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

DEPARTMENT OF COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY

IT Bulletin

Volume 8 ***Issue 2*** ***March 2018***

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KONGU ARTS AND SCIENCE COLLEGE (AUTONOMOUS),ERODE

DEPARTMENT OF COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY

IT BULLETIN **Date : 11.12.2017**

MAJOR PLAYERS ROLL UP SLEEVES TO SOLVE OPEN SOURCE LICENSING PROBLEMS

Four big tech players this week moved to improve their handling of open source software licensing violations. Red Hat, Google, Facebook and IBM said they would apply error standards in the most recent GNU General Public License agreement, GPLv3 to all of their open source licensing, even licenses granted under older GPL agreements.

There is no procedure in the older GPLs that allowed a licensee to correct his mistakes. This will make everything consistent with GPLv3. Enforcement of GPL versions prior to v3 could be unpredictable. The way GPLv2 is often read, if you fail to comply with the terms of the license, it terminates without an opportunity to correct errors. You have no license, most errors tend to be inadvertent.GPLv3 provides an opportunity for a cure period. This provides the licensee peace of mind to know that he or she will be provided an opportunity to correct errors before the license is revoked.

Room for Error

Under the language in GPLv3, a user found violating a license can have it reinstated after correcting the violations. Initially, the license is renewed provisionally, but if the user doesn't hear from the owner of the license for 60 days, the renewal becomes permanent. A license also is reinstated permanently if a user fixes a violation within 30 days of being notified for the first time of the infraction. By using GPLv3's error standards, the companies will be removing some uncertainty in past versions of the agreement.

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IT BULLETIN **Date : 12.12.2017**

MAC OS HIGH SIERRA FLAW CREATES HIGH ANXIETY

Apple released Security Update 2017-001 to fix a serious flaw revealed earlier via Twitter. The patch is available for macOS High Sierra 10.13.1. macOS 10.12.6 and earlier versions are not affected by the flaw. The update is available for download and automatically installed on all systems running MacOS High Sierra 10.13.1.Apple greatly regret this error and apologize to all Mac users, both for releasing with this vulnerability and for the concern it has caused.

Internet Uproar

The MacOS High Sierra flaw allowed anyone take over a Mac. Attackers could log in as "root" with an empty password after clicking repeatedly on the login button. The tweet sparked a storm on the Internet. Many responders said they encountered the problem on testing their machines. In response to an apparent request from Apple Support, the flaw could be accessed by gong to System Preferences ->Users & Groups. Click the lock to make changes. Then use 'root' with no password. And try it for several times. Result is unbelievable.

The Threat Posed

It could be argued that the danger of the flaw might have been overstated. Attackers would have needed physical access to target machines unless Remote Desktop was enabled, but enterprises that enable Remote Desktop are likely to have strong cyber security fences.

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IT BULLETIN **Date : 14.12.2017**

NEW AWS PLATFORM PROMISES FAST AR, VR, 3D DEVELOPMENT

Amazon Web Services announced Amazon Sumerian, a new Web-based platform to help developers quickly design and deploy virtual reality, augmented reality and 3D applications without the requirement for complicated tools and training. The platform lets developers build realistic VR, AR or 3D environments, populate them with animated characters and 3D objects, and create scripts to determine how they interact with users of a particular application and with each other. Sumerian is compatible with head-mounted displays, Web browsers, mobile devices and digital signage. It will run in any browser that supports WebVR or WebGL graphics, including Daydream, HTC Vibe, Oculus Rift and iOS mobile devices.

All that is required to use Sumerian is to log on to the AWS Management Console, there is no requirement for software installation and no upfront costs. The only thing customers pay for is the storage required for 3D assets and the volume of traffic generated to access virtual scenes created on the platform. Developers can use the Sumerian editor to drag and drop 3D objects such as characters, landscapes or office environments like furniture or entire buildings according to AWS.Sumerian already is integrated with Amazon Polly and Amazon Lex, allowing the use of speech recognition, natural language understanding and text-to-speech.

Mapbox's points of interest and global terrain maps can be used with Amazon Sumerian to help bring location services to AR and VR applications. Amazon Sumerian will help developers overcome a couple of obstacles in AR/VR development, such as the lack of familiarity with 3D design and the limited number of templates for developing experiences.

