KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS), ERODE – 638107

DEPARTMENT OF COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY

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DEPARTMENT OF COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY

IT BULLETIN **DATE: 14.09.2021**

RUNNING QUANTUM SOFTWARE ON A CLASSICAL COMPUTER

In a paper published in Nature Quantum Information, EPFL professor Giuseppe Carleo and Matija Medvidovi, a graduate student at Columbia University and at the Flatiron Institute in New York, have found a way to execute a complex quantum computing algorithm on traditional computers instead of quantum ones.

The specific "quantum software" is known as Quantum Approximate Optimization Algorithm (QAOA) and is used to solve classical optimization problems in mathematics; it's essentially a way of picking the best solution to a problem out of a set of possible solutions. "There is a lot of interest in understanding what problems can be solved efficiently by a quantum computer, and QAOA is one of the more prominent candidates," says Carleo.

Ultimately, QAOA is meant to help us on the way to the famed "quantum speedup," the predicted boost in processing speed that we can achieve with quantum computers instead of conventional ones. Understandably, QAOA has a number of proponents, including Google, who have their sights set on quantum technologies and computing in the near future: in 2019 they created Sycamore, a 53-qubit quantum processor, and used it to run a task it estimated it would take a state-of-the-art classical supercomputer around 10,000 years to complete. Sycamore ran the same task in 200 seconds.

Using conventional computers, the two researchers developed a method that can approximately simulate the behavior of a special class of algorithms known as variational quantum algorithms, which are ways of working out the lowest energy state, or "ground state" of a quantum system. QAOA is one important example of such family of quantum algorithms that researchers believe are among the most promising candidates for "quantum advantage" in near-term quantum computers.

The approach is based on the idea that modern machine-learning tools, e.g. the ones used in learning complex games like Go, can also be used to learn and emulate the inner workings of a quantum computer. The key tool for these simulations are Neural Network Quantum States, an artificial neural network that Carleo developed in 2016 with Matthias Troyer, and that was used for the first time to simulate QAOA. The results are considered the province of quantum computing and set a new benchmark for the future development of quantum hardware.

"Our work shows that the QAOA can run on current and near-term quantum computers can be simulated, with good accuracy, on a classical computer too," says Carleo.

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IT BULLETIN **DATE: 15.09.2021**

RESEARCHERS ENABLE AI(ARTIFICIAL INTELLIGENCE) TO USE ITS "IMAGINATION" CLOSER TO HUMANS UNDERSTANDINGS OF THE WORLD.

A team of researchers at **USC(University of South California)** is helping AI imagine the unseen, a technique that could also lead to fairer AI, new medicines and increased autonomous vehicle safety.

Imagine an orange cat. Now, imagine the same cat, but with coal-black fur. Now, imagine the cat strutting along the Great Wall of China. Doing this, a quick series of neuron activations in your brain will come up with variations of the picture presented, based on your previous knowledge of the world.

As humans, it's easy to envision an objects with different attributes. But, despite advance in deep neural networks that match or surpass the human performance in certain tasks, computers still struggle with the very human skill of IMAGINATION.

Now, USC research team comprising computer professor Laurent Itti, and PhD students Yunhao, Ge Sami, Abu-El-Haija and Gan Xin has developed an AI that uses human-like capabilities to imagine a never-before-seen-object with different attributes. The paper titled Zero-Shot Synthesis with group supervised learning was published in 2021 International Conference on learning representation on May2.

They were inspired by human visual generalization capabilities to try to stimulate human imagination in machines.

"Humans can separate their learned knowledge by attributes for instance, shape, pose, position and then recombine them to imagine a new object. Our paper attempts to stimulate this process using neural network."

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IT BULLETIN **DATE: 16.09.2021**

MICROSOFT TO LAUNCH WINDOWS 11 ON OCT. 5

Microsoft this week made it official: it will start distributing Windows 11 on Oct. 5, just five weeks away, to eligible PCs.

"On this day, the free upgrade to Windows 11 will begin rolling out to eligible Windows 10 PCs and PCs that come pre-loaded with Windows 11 will start to become available for purchase," wrote Aaron Woodman, General Manager of Windows marketing.

Although Windows 11's rollout will begin Oct. 5, the process will have an extraordinarily long tail. "We expect all eligible devices to be offered the free upgrade to Windows 11 by mid-2022," Woodman said.

At the launch of 11's delivery, the operating system will be offered to "new eligible devices," although Microsoft didn't spell out how new a PC must be to snatch a first-in-line spot. Fresh machines available on and after Oct. 5 will come with Windows 11 pre-installed, though again, Microsoft wasn't ready to go all-in, saying, "PCs that come pre-loaded with Windows 11 will start to become available for purchase."

Next to receive the Windows 11 will be in-use devices that Microsoft's modeling predicts will be most likely to successfully execute the upgrade. The Redmond, Wash. developer has deployed updates and upgrades for several years now using the same or a similar system that, in general terms, prefers newer over older devices with newer, rather than older, components such as the CPU and graphics processor.

That the upgrade offer will extend nine months hints at a careful deployment, perhaps caused by the significantly stricter system requirements Microsoft has laid down for, among other reasons, present and future security needs.

Windows Update will notify users when their PC can be upgraded to Windows 11, if it is eligible at all. Alternately, users can manually trigger an upgrade query, which may or may not result in Windows 11 being downloaded and installed.

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IT BULLETIN **DATE: 17.09.2021**

WHAT IS PEGASUS SPYWARE AND HOW IT WORKS?

The Pegasus Project, an investigation by an international media consortium, has revealed that more than 50,000 phone numbers were targeted by a spyware created by NSO Group, an Israeli software company.

Pegasus, developed by NSO Group, is perhaps the most powerful spyware ever created. It is designed to infiltrate smartphones and turn them into surveillance devices.

The Israeli company, however, markets it as a tool to track criminals and terrorists. NSO Group sells the software to governments only. A single license, which can be used to infect several smartphones, can cost up to Rs70 lakh. According to a 2016 price list, NSO Group charged its customers $650,000 to infiltrate 10 devices, plus an installation fee of $500,000

How does it work?

Pegasus exploits undiscovered vulnerabilities, or bugs, in Android and iOS. This means a phone could be infected even if it has the latest security patch installed. A previous version of the spyware infected smartphones using a technique called “spear-fishing”: text messages or emails containing a malicious link were sent to the target. It depended on the target clicking the link a requirement that was done away with in subsequent versions.

By 2019, Pegasus could infiltrate a device with a missed call on WhatsApp and could even delete the record of this missed call, making it impossible for the user to know they had been targeted. In May that year, WhatsApp said Pegasus had exploited a bug in its code to infect more than 1,400 Android phones and iPhones this way, including those of government officials, journalists and human rights activists. It soon fixed the bug.

Pegasus also exploits bugs in iMessage, giving it backdoor access to millions of iPhones. The spyware can also be installed over a wireless transceiver (radio transmitter and receiver) located near a target.

What can it do?

Once installed on a phone, Pegasus can intercept and steal more or less any information on it, including SMS, contacts, call history, calendars, Emails and browsing histories. It can use your phone’s microphone to record calls and other conversations, secretly film you with its camera, or track you with GPS.

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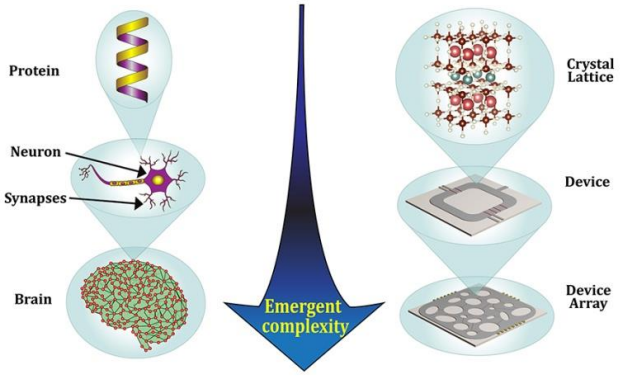
IT BULLETIN **DATE: 20.09.2021**

FUTURISTIC AI-BASED COMPUTING DEVICES: PHYSICISTS SIMULATE ARTIFICIAL BRAIN NETWORKS WITH NEW QUANTUM MATERIALS

A team of UC San Diego researchers and colleagues at Purdue University have now simulated the foundation of new types of artificial intelligence computing devices that mimic brain functions, an achievement that resulted from the COVID-19 pandemic lockdown. By combining new supercomputing materials with specialized oxides, the researchers successfully demonstrated the backbone of networks of circuits and devices that mirror the connectivity of neurons and synapses in biologically based neural networks.



Like biologically based systems (left), complex emergent behaviors which arise when separate components are merged together in a coordinated system also result from neuromorphic networks made up of quantum-materials-based devices (right).

As bandwidth demands on today's computers and other devices reach their technological limit, scientists are working towards a future in which new materials can be orchestrated to mimic the speed and precision of animal-like nervous systems. Neuromorphic computing based on quantum materials, which display quantum-mechanics-based properties, allow scientists the ability to move beyond the limits of traditional semiconductor materials.

The researchers' innovation was based on joining two types of quantum substances superconducting materials based on copper oxide and metal insulator transition materials that are based on nickel oxide. They created basic "loop devices" that could be precisely controlled at the nano-scale with helium and hydrogen, reflecting the way neurons and synapses are connected. Adding more of these devices that link and exchange information with each other, the simulations showed that eventually they would allow the creation of an array of networked devices that display emergent properties like an animal's brain.

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IT BULLETIN **DATE: 21.09.2021**

NEW TRENDING IOT

The Internet of Things is the future, and has already enabled devices, home appliances, cars and much more to be connected to and exchange data over the Internet, As consumers, we're already using and benefitting from IoT. We can lock our doors remotely if we forget to when we leave for work and preheat our ovens on our way home from work, all while tracking our fitness on our Fitbits.

However, businesses also have much to gain now and in the near future. The IoT can enable better safety, efficiency and decision-making for businesses as data is collected and analyzed. It can enable predictive maintenance, speed up medical care, improve customer service and offer benefits we haven't even imagined yet.

We're only in the beginning stages of this new technology trend: Forecasts suggest that by 2030 around 50 billion of these IoT devices will be in use around the world, creating a massive web of interconnected devices spanning everything from smartphones to kitchen appliances. The global spending on the Internet of Things (IoT) is forecast to reach 1.1 trillion U.S. dollars in 2022. New technologies such as 5G is expected to drive market growth in the coming years.

If you wish to step foot in this trending technology, you will have to learn about Information security, AI and machine learning fundamentals, networking, hardware interfacing, data analytics, automation, understanding of embedded systems and must have device and design knowledge.

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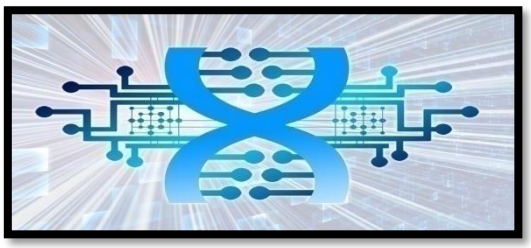
IT BULLETIN **DATE: 22.09.2021**

NEW DNA-BASED MICROFLUIDIC CHIP CAN BE PROGRAMMED TO SOLVE COMPLEX MATH PROBLEMS

Novel chip automates the reaction cascades occurring between molecules inside DNA to carry out complex mathematical calculations.

The term 'DNA' immediately calls to mind the double-stranded helix that contains all our genetic information. But the individual units of its two strands are pairs of molecules bonded with each other in a selective, complementary fashion. Turns out, one can take advantage of this pairing property to perform complex mathematical calculations, and this forms the basis of DNA computing.



In a recent article made available online in ACS Nano on July 7, 2021, and published in Volume 15 Issue 7 of the journal on July 27, 2021—a team of scientists from Incheon National University (INU), Korea, present a programmable DNA-based microfluidic chip that can be controlled by a personal computer to perform DNA calculations. "Our hope is that DNA-based CPUs will replace electronic CPUs in the future because they consume less power, which will help with global warming. DNA-based CPUs also provide a platform for complex calculations like deep learning solutions and mathematical modeling," says Dr. Youngjun Song from INU, who led the study.

Dr. Song and team used 3D printing to fabricate their microfluidic chip, which can execute Boolean logic, one of the fundamental logics of computer programming. Boolean logic is a type of true-or-false logic that compares inputs and returns a value of 'true' or 'false' depending on the type of operation, or 'logic gate,' used. The logic gate in this experiment consisted of a single-stranded DNA template. Different single-stranded DNA were then used as inputs. If part of an input DNA had a complementary Watson-Crick sequence to the template DNA, it paired to form double-stranded DNA. The output was considered true or false based on the size of the final DNA.What makes the designed chip extraordinary is a motor-operated valve system that can be operated using a PC or smartphone. The chip and software set-up together form a microfluidic processing unit (MPU). Thanks to the valve system, the MPU could perform a series of reactions to execute a combination of logic operations in a rapid and convenient manner.

With such a convincing proof of concept, it's not hard to imagine DNA-based computers becoming everyday objects quite soon!

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IT BULLETIN **DATE: 23.09.2021**

LARGE-SCALE QUANTUM COMPUTERS

Researchers hope to create a large-scale quantum computers within a decade. Researchers at Japan's Riken Center for Emergent Matter Science have achieved a major step forward in increasing the scalability of quantum computers. Instead of simply incrementing the total qubits in a system, the researchers have demonstrated a triple-qubit, silicon-based quantum computing mechanism.

Qubits, the quantum equivalent of the traditional computing bits, were previously only shown to work in entangled pairs. The new researcher however demonstrates that entanglement can actually be done with three qubits.

"Two-qubit operation is good enough to perform fundamental logical calculations. But a three-qubit system is the minimum unit for scaling up and implementing error correction," notes Seigo Tarucha who led the team of Riken researchers.

Reporting on the development, Tom's Hardware explains that entanglement is the state in which qubits mirror each other perfectly, so much so that any change to one qubit is instantly replicated in the other.

As of now, quantum computers work by entangling two distinct qubits which reportedly is the secret sauce that helps them tackle complex workloads.

To help comprehend the significance of the latest achievement, Tom's Hardware equivate a qubit to a single core. This means that thanks to Riken's researchers the maximum number of cores in a quantum computer has now been bumped from two cores to three, which theoretically paves way for building multiple triple-core quantum computing subdivisions, instead of dual-core ones.

Of course, the work is still in its early stages, but Tarucha has plans to extend the research to pave the way for "a large-scale quantum computer within a decade."

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IT BULLETIN **DATE: 24.09.2021**

THE INTERNET KNOWS YOU BETTER THROUGH YOUR DIGITAL DEVICES

The traces we leave on the Web and on our digital devices can give advertisers and others surprising and sometimes disturbing, insights into our psychology.

Users' digital footprints disclose certain preferences and characteristics such as their personality or mood.

- **Companies are very interested** in such data. Automated language analysis is already being used in the hiring of personnel. And advertising seems to be more successful when its message is adapted to the personality or mood of the customer.
- **These technological advances** open opportunities not only for commerce but for public health. Among those possibilities: smartphone apps may in the future recognize when a bipolar patient is slipping into a depressive phase and can inform the person's physician.
- **But the technology** poses risks. Unless it is managed carefully and ethically, it can invade privacy.

The Web site prompts you to enter some text such as e-mails or blogs along with information about your activities on social media. You do not have to provide social media data but if you want to do it, you either allow Apply Magic Sauce to access your Facebook and Twitter accounts or follow directions for uploading selected data from those sources, such as your history of pressing Facebook's "like" buttons.

Examining the psychological profile that the algorithm derives from your online traces can certainly be entertaining. On the other hand, the algorithm's ability to draw inferences about us illustrates how easy it is for anyone who tracks our digital activities to gain insight into our personalities and potentially invade our privacy. What is more, psychological inferences about us might be exploited to manipulate, say, what we buy or how we vote.

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IT BULLETIN **DATE: 27.09.2021**

BIG DATA PRIVACY FOR MACHINE LEARNING JUST GOT 100 TIMES CHEAPER

Rice University computer scientists have discovered an inexpensive way for tech companies to implement a rigorous form of personal data privacy when using or sharing large databases for machine learning.

Using a technique called locality sensitive hashing, Shirvastava and Coleman found they could create a small summary of an enormous database of sensitive records. Dubbed RACE, their method draws its name from these summaries, or "repeated array of count estimators" sketches.

RACE sketches are both safe to make publicly available and useful for algorithms that use kernel sums, one of the basic building blocks of machine learning and for machine-learning programs that perform common tasks like classification, ranking and regression analysis. RACE could allow companies to both reap the benefits of large-scale, distributed machine learning and uphold a rigorous form of data privacy called differential privacy.

Differential privacy, which is used by more than one tech giant, is based on the idea of adding random noise to obscure individual information."There are elegant and powerful techniques to meet differential privacy standards today, but none of them scale," Coleman said. "The computational overhead and the memory requirements grow exponentially as data becomes more dimensional."

Data is increasingly high-dimensional, meaning it contains both many observations and many individual features about each observation.RACE sketching scales for high-dimensional data. The sketches are small and the computational and memory requirements for constructing them are also easy to distribute.

"RACE changes the economics of releasing high-dimensional information with differential privacy. It's simple, fast and 100 times less expensive to run than existing methods."This is the latest innovation from Shrivasta and his students who have developed numerous algorithmic strategies to make machine learning and data science faster and more scalable. The research was supported by the Office of Naval Research's Basic Research Challenge program, the National Science Foundation, the Air Force Office of Scientific Research and Adobe Inc.

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IT BULLETIN **DATE: 28.09.2021**

TIPS TO CREATE STRONG PASSWORDS

We should never use phone numbers, addresses, birthdays, your name, family member's names, or pet's names in your password. Select a combination of uppercase and lowercase letters, numbers, and symbols for your passwords. Never use common passwords like "123456," "password," or "qwerty". Make sure your passwords are at least eight characters long. Passwords with more characters and symbols are more difficult to guess.

Don't use common words or phrases in your passwords. If you want to use them, alter the word or abbreviate the phrase. For example, if you want to use the word "eleven" you can convert it to "e13v3N." Or if you want to use the phrase "I love to shop" you can change it to "1luv2sh0p." Make it even stronger by adding symbols and punctuation: "#1Luv2sh0p!"

Opt for two-factor authentication (2FA) or multi-factor authentication whenever offered to add an extra layer of protection to your accounts. For example, in addition to logging in with a username and password, you'll use an additional code received via text to complete your account login.

Use password management systems to help you create and remember complex passwords. "Using strong passwords across all your online accounts ensures a safer and securer digital life. When you create a strong password, it not only helps protect your device from viruses, spyware, malware, and ransomware attacks but it also helps give you that extra layer of safety in the event of your online privacy being exposed.

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IT BULLETIN **DATE: 29.09.2021**

GOOGLE IS ADDING MORE PARENTAL CONTROLS TO CHROMEBOOKS KIDS CAN NOW USE ANDROID APPS

Google has had an app called Family Link for a little over a year now, designed to give parents more control over their kids' use of their Android phones and even turn them off at dinner time. Now it's expanding the app to support Chromebooks, adding many of the same features to that platform.

Parents will be able to whitelist websites that they're okay having their children visit, set screen time limits, establish a bedtime, remotely lock devices and monitor usage. And for the first time, Chromebooks set up with supervised accounts will gain access to Android apps from the Google Play store.

Android apps can be whitelisted for use or hidden on the device which could be useful for shared devices. Parents will also be able to manage in-app purchases on supervised accounts.

If you've been following the saga of Android on Chrome OS, you have probably mostly thought of it as simple access to Google Play apps. But in fact, many parts of Chrome OS itself have taken on elements of Android including the new quick settings menu and even the software keyboard. It seems like that deeper integration may be helping to enable some of these new parental control features.

One interesting idea here is that Google will let you set up supervised accounts for teenagers but the teens will have the ability to turn off those controls. You'll get an alert when that happens and then probably have a very exciting conversation about your teenager's Big Grown Up Moment of taking responsibility for their computer use.

Although Chromebooks don't make great tablets (yet), they do have one very significant advantage over the iPad: they're excellent as shared devices. Because they support multiple accounts, it's easier to have one gadget that anybody in the family can log into without being able to access each other's stuff.

The Android games you can get on the Google Play Store might not impress your kids as much as what they can get on an iPad, but at least you'll know they're not going to accidentally delete your work email when you hand them a Chromebook.

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IT BULLETIN **DATE: 30.09.2021**

GOOGLE MOVES TO MAKE ANDROID APPS MORE PRIVATE

Google's plan to limit data tracking on its Chrome browser has been extended to cover apps on its Android-based smart phones. Its so-called Privacy Sandbox project aims to curb the amount of user data that advertisers can gather. Rival Apple now forces app developers to ask permission from users before tracking them.

Apple decided that app developers had to explicitly ask for permission from users to use IDFA (Identifier for Advertisers). Data from advertising company Flurry Analytics, and published by Apple, suggests that US users are choosing to opt out of tracking 96% of the time.

Google, unlike Apple, relies on advertising revenue. Google's attempts to create alternatives to third party cookies on its Chrome browser have not gone entirely smoothly.

Real-time bidding

Its successor, Topics, was announced recently and aims instead to group users in topic clusters selected out of about 350 categories such as fitness or travel. When someone visits a website, Topics will show the site and its advertising partners three of their interests from the previous three weeks.

The Competitions Market Authority has been scrutinising Google's transition to more privacy-focused systems and said of its plans to extend them to Android apps: "We will continue to monitor this closely and engage with Google on the nature and detail of its proposals."

The average app includes at least six third-party trackers that are there solely to collect and share online data, according to a report commissioned by Apple last year and any one data broker is estimated to have data on up to 700 million consumers, according to research firm Cracked Lab.

Regulators, such as the UK's Information Commissioner's Office, are investigating the advertising ecosystem, especially the way ads are sold - known as real-time bidding - which automatically places billions of online adverts on web pages and apps every day.

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IT BULLETIN **DATE: 01.10.2021**

SCREEN-SHARING SCAMS ON THE RISE, WATCHDOG WARNS

The Financial Conduct Authority (FCA) is warning people to beware of people posing as investment advisers and offering to help them set up new schemes via online meeting platforms.

They ask their victim to share the screen and enable remote access - which hands over control of their device and, potentially their bank account. About 2,100 cases have been reported to the FCA since July 2020.More than £25m was stolen in the 15 months from January 2021. Screen-sharing has become a familiar part of work life, as people use popular online meeting programmes in their jobs.

Remote access software is a legitimate tool for services like IT support to troubleshoot problems without being in the room. But scammers are increasingly hijacking this familiarity to lure victims into granting access to more than just a picture of their screen. They are then persuaded to grant the fraudsters control of their computer, by either expanding permissions or downloading remote access software, giving them direct access to online bank accounts. It also means they can install their own malware giving them full access at any time.

The criminals do this under the guise of being helpful - offering to set up a new investment scheme and monitor it. Mark Steward, executive director of enforcement at the FCA, said: "Investment scams can happen over many months, but sharing your screen without making the proper checks can change everything in an instant."

If scammers gain control of your computer, it gives them "access to your sensitive banking and investment information, the freedom to browse at their leisure, and the ability to take whatever details they want", Mr Steward adds.

The FCA's ScamSmart website has further advice. Rocio Concha, director of policy and advocacy at consumer watchdog said: "Screen-sharing scams are often incredibly sophisticated and, as the FCA rightly recognises, even the most experienced investors can be taken in by these fraudsters.

"If you have shared your screen with a scammer, try to take back control of your device by using the disconnect button, enabling you to end the session. "As a precaution, you can turn off wi-fi at the router or unplug the network cable to fully disconnect from any external connection."

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IT BULLETIN **DATE: 04.10.2021**

INDIA MOST HIT BY RANSOMWARE ATTACKS IN 2021

According to Sophos, 78 per cent of the organisations that had data encrypted paid the ransom to get their data back, even if they had other means of data recovery, such as backups.

"While the average expense of recovering from an incident declined to $2.8 million from $3.4 million in 2020, it remains a significant number that should be sounding alarm bells among management teams of Indian firms. In 2021, the percentage of victim organisations directly impacted by ransomware increased from 68 per cent to 78 per cent. Ransomware isn't something that might happen, it is something that will happen if you haven't taken the precautions necessary."

Almost 89 per cent of mid-sized organisations had cyber insurance that covers them in the event of a ransomware attack and, in 100 per cent of incidents, the insurer paid some or all the costs incurred. "94 per cent of those with cyber insurance said that their experience of getting it has changed over the last 12 months, with higher demands for cybersecurity measures, more complex or expensive policies and fewer organizations offering insurance protection," the company said in its press release.

Sophos recommends the following practices to help defend against ransomware and related cyberattacks:

- Install and maintain high-quality defenses across all points in the organization's environment. Review security controls regularly and makes sure they continue to meet the organization's needs.
- Proactively hunt for threats to identify and stop adversaries before they can execute their attack – if the team lacks the time or skills to do this in house, outsource to a Managed Detection and Response (MDR) specialist.
- Harden the IT environment by searching for and closing key security gaps: unpatched devices, unprotected machines, open RDP ports, etc.
- Prepare for the worst. Know what to do if a cyber-incident occurs and keep the plan updated.
- Make backups and practice restoring from them so that the organization can get back up and running as soon as possible with minimum disruption.

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IT BULLETIN **DATE: 05.10.2021**

PEOPLE CAN NOW GET CONTACT INFO CUT FROM GOOGLE SEARCH RESULTS

Personal contact information such as your phone number, email or home address, can now be removed from Google search results. It's important to remember that removing content from Google Search won't remove it from the internet, which is why we may wish to contact the hosting site directly, if we're comfortable doing so.

However, websites may not respond to requests for removal. Even if someone hosting data agrees to removal, personal information may also be discoverable on archived versions of web pages. The information may also be hosted on websites that are designed not to appear in Google search results, but whose location is widely known by criminals.

'Doxxing'

Google already lets people request the removal of certain types of sensitive information, for example under-18s are able to ask for photos of themselves to be removed from Google's image search results.

It already allows users to remove select medical and financial records from search results and contact information disclosed through "doxxing" accompanied by "explicit or implicit threats". 'Doxxing' refers to the release of private information about individuals online, usually with malicious intent.

However, the new update allows personal contact information to be removed if it "has potential to create significant risks of identity theft, financial fraud, harmful direct contact, or other specific harms".

Public record

Google says that when it receives a request it may:

- Remove the link where the information may be found for all searches.
- Remove link where the information may be found, but only for searches that include your name.

But it also warns that in some circumstances it may deny the request. Michelle Chang wrote that Google would "ensure that we're not limiting the availability of other information that is broadly useful, for instance in news articles". "We'll also evaluate if the content appears as part of the public record on the sites of government or official sources. In such cases, we won't make removals."

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IT BULLETIN **DATE: 06.10.2021**

GLOBAL 5G STANDARDS TO PUSH MANUFACTURING OPERATIONS IN INDIA: INTERNATIONAL TRADE BODIES

New polymer formulations in response to highly innovative fifth generation (5G) telecommunications network development that will help increase speed to market and design flexibility for 5G base station antenna manufacturers have been unveiled by PolyOne Corp., Avon Lake, Ohio.

The new customizable Edgetek Formulations for 5G (currently 12 all based on PPE resin with dielectric constant (DK) ranging from 3.0 to 9.0), feature specific Dk values and reduced dissipation factors (Df), enabling faster design qualification and shorter lead times. Another new formulation within this product family is compatible with SMT (surface mount technology), allowing greater design flexibility and increased speed to market for 3D circuit boards. Both materials reportedly can help 5G base station antenna manufactures to streamline their design and process development.

Says Flight Xu, General Manager, PolyOne's specialty engineered materials Asia, "Telecom equipment manufacturers all over the world are readying themselves for the explosion of 5G. We see 5G deployment as a tipping point in which seamless connectivity will become an expectation not only for mobile users, but for industry as well. We're confident that our innovative material solutions and product development support will enable telecom manufacturers to make that expectation a reality."

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IT BULLETIN **DATE: 07.10.2021**

MOBILE PROVIDER TRACKING YOUR LOCATION

Right now, there is a good chance your phone is tracking your location even with GPS services turned off. That's because, to receive service, our phones reveal personal identifiers to cell towers owned by major network operators. This has led to vast and largely unregulated data-harvesting industries based around selling users' location data to third parties without consent.

For the first time, researchers at the University of Southern California (USC) Viterbi School of Engineering and Princeton University have found a way to stop this privacy breach using existing cellular networks. The new system, presented at USENIX Security conference, protects users' mobile privacy while providing normal mobile connectivity.

The new architecture called "Pretty Good Phone Privacy" or PGPP, decouples phone connectivity from authentication and billing by anonymizing personal identifiers sent to cell towers. The software-based solution, described by the researchers as an "architecture change," does not alter cellular network hardware.

"We've unwittingly accepted that our phones are tracking devices in disguise, but until now we've had no other option using mobile devices meant accepting this tracking," said study co-author Barath Raghavan, an assistant professor in computer science at USC. "We figured out how to decouple authentication from connectivity and ensure privacy while maintaining seamless connectivity, and it is all done in software."

Decoupling authentication and phone connectivity

Currently, for the phone to work, the network has to know our location and identify as paying customer. As such, both your identity and location data are tracked by the device at all times. Data brokers and major operators have taken advantage of this system to profit off revealing sensitive user data .

Since the system works by stopping a phone from identifying its user to the cell tower, all other location-based services such as searching for the nearest gas station, or contact tracing still work as usual. The researchers hope the technology will be accepted by major networks as default, particularly with mounting legal pressure to adopt new privacy measures.

For the first time in human history, almost every single human being on the planet can be tracked in real-time.

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IBM UNVEILS WORLD'S FIRST 2NM CHIP MAKING TECHNOLOGY

IBM has said it has developed the world's first 2nm chip making technology that should bring power and speed improvements to future computer chips. The industry has been developing ever smaller chip designs; the most modern chipsets used by the likes of Samsung, Apple and Qualcomm are now built on 5nm technology.

IBM's breakthrough represents another step on the quest for miniaturisation and it is projected to achieve 45 percent higher performance, or 75 percent lower energy use, than today's most advanced 7nm node chips.

The technology firm said the potential benefits of the chips could include a quadrupling of cell phone battery life, or slashing the carbon footprint of data centres. Data centres account for one per cent of global energy use: a figure predicted to rise dramatically over the coming years. Changing all of their servers to 2nm-based processors could potentially reduce that number significantly, IBM said.

The IBM innovation reflected in this new 2nm chip is essential to the entire semiconductor and IT industry. It is the product of IBM's approach of taking on hard tech challenges and a demonstration of how breakthroughs can result from sustained investments and a collaborative R&D ecosystem approach.

Fitting more transistors on a chip also means processor designers have more options to add innovative, specialised components to improve capabilities for specific applications like AI and cloud computing, as well as new pathways for hardware-enforced security and encryption.

IBM has achieved a number of semiconductor breakthroughs over the years, including the first implementation of 7nm and 5nm process technologies and single cell DRAM. The technology will likely take several years to come to market. IBM used to be a major manufacturer of chips, but it now outsources its high-volume chip production to Samsung.

The advance helps secure the continuation of Moore's law, an observation first made by Intel founder Gordon Moore in 1965 that the number of transistors in a dense integrated circuit (IC) would double about every two years. While the law has largely been maintained up to now, innovation in this area is slowing as the size of transistors reaches the near-atomic level.

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