instrument merely make a person smarter, or are there other abilities involved? Are some people just born with more musical ability than others? Do musicians have more musical cognition than non-musicians? Is there a link to listening to music at birth and intelligence later in life? And finally, the question itself: does music actually make you smarter?

As for the latter question, there is an easy definitive answer: yes. According to an interview with Telegraph UK about a study done by Lutz Jäncke, a psychologist at the University of Zurich, "Learning to play a musical instrument has definite benefits and can increase IQ by seven points, in both children and adults." However, these changes can happen later in life, far past the so called "optimal learning age" of up to 18 years old. According to Jäncke, "We found that even in people over the age of 65 after four or five months of playing an instrument for an hour a week there were strong changes in the brain." So teaching an old dog new tricks isn't completely out of the question.

Now that we know that playing an instrument definitely makes a person smarter, what other things can it do? Jäncke has more to say on the subject. "For children especially we found that learning to play the piano for instance teaches them to be more self-disciplined, more attentive and better at planning. All of these things are very important for academic performance, so can therefore make a child brighter." Jäncke said, "When you



play a musical instrument you have to learn about tone and about scores and your ability to store audio information becomes better. So not only does this make it easier to pick up other languages and have a better verbal memory in your own language; we have also seen that musicians are able to pick out exactly what others are feeling just on the tone of their voices.”

But is it easier for some than others? When looking at so-called “child prodigies”, the difference between them and most of us is astounding. However, a French researcher, Emanuel Bigand, thinks otherwise. According to Bigand, “most people have about the same level of musical cognition, whether or not they have musical training. Educated musicians may have a more conscious understanding of how music works (and a vocabulary to talk about it), but the uneducated still have an intuitive understanding of music.”. In other words, musicians and non-musicians have a comparable cognition in terms of music, but musicians are able to express themselves better in this aspect. So, essentially, all those hours of music practice are void and null. Or are they? According to Robert Zatorre, a neuropsychologist at Montreal’s McGill University, tests suggest a noticeable difference in musical cognition between musicians and non-musicians. “We play a tune in one key,” he explains, “and then repeat it at a different key, and ask if it’s the same or if a note has been changed. What we find is that people with musical training are inclined to do better. If you study people who don’t have training, you’ll find some people who are just as good as the musicians, but others who are just awful at it.”

All right, if there is a difference, does the date of exposure to music matter? For instance, would exposing a child to music as a newborn make them smarter than a child exposed to music as a 9 or 10 year old? Well, this so-called “Mozart Effect” ... doesn’t exist. The fad in the 1990’s that had parents playing their kids “Ode to Joy” on repeat was just that: a fad. The study that this fad came from was done on college students at US Irvine. One group was played music before an IQ test, and the other one wasn’t. The music group scored definitively higher on the IQ test than the control, which should mean that the “Mozart Effect” does, in fact, exist, right? Well, according to Glenn Schellenberg, a psychologist at the University of Toronto, just about any kind of mental stimulation before taking an IQ test will generate better results. “Music changes how you feel, and how you



feel changes your cognitive ability,” he points out. “This was wildly extrapolated to the notion that listening to Mozart in childhood might lead to cognitive benefits.”

However, there are some benefits to actually playing music as opposed to just listening to it, Schellenberg says. He claims there are “small but general and long-lasting cognitive benefits” that can come from learning to play an instrument. So can music make you smarter? Maybe—but like most musicians will tell you, it’s all about practice.

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## Health

*By: Pavitra Madala*

Recently, an 18 year old named Adam Hergenreder almost died due to his vaping habits. According to his doctors, his lungs are similar to those of a 70 year old. Hundreds of other teenagers are also facing this issue, and it is becoming life



threatening. So far, health officials confirmed six deaths that have a relation to vaping related illnesses. Statistics show that more than a quarter of high school students are using e-cigarettes this year. The effects of e-cigarettes are taking away some privileges of high schoolers. In Adam’s case, he cannot wrestle anymore because his lungs cannot take that

exertion. However, the effects of vaping have not fully been discovered.

Researchers are just beginning to understand the effects of vaping on the human body, but they do not have enough information or history to predict what will happen in the next 30 years.