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IT BULLETIN **Date : 15.12.2017**

RISKY SCRIPTS POSE THREAT TO WEB SURFERS

A popular technique used by website operators to observe the keystrokes, mouse movements and scrolling behavior of visitors on Web pages is fraught with risk, according to researchers at Princeton's Center for Information Technology Policy. The technique offered by a number of service providers uses scripts to capture the activity of a visitor on a Web page, store it on the provider's servers, and play it back on demand for a website's operators.

The idea behind the practice is to give operators insights into how users are interacting with their websites and to identify broken and confusing pages. You use session replay scripts to find out where all the dead zones are on your website. If you have a space for a click here for 10 percent off' and no one clicks there, there may be a problem with that page. The scripts also can be used for support and to troubleshoot user problems, Beardsley added.

Unlike typical analytics services that provide aggregate statistics, these scripts are intended for the recording and playback of individual browsing sessions, as if someone is looking over your shoulder. That means that whether a visitor completes a form and submits it to the website or not, any information keyed in at the website can be seen by the operator. Even if you deleted the data you entered into a form, it would be exposed and visible to the website owner. For leaks to be avoided, publishers would need to diligently check and scrub all pages that display or accept user information. For dynamically generated sites, the process would involve inspecting the underlying Web application's server-side code. Further, the process would need to be repeated every time a site was updated or the Web application powering it changed.

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IT BULLETIN **Date : 16.12.2017**

GOOGLE AND AMAZON SQUARE OFF, IGNORING CUSTOMERS IN THE MIDDLE

A long-simmering dispute between Google and Amazon escalated into a front-burner feud, following Google's decision to block its YouTube video service from Amazon's Echo Show, effective immediately. Google apparently decided to cut off YouTube as retaliation for Amazon's refusal to carry its products, including Chromecast and Google Home, on its website. Further, Amazon has not made its Prime Video service available to Google Cast users. Amazon also recently stopped selling some smart home products from Nest, another subsidiary of Google parent Alphabet

Echo Wars

Amazon and Google have competing video ecosystems and voice-activated devices, so each must take steps to protect its respective business interests.Google may wind up being the party that takes the biggest hit, as keeping YouTube off the Amazon Echo Show could hit it directly in the wallet. This is one of those instances where Google's young executive staff showcases as a serious problem. On the other hand, it could be Amazon's ambitions that have kept it from reaching a deal with Google. The problem apparently began with a disagreement over Amazon's implementation of YouTube on its Echo Show devices but has escalated from there, with Google restricting access to its content and Amazon pulling Google products from its site. The conflict could escalate further if Net neutrality is voted out in future. That might be a way for the competitors to charge customers obscene amounts of money to have the convenience of cross-platform access.

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IT BULLETIN **Date : 18.12.2017**

FDA GIVES NOD TO APPLE WATCH EKG READER ACCESSORY

The U.S. Food and Drug Administration has given the KardiaBand its stamp of approval. The device is the first FDA-cleared personal electrocardiogram (EKG) accessory designed for use with an Apple Watch. The KardiaBand allows users to take EKG readings in order to distinguish between normal sinus heart rhythms and atrial fibrillation (A-fib), the most common type of serious heart arrhythmia, which can lead to strokes or other heart-related problems.

The KardiaBand can record an EKG in just 30 seconds. The user simply touches an integrated sensor, and the results are then displayed on the face of the Apple Watch. SmartRhythm, a new feature in the Kardia app, relies on artificial intelligence to monitor a user's heart rate and determine the correlation between heart activity and physical activity. It can detect when a user's heart rate and activity are out of sync and promptly send an alert.

KardiaBand paired with SmartRhythm technology will be life-changing for people who are serious about heart health. These capabilities will allow people to easily and discreetly check their heart rhythms when they may be abnormal, capturing essential information to help doctors identify the issue and inform a clear path of care to help manage A-fib, a leading cause of stroke, and other serious conditions. Apple partnered with Stanford Medicine to perform that research. Smartwatches could become increasingly useful to help monitor heart-related medical issues.

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IT BULLETