New attack could make website security captchas obsolete
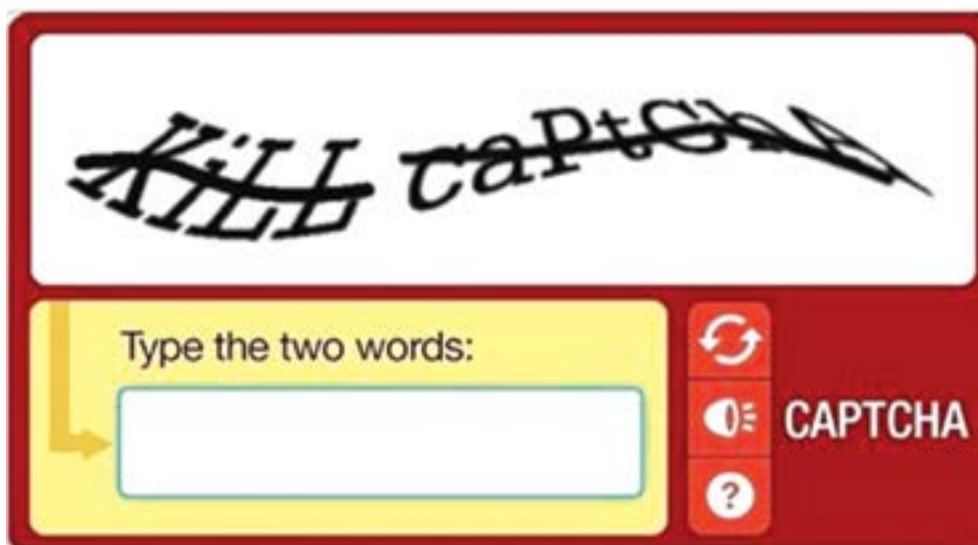
Researchers have created new artificial intelligence that could spell the end for one of the most widely used website security systems.

The new algorithm, based on deep learning methods, is the most effective solver of captcha security and authentication systems to date and is able to defeat versions of text captcha schemes used to defend the majority of the world's most popular websites.

Text-based captchas use a jumble of letters and numbers, along with other security features such as occluding lines, to distinguish between humans and malicious automated computer programmes. It relies on people finding it easier to decipher the characters than machines.

Developed by computer scientists at Lancaster University in the UK as well as Northwest University and Peking University in China, the solver delivers significantly higher accuracy than previous captcha attack systems, and is able to successfully crack versions of captcha where previous attack systems have failed.

The solver is also highly efficient. It can solve a captcha within 0.05 of a second by using a desktop PC.

It works by using a technique known as a 'Generative Adversarial Network', or GAN. This involves teaching a captcha generator programme to produce large numbers of training captchas that are indistinguishable from genuine captchas. These are then used to rapidly train a solver, which is then refined and tested against real captchas.

By using a machine-learned automatic captcha generator the researchers, or would be attackers, are able to significantly reduce the effort, and time, needed to find and manually tag captchas to train their software. It only requires 500 genuine captchas, instead of the millions that would normally be needed to effectively train an attack programme.

Previous captcha solvers are specific to one particular captcha variation. Prior machine-learning attack systems are labour intensive to build, requiring a lot of manual tagging of captchas to train the systems. They are also easily rendered obsolete by small changes in the security features used within captchas.

Because the new solver requires little human involvement it can easily be rebuilt to target new, or modified, captcha schemes.

The programme was tested on 33 captcha schemes, of which 11 are used by many of the world's most popular websites -- including eBay, Wikipedia and Microsoft.

Dr. Zheng Wang, Senior Lecturer at Lancaster University's School of Computing and Communications and co-author of the research, said: "This is the first time a GAN-based approach has been used to construct solvers. Our work shows that the security features employed by the current text-based captcha schemes are particularly vulnerable under deep learning methods.

"We show for the first time that an adversary can quickly launch an attack on a new text-based captcha scheme with very low effort. This is scary because it means that this first security defence of many websites is no longer reliable. This means captcha opens up a huge security vulnerability which can be exploited by an attack in many ways.

Mr Guixin Ye, the lead student author of the work said: "It allows an adversary to launch an attack on services, such as Denial of Service attacks or spending spam or fishing messages, to steal personal data or even forge user identities. Given the high success rate of our approach for most of the text captcha schemes, websites should be abandoning captchas."

Researchers believe websites should be considering alternative measures that use multiple layers of security, such as a user's use patterns, the device location or even biometric information.

AI picks the best treatment

Scientist have developed a new artificial intelligence (AI) technology that can compare different treatments and identify the most suitable alternative for a patient.

Traditionally, the effectiveness of medical treatments is studied by randomised trials where patients are randomly divided into two groups: one of the groups is given treatment, and the other a placebo.

Scientists including those from Aalto University and University of Eastern Finland showed that there may be other ways to evaluate treatment effectiveness.

According to Professor Olli-Pekka Ryynanen from the University of Eastern Finland, the method opens up new and significant avenues for the development of medical research.

"We can now predict the treatment outcome in individual patients and to evaluate existing and new treatment methods. With this method, it is also possible to replace some randomised trials with modeling," said Ryynanen.

In the study published in the journal Healthcare Informatics Research, the researchers used the method to evaluate treatment effectiveness in obstructive sleep apnoea.

However, the method can also be applied to other treatments, researchers said.

The study showed that in patients with sleep apnoea, the continuous positive airway pressure (CPAP) treatment reduced mortality and the occurrence of myocardial infarctions and cerebrovascular insults by five percent in the long term.

For patients with heart conditions, CPAP was less beneficial.

AI Cube, an Intelligent Engine for Mobile Advertising & Analytics

RevX, a mobile advertising technology company, announced an intelligent mobile advertising engine "aiCube" that brings app store data intelligence to mobile programmatic buying. The aiCube technology automatically validates every app publisher across 20+ programmatic exchanges with data from Google and Apple stores for quality issues such as malware, adware, misleading app data, and brand-unsafe contents. Further, aiCube fills missing data such as app category and publisher names in bid requests for precise targeting and optimization.

In addition, aiCube also adds a layer of audience intelligence and artificial intelligence for cohort analytics, look-a-like modeling, and budget allocation for performance optimization. Apart from driving re-engagement on active and lapsed users, advertisers can connect their first-party data to aiCube for programmatically acquiring new users through look-a-like audience models along with running high-impact brand experience campaigns.

"In-app programmatic is relatively new and advertisers don't yet have tools to verify publisher quality and make informed decisions to buy brand-safe inventory, transparently, that delivers performance and value. aiCube is an industry-first platform that builds a holistic profile of every publisher combining programmatic data with app stores' data and historical media performance for better media planning, targeting and optimization," said Mukesh Agarwal, RevX CEO.

"Google and Apple continue to unpublish malicious apps from the stores. In 2017, Google removed 70,000 such apps from the Play Store. However, these apps continue to sell ads through different channels including programmatic and deceive ad buyers into buying poor quality, fraudulent inventory. aiCube engine removes about 18% of the programmatic inventory from hundreds of thousands of apps based on AI-driven quality scoring that utilizes app store metadata" added Mukesh Agarwal.

RevX drives growth for 8/10 top mCommerce apps in India, Middle East, and South East Asia with its aiCube engine. Further, some of the leading mobile ad networks license RevX platform to drive the growth for their customers across the globe.

aiCube is available as part of RevX's self-serve DSP platform or managed service to execute app performance and brand marketing campaigns. RevX's DSP platform is integrated with more than 20 leading mobile and video exchanges, giving access to 1.2B verified mobile devices globally.

VR holds upper hand

According to new Stanford research, people who saw in virtual reality, also known as VR, what it would be like to lose their jobs and homes developed longer-lasting compassion toward the homeless compared to those who explored other media versions of the VR scenario, like text.

"Experiences are what defines us as humans, so it's not surprising that an intense experience in VR is more impactful than imagining something," said Jeremy Bailenson, a professor of communication and a co-author of the paper.

As part of the research, Herrera, along with Stanford psychology scholar Jamil Zaki, Bailenson and psychology graduate student Erika Weisz, conducted two two-month-long studies with more than 560 participants, age 15 to 88 and representing at least eight ethnic backgrounds. Researcher Elise Ogle was also a co-author on the paper.

During the research, some participants were shown "Becoming Homeless," a seven-minute VR experience developed by Stanford's Virtual Human Interaction Lab.

In "Becoming Homeless," a narrator guides participants through several interactive VR scenarios that would happen if they lost their jobs. In one scene, the participant has to look around an apartment to select items to sell in order to pay the rent. In another scene, the participant finds shelter on a public bus and has to protect belongings from being stolen by a stranger.

The researchers found that participants who underwent "Becoming Homeless" were more likely to have enduring positive attitudes toward the homeless than people who did other tasks, such as reading a narrative or interacting with a two-dimensional version of the scenario on a desktop computer. The same people were also more likely to sign a petition in support of affordable housing, according to the research.

"Taking the perspective of others in VR produces more empathy and prosocial behaviors in people immediately after going through the experience and over time in comparison to just imagining what it would be like to be in someone else's shoes," Herrera said. "And that is an exciting finding."

The studies' results showed that participants in the "Becoming Homeless" condition were significantly more likely to agree with statements like "Our society does not do enough to help homeless people." They were also more likely to say that they personally cared "very much" about the plight of homeless people. The research also showed that their empathetic attitudes toward the homeless endured.

In addition, according to the first study, 82 percent of participants in the VR condition signed a petition supporting affordable housing versus 67 percent of the people who read a narrative that asked them to imagine becoming homeless.

In the second study, 85 percent in the VR condition signed the petition in comparison to 63 percent who read the narrative. Of participants who went through the two-dimensional version of the VR experience, 66 percent signed the petition.

"What's special about this research is that it gives us longitudinal evidence that VR changes attitudes and behaviors of people in a positive way," Bailenson said.

Robust electronics:
Reflecting antiferromagnetic arrangements

A team led by Rutgers University and including scientists from the U.S. Department of Energy's (DOE) Brookhaven National Laboratory has demonstrated an x-ray imaging technique that could enable the development of smaller, faster, and more robust electronics.

Described in a paper published recently, the technique addresses a primary limitation in the emerging research field of "spintronics," or spin electronics, using magnetic materials known as antiferromagnets (AFMs): the ability to image antiphase magnetic domains.

Electrons in magnetic atoms point, or "spin," in an up or down direction. In all magnetic materials, there are distinct regions - magnetic domains - in which the electron spins are arranged in a regular manner.

Several configurations are possible depending on the type of magnetism. In AFMs, the spins on adjacent atoms point in opposite directions (e.g., up-down-up-down). While the spins within each domain

are uniformly ordered, those within adjacent domains are aligned in a different way. For example, in AFMs, the spins in one domain may all be arranged in an up-down pattern, while down-up in a neighbouring domain. Imaging these "antiphase" domains and the transitions (walls) that exist between them is the first step in being able to manipulate the magnetic state of AFMs to develop spintronic devices.

"Ultimately, the goal is to control the number, shape, size, and position of the domains. In general, the electronic properties of domain walls can be different from those in the bulk of the material, and we can take advantage of this fact.

Finding a way to control the domains and their walls by external perturbations is key to engineering devices that can efficiently store and process information," said co-author Claudio Mazzoli, lead scientist at the Coherent Soft X-ray Scattering (CSX) beamline at Brookhaven Lab's National Synchrotron Light Source II (NSLS-II) - a DOE Office of Science User Facility - where

the technique was demonstrated.

Conventional electronics such as computer chips rely on the transport of electrical charge carriers, or electrons, to operate. As these charges move around, they dissipate energy in the form of heat, limiting device efficiency.

Spintronics exploits another intrinsic property of electrons: spin. Because electron spins can be flipped from one magnetic polarity to another much faster than charge can be moved around, devices based on spintronics can be intrinsically faster than today's electronics.

To date, most spintronic devices have been based on ferromagnets (FMs) - the type of magnets we are most familiar with, as seen on fridges and in computer hard drives. In response to an external magnetic field, the domains in FMs align in a parallel fashion according to the direction of the field.

However, AFMs offer several advantages over FMs. For example, because the spins in AFMs cancel out, these materials have

no large-scale magnetism. Thus, their spin orientation can be flipped even faster, and they do not generate stray magnetic fields that can interfere with other sources of magnetization. In addition, they are much more resilient to external magnetic fields.

"Antiferromagnets are intrinsically better protected against losing information through interactions with the environment, including between domains.

Thus, devices based on AFM materials can be made smaller, with information packed more closely together to yield higher storage capacity," explained senior author and Rutgers physics professor Valery Kiryukhin.

But the same characteristics that make AFMs appealing for spintronics also make these materials difficult to control.

"In order to control them, we first need to answer very basic questions, such as how the domains are arranged in space and how they and their walls move in response to external perturbations like temperature changes, electric fields, and light pulses," said Mazzoli.

AI to combat smishing

Smishing refers to a combination of SMS and phishing. It is a form of financial fraud where clicking on a certain web address sent via text message installs malware that can extract private information or money via a user's mobile device.

The FSS said that an increasing number of smishing cases in recent years involve attracting potential victims with advertisements for low-interest loans and requiring them to send a certain amount of money in advance.

The smishing prevention app that uses the AI algorithm warns the user by adding indications to text messages that may be smishing attempts.

The FSS plans to make public the AI algorithm on smishing prevention and make it readily available for financial companies and fintech firms free of charge.

"It is hopeful that the AI system will prevent financial fraud by distinguishing and warning users of possible smishing attempts," said Shin Won, senior director of the FSS Financial Supervisory Research Center.

Google's AI powered fitness coach

New Delhi: More than 1,000 delegates and over 50 global CEOs are expected to participate in the two-day global aviation summit scheduled to be held in January next year, according to the Civil Aviation Ministry.

The summit, to be held on January 15 and 16 in Mumbai, would provide a platform for the stakeholders to brainstorm on the future of aviation industry and identify the growth areas.

The ministry along with industry body

Ficci would be organising the summit with the theme 'Flying for all -- especially for the next 6 billion'.

Among others, the future of drones, sustainable growth of aviation, cargo and logistics in the aviation industry would be discussed.

Speaking at a curtain raiser function for the summit, Civil Aviation Minister Suresh Prabhu the event would be a first of its kind and emphasised that aviation sector is all about team work.

As per the minis-

try, over 1,000 delegates, more than 50 global CEOs as well as transport ministries and civil aviation authorities from various countries are expected to participate in the summit.

India is one of the fastest growing domestic aviation markets in the world and has been registered double-dig-

it growth continuously for nearly 50 months.

Civil Aviation Secretary R N Choubey said that with the summit, India as a country would provide intellectual leadership and also provide a platform where important stakeholders from all over the world can come and participate.

Smartphone-based system to detect milk adulteration

New Delhi: Researchers at Indian Institute of Technology (IIT), Hyderabad, have developed smartphone-based system to detect adulteration in milk.

It measures acidity in milk using an indicator paper that changes colour according to acidity. They have also developed algorithms that can be incorporated on to a smartphone to accurately detect the colour change.

IIT Professor Shiv Govind Singh, heading the research team, said, "While techniques such as chromatography and spectroscopy can be used to detect adulteration, such techniques generally require expensive set up and are not amendable to miniaturisation into low-cost easy-to-use devices.

First, the research team developed a sensor-chip based method for measuring pH level, an indicator of the acidity.

They used a process called "electrospinning"

to produce paper-like material made of nanosized nylon fibre, loaded with a combination of three dyes. The paper is "halochromic" which changes colour in response to changes in acidity.

The researchers have developed a prototype smart phone-based algorithm, in which, the colours of the sensor strips after dipping in milk are captured using the phone camera, and the data is transformed into pH range.

"We have used three machine-learning algorithms and compared their detection efficiencies in classifying the colour of the indicator strips.

On testing with milk spiked with various combinations of contaminants, we found near-perfect classification with accuracy of 99.71 per cent," Singh said.

The team will extend the research to study the effects of mobile phone cameras and lighting on detection efficiency.

A new way to study material stress using supercomputers

It's easy to take a lot for granted. Scientists do this when they study stress, the force per unit area on an object. Scientists handle stress mathematically by assuming it to have symmetry. That means the components of stress are identical if you transform the stressed object with something like a turn or a flip. Supercomputer simulations show that at the atomic level, material stress doesn't behave symmetrically. The findings could help scientists design new materials such as glass or metal that doesn't ice up.

That's according to a study and co-author Liming Xiong summarised the two main findings. "The commonly accepted symmetric property of a stress tensor in classical continuum mechanics is based on certain assumptions, and they will not be valid when a material is resolved at an atomistic resolution." Xiong continued that "the widely used atomic Virial stress or Hardy stress formulae significantly underestimate the stress near a stress concentrator such as a dislocation core, a crack tip, or an interface, in a material under deformation." Liming Xiong is an Assistant Professor in the Department of Aerospace Engineering at Iowa State University.

Xiong and colleagues treated stress in a different way than classical continuum mechanics, which assumes that a material is infinitely divisible such that the moment of momentum vanishes for the material point as its volume approaches zero. Instead, they used the definition by mathematician A.L. Cauchy of stress as the force per unit area acting on three rectangular planes. With

that, they conducted molecular dynamics simulations to measure the atomic-scale stress tensor of materials with inhomogeneities caused by dislocations, phase boundaries and holes.

The computational challenges, said Xiong, swell up to the limits of what's currently computable when one deals with atomic forces interacting inside a tiny fraction of the space of a raindrop. "The degree of freedom that needs to be calculated will be huge, because even a micron-sized sample will contain billions of atoms. Billions of atomic pairs will require a huge amount of computation resource," said Xiong.

What's more, added Xiong, is the lack of a well-established computer code that can be used for the local stress calculation at the atomic scale. His team used the open source LAMMPS Molecular Dynamics Simulator, incorporating the Lennard-Jones interatomic potential and modified through the parameters they worked out in the study. "Basically, we're trying to meet two challenges. One is to redefine stress at an atomic level. The other one is, if we have a well-defined stress quantity, can we use supercomputer resources to calculate it," Xiong said.

"Jetstream is a very suitable platform to develop a computer code, debug it, and test it," Xiong said. "Jetstream is designed for small-scale calculations, not for large-scale ones. Once the code was developed and benchmarked, we ported it to the petascale Comet system to perform large-scale simulations using hundreds to thousands of processors. This is how we used XSEDE

resources to perform this research," Xiong explained.

The Jetstream system is a configurable large-scale computing resource that leverages both on-demand and persistent virtual machine technology to support a much wider array of software environments and services than current NSF resources can accommodate.

"The debugging of that code needed cloud monitoring and on-demand intelligence resource allocation," Xiong recalled. "We needed to test it first, because that code was not available. Jetstream has a unique feature of cloud monitoring and on-demand intelligence resource allocation. These are the most important features for us to choose Jetstream to develop the code."

The simulation work, said Xiong, helps scientists bridge the gap between the micro and the macro scales of reality, in a methodology called multi-scale modelling. "Multi-scale is trying to bridge the atomistic continuum. In order to develop a methodology for multi-scale modelling, we need to have consistent definitions for each quantity at each level... This is very important for the establishment of a self-consistent concurrent atomistic-continuum computational tool. With that tool, we can predict the material performance, the qualities and the behaviours from the bottom up. By just considering the material as a collection of atoms, we can predict its behaviours. Stress is just a stepping stone. With that, we have the quantities to bridge the continuum," Xiong said.

Virus used to speed up modern computers

Singapore, Dec: Scientists have successfully used a virus to engineer a better type of memory in computers, which could boost their speed and efficiency.

The research, published in the journal Applied Nano Materials, found that a key way to develop faster computers is to reduce the millisecond time delays using the virus M13 bacteriophage, that infects the bacterium Escherichia coli.

These delays usually come from the transfer and storage of information between a traditional random access memory (RAM) chip and hard drive.

A RAM chip is fast but expensive and volatile, meaning it needs power supply to retain information, said researchers from the

Singapore University of Technology and Design (SUTD). Phase-change memory can be as fast as a RAM chip and can contain even more storage capacity than a hard drive.

The new memory technology uses a material that can reversibly switch between amorphous and crystalline states.

A binary-type material, for example, gallium antimonide, could be used to make a better version of phase-change memory.

However, the use of this material can increase power consumption and it can undergo material separation at around 347 degrees Celsius, researchers said.

Hence, it is difficult to incorporate a binary-type material into current integrated circuits, because it can separate at typical manufacturing temperatures at about 397

degrees Celsius.

"Our research team has found a way to overcome this major roadblock using tiny wire technology," said Assistant Professor Desmond Loke from SUTD.

The traditional process of making tiny wires can reach a temperature of around 447 degrees Celsius, a heat that causes a binary-type material to separate.

For the first time, the researchers showed that by using the M13 bacteriophage -- a low-temperature construction of tiny germanium-tin-oxide wires and memory can be achieved.

"This possibility leads the way to the elimination of the millisecond storage and transfer delays needed to progress modern computing," according to Loke.

3D-printed vegan steak

Jet Eat aims for its products to hit the markets by 2020.

"Meat is characterized by four components: the muscle, the fat within it, myoglobin and a connective tissue" Shitrit explained. "We replicated, with our 3D printer and precise formulations, the complex matrix that is meat."

Based in Ness Ziona, Jet Eat currently has five employees and has already raised funding from angel investors. The startup is currently working on raising money from seed investors.

Jet Eat is developing its products in collaboration with the Technion-Israel Institute of Technology, and is using the institution's labs for experiments, NoCamels reported.

The startup had earlier this year taken part in a four-month accelerator program launched by the European Institute of Innovation and Technology (EIT) Food Accelerator Network at the Technion. It was selected as a finalist to compete at the program's Food Venture Summit for an equity-free cash prize of $68,000, according to NoCamels.

Israel, and particularly Tel Aviv, has seen a significant rise in people who identify as vegan, and plant-based substitutions for meat will no doubt attract many members of the community. Such substitutions could also revolutionize how the world at large eats, striking a major blow against environmental degradation, animal suffering, and global health pandemics.

Switch from laps to tabs, best tabs on sale

iPad Pro 11:

The iPad Pro 11 is the best iPad you can buy right now. It may be expensive, but it's Apple's most powerful tablet and furthers the 2-in-1 design ethos if you spring for the pricey new keyboard cover folio. It has a laptop-like experience in design and performance, and the new Apple Pencil magnetically clips onto the frame of the new iPad Pro with superb speakers and a great new screen-to-body ratio.

However, there are setbacks for the iPad Pro 11 that you should be aware of. The iOS 12 software feels limiting when trying to multitask and perform laptop-like tasks. Another strictly mobile challenge: it doesn't have a headphone jack. If you want the standard 3.5mm jack in a computer-like device, you'll spring for an actual computer.

Weight: 468g | Dimensions: 247.6 x 178.5 x 5.9 mm | OS: iOS 12 | Screen size: 11-inch | Resolution: 2388 x 1668 pixels | CPU: A12X Bionic | Storage: 64GB/256GB/512GB/1TB | microSD slot: No | Battery: 7,812mAh | Rear camera: 12MP | Front camera: 7MP

Samsung Galaxy Tab S4:

The Samsung Galaxy Tab S4 is an upgrade over the Galaxy Tab S3 with an expanded 10.5-inch screen size and longer battery life, but it comes at a higher price and with a lofty promise to do so much more.

The idea behind Samsung Dex for its desktop interface, but it's non-touch-friendly UI, performance issues, and questionable optional keyboard case prevent it from being a true desktop replacement.

Weight: 482g | Dimensions: 249.3 x 164.3 x 7.1mm | OS: Android 8.1 | Screen size: 10.5-inch | Resolution: 1600 x 2560 | CPU: Snapdragon 835 | RAM: 4GB | Storage: 64GB/256GB | microSD slot: Yes | Battery: 7,300mAh | Rear camera: 13MP | Front camera: 8MP

iPad mini 4:

The best 7-inch tablet at the moment is definitely the iPad mini 4. If you like the look of Apple's new iPad 9.7 and the iPad Pro range, but find them a) too big, b) too expensive or c) both, then you're in luck as the diminutive iPad mini 4 gives you the best of Apple's tablet world in a form factor that's not only beautiful but highly portable.

It lacks the Pro features of a keyboard or Pencil support, but overall it's got a decent screen upgrade and more than enough power to enjoy every day.

Weight: 299g | Dimensions: 203.2 x 134.8 x 6.1mm | OS: iOS 11 | Screen size: 7.9-inch | Resolution: 1536 x 2048 | CPU: A8 | RAM: 2GB | Storage: 16GB/32GB/64GB/128GB | microSD slot: No | Battery: 5,124mAh | Rear camera: 8MP | Front camera: 1.2MP

New iPad:

This is the best tablet for the average consumer and for education, even if it isn't the most powerful one on sale. It works with the Apple Pencil, offering you the cheapest way to doodle on the 9.7-inch glass, though you can't get the Smart Keyboard with this non-Pro model. It also has the same luxurious metal unibody as the rest of Apple's iPad range, though notably, it's ever-so-slightly thicker than the iPad Air 2 or iPad Pro at 7.5mm.

With the Touch ID fingerprint sensor included, iOS 12 under the hood and up to 10 hours of battery life when web browsing or watching videos, it's a great media player and a strong tablet choice if you're not planning to use it heavily for productivity.

Weight: 469g | Dimensions: 240 x 169.5 x 7.5mm | OS: iOS 12 | Screen size: 9.7-inch | Resolution: 1536 x 2048 pixels | CPU: A10 Bionic | RAM: 2GB | Storage: 32/128GB | microSD slot: No | Battery: Up to 10 hours | Rear camera: 8MP | Front camera: 1.2MP

iPad Pro 10.5:

The iPad Pro 10.5-inch is one of the best tablets for anyone who wants a serious upgrade, even though the cheaper iPad 9.7 remains good enough for most people.

Apple's iPad Pro 10.5 has standout features that give it a productivity boost, including Apple Pencil and Smart Keyboard compatibility. With iOS 11 on board, this tablet is even a suitable laptop replacement for certain consumers.

The new ProMotion screen adds an impressive layer of fluidity to daily use and the smaller bezels mean you're getting far more display in a footprint not much bigger than the iPad Pro 9.7.

Weight: 469g | Dimensions: 250.6 x 174.1 x 6.1 mm | OS: iOS 11 | Screen size: 10.5-inch | Resolution: 1668 x 2224 | CPU: A10X Fusion | RAM: 4GB | Storage: 64GB/256GB/512GB | microSD slot: No | Battery: 8,134mAh | Rear camera: 12MP | Front camera: 7MP

iPad Pro 12.9:

It's the best productivity and entertainment tablet around thanks to its 12.9-inch screen, four speakers and the iOS 12 dock and multitasking interface. Apple has redesigned its Control Center interface to make app switching even easier, and this tablet is compatible with the Apple Pencil and Smart Keyboard.

It's biggest weakness? The iPad Pro 12.9-inch price and the size isn't a good fit for everyone. But If you can afford it and want the largest-sized iPad available, you're going to love this – it's a laptop-replacement for a lot of people out there.

Weight: 677g | Dimensions: 305.7 x 220.6 x 6.9 mm | OS: iOS 12 | Screen size: 12.9-inch | Resolution: 2048 x 2732 pixels | CPU: A10X Fusion | RAM: 4GB | Storage: 64GB/256GB/512GB | microSD slot: No | Battery: 10,875mAh | Rear camera: 12MP | Front camera: 7MP

A study on Perception

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Perception includes both touching base at implications and regularly prompting action. Notwithstanding the idea of the increase and past learning, perception is impacted by numerous different variables. Here an endeavour is made to present the different variables engaged with attention and perception. How exactly are we able to relate to discrete sensory experiences in order to see them as meaningful?

In other words, how exactly does perception occur? At any time we are attending to a number of stimuli. Say, when we are listening to the lecturer we are conscious of his voice, his movement, his appearance etc., but at the same time we respond to him as a single person. This shows that our response is integrated and organised to become meaningful. This process of organising and integrating discrete stimuli and responding to them meaningfully is known as perception.

At the beginning of this century, the structuralist perspective of perception was predominant. It held that similarly as awareness could be flawlessly dismembered into its segment parts, so additionally could perceptual encounters. In this way, the marvel of perception was, for the structuralists, the total of insignificant sensations and the importance related to it through experience.

The procedure of perception isn't absolutely coherent yet it is, to a huge degree, phenomenological. The German scholars made a qualification between physical reality and experienced reality or exceptional reality. One' truth of experience is those apparent items are constantly seen as one and not as gatherings or discrete bits of tactile data.

The 'Gestalt Psychologists' tests on creatures and fowls demonstrated that even during childbirth there are sure perceptual classifications and capacities effectively present. Riesen demonstrated that baby chicken raised in complete darkness could quickly recognize the state of a grain on the floor when brought into the light. More recently, experiments by Lipsitt and Siquel have shown that even- a few hours old human infants can distinguish between the sound of a buzzer and that of a bell. Thus the infant's world is neither confusion nor a chaos as it was earlier made out to be.

Creatures and people are blessed with the ability to compose and amass improvements which are uncertain, confounding and novel, accordingly making them significant or sensible. Gestalt clinicians have exhibited the standards which influence and direct the association so as to make the boost an important entire inside the perceptual field.

The distinction among powerful and insufficient correspondence can be followed to how well the imparting parties manage four parts of the interchanges procedure: perception contrasts, feelings, irregularities among verbal and nonverbal interchanges, and earlier trust (or doubt) between the gatherings.

The customary watertight qualifications among various types of conduct like learning perception, inspiration is likewise being surrendered bringing about an inclination to see human activities as including a whole life form completely incorporated and coordinated towards changing or adjusting to certain natural necessities.

This rising perspective has prompted a viewpoint called the value-based point of view or value-based methodology. One of the pioneers in advancing this methodology was Ames whose probes perception and perceptual figments are outstanding.

The value-based way to deal with perception fundamentally holds that any demonstration of perception whenever is impacted by the past learning background of the individual and takes a look at any perception as an exchange or a demonstration of managing nature and different upgrade circumstances and attempts to structure one's perception in a way that is maximally estimated to the universe of the real world.

One imperative angle in perception is the perception of profundity, the third measurement or separation we can see protests as being close or far away. The essential mental component can't clarify this. The inquiry has been a confounding one. One view holds that this capacity is natural while alternate holds this is a gained capacity. We see one rupee coin as one with a profundity. This is known as the third measurement.

To have a superior comprehension of the marvel of profundity one should think about the methods of insight of observation and nativism. Their perspectives developed as an outcome of the assurances and vulnerabilities about human instinct. Their key ideas with respect to the psyche negate one another but stay as the supporting mainstays of these perspectives right up 'til the present time. Observation asserts that the psyche during childbirth resembles a 'clean slate' while nativism guarantees that it resembles a 'veined marble'. John Locke was the primary scholar who recommended that the brain resembles a smooth wax table whereupon impressions of outer occasions print themselves. This is the core of induction.

Contrasting perceptions:

This is a standout amongst the most widely recognized interchanges hindrances. Individuals who have distinctive foundations of learning and experience frequently see a similar wonder from alternate points of view. Assume that another administrator compliments a mechanical production system specialist for his or her proficiency and amazing work. The director really acknowledges the labourer's endeavours and in the meantime needs to urge alternate representatives to copy his or her predecessor. Others on the mechanical production system, in any case, may respect the labourers being singled out for acclaim as a sign that he or she has been "adulating the manager." They may respond by prodding or being transparently unfriendly.

Singular perception of a similar correspondence along these lines contrasts profoundly.

Dialect contrasts are frequently firmly identified with contrasts in individual perceptions. For a message to be legitimately conveyed, the words utilized must mean a similar thing to the sender and recipient. Assume that distinctive bureaus of an organization get a reminder expressing that another item is to be created in 'a brief span'. Extraordinary consideration must be taken that the collector gets the message the sender expected.

Perceptual dissimilarity can emerge because of gender contrasts. In the most recent decade, look into has demonstrated that ladies and men in our way of life utilize unmistakable styles of communication and strength of character, in general, assume distinctive jobs when addressing one another. These distinctions can prompt miscommunication and struggle.

Defeating Differing perceptions:

To defeat contrasting perceptions and dialects, the message ought to be clarified so it tends to be comprehended by collectors with various perspectives and encounters. At whatever point conceivable, we ought to find out about the foundation of those with whom we will impart. Relating seeing the circumstance from the other individual's perspective – and postponing responses until the point that the pertinent data is weighted will decrease uncertainty. At the point when the subject is misty, making inquiries is basic. To conquer language contrasts, it is especially useful to request that the receiver affirm or rehash the principle of the message. At the point when all individuals from an association or gathering will be managing another wording, it might be advantageous to build up an instructional class of guidance to familiarize them with the new subject. Beneficiaries can be urged to make inquiries and to look for the elucidation of focuses that are hazy.

Procedures like perception and thought mirror the specific structure and elements of the world in which we happen to live. In any case, the fundamental component through which printing or engraving works is by the standards of affiliation, likeness, contiguity, and so forth. As per the empiricists, impressions orchestrate and rework themselves to frame the centre of our perceptions.

Motivation is another factor. The significance of necessities in impacting the procedure of perceptions has just been analyzed. The traditional analyses of Browne's and others have officially exhibited the job of motivational factors and needs during the time spent perception. Ordinarily in many demonstrations of perception both best down and base up procedures cooperate, each enhancing and supplementing the other. Top-down preparing assumes a more critical job where the boost circumstances are questionable, or moderately new.

The Two recorded errors of perceptions are Illusion and hallucination:

Illusion: A mixed up perception or mutilation in perception is called a dream. By and large, perception includes the incorporation of tactile encounters and present mental and organism conditions. At the point when the understanding of a specific boost turns out badly, it offers ascend to a wrong perception. For instance, a rope in obscurity is seen as a snake; a dry leaf moving along the ground in obscurity is seen as a moving creepy crawly. Additionally, in the phi-marvel, in spite of the fact that there is no physical development of the lights, they are as yet seen as moving.

A few hallucinations which happen usually in the perception of geometrical figures are talked about in this article. These hallucinations are famously known as 'geometrical optical fantasies' a term authored by Opel, a German researcher. He utilized this term to clarify the over-estimation of a hindered spatial degree contrasted with a continuous one. Afterwards, the term was utilized for any hallucination found in line illustrations.

Industry watch for future job opportunities

Over the past decade or so, information technology has been ruling the jobs market attracting the brightest and largest talent in the country. But no longer, as the manufacturing sector, part of the goods-producing industries group, is slowly catching up. Some of the industries that feature in this category include - the construction industry, automobile industry, food and beverage, pharmaceuticals, Textiles and Apparel, Computers and Electronics, petroleum, plastics and chemicals and several others.

Although India's manufacturing sector has long performed below potential, the country's rapidly expanding economy, growing by 7 percent a year over the past decade, has given a huge impetus to the manufacturing

Pharmaceutical industry

India's pharmaceutical industry has advanced hugely in the last three decades both within the country and in exports. As a result, India has emerged as the world's third largest producer of drugs in terms of volume. So also the exports of generic drugs which have in the last ten years been challenging the strong American drug lobby. The industry has posted double-digit growth making India one of the top five pharmaceutical emerging markets of the world. Developments in the health insurance, medical technology and mobile telephony have stimulated this growth also increasing healthcare access across India. With various financial schemes being made available, several pharma companies, including MNCs, have invested in the country, and set up state-of-the-art R & D facilities.

Access to a skilled workforce, low cost of production, high managerial and technical competence has enabled the pharma companies to grow at a compounded annual growth rate (CAGR) of more than 15 per cent over the past five years producing immense employment opportunities. There is also need for skilled manpower in Research and Development, Quality Assurance (QA), Intellectual Property (IP), manufacturing as well as sales and marketing.

Despite the challenges from China and its highly

sector. Moreover, a massive workforce, an emerging supply base, access to natural resources - iron ore and aluminum for engineered goods, cotton for textiles, and coal for power generation- and the 'Make in India' initiative is looking to boost the contribution made by the manufacturing sector from the current 17 per cent to 25 per cent of GDP by the end of year 2020.

It is, therefore, being estimated that the boost to manufacturing could create 60 million to 90 million new jobs and become an attractive investment destination for its own entrepreneurs and multinational companies. So the manufacturing sector in its upward journey can offer significantly good employment opportunities in the years ahead.

productive manufacturing industry, the Indian manufacturing industry is on the rise and will be providing huge employment opportunities in the years ahead.

Jobs :

While the pharmacy graduate is the one professional that comes to mind when thinking of the pharmaceutical industry, the professional field is not just limited to drugs or to medicines for human or animal use but also includes medical devices, diagnostics, clinical investigation, and most certainly R & D. This is undertaken by chemists, bio-chemists, biologists, even computer specialists who work with scientists. Almost one quarter of pharmaceutical employees work in production, which accounts for a wide variety of jobs: raw material control, packaging material, manufacturing, quality control of finished products, release of manufactured batches and packaging. Another field is that of pharmaceutical product marketing requiring people with leading-edge scientific, regulatory and marketing skills. Sales are handled by medical sales representatives who call on doctors and pharmacists.

Courses

BPharm/ DPharm

BSc/MSc chemistry/bio-chemistry/ micro-biology

PG Diploma in Clinical Research

BTech/ MTech Pharmaceutical Technology

Youth Summit

Five budding entrepreneurs and students – Divanshu Kumar, Senthil Kumar Gowri Sankar, Chetan N., Ajay Gopi, and Pritish Bhavnani – finished in the top five in the Social Entrepreneurship Pitch competition held as part of the Youth Speak Summit 2018 a collaborative initiative of the U.S. Consulate General, Chennai and NalandaWay Foundation held at the Madras Management Association Centre in Chennai.

The five winners presented individual ideas that spanned topics like creating classrooms

where students can learn from each other; shifting learning from black board to game board; creating a donor network and identifying blood donors; sensitizing farmers with sensors and monitoring technology; and establishing a self-help group that helps teenagers solve problems on their own.

The summit comprised curated talks, panel discussions, workshops, contests, and art by some of the most inspiring minds in the country. The sessions included talks by youth icons, discussions on issues,

storytelling by young change-makers, clinics for counseling, panel discussions, human library, workshops, skill sharing sessions, and much more. Officers from the U.S. Consulate General in Chennai – Lauren Lovelace, Consul for Public Diplomacy and Public Affairs; Kathleen Hosie, Information Officer; and Moulik Berkana, Cultural Affairs Officer moderated panel discussions on the topics - "Building an inclusive society," "Are we ready for tomorrow's jobs?," and "Do artists have a role in social action" respectively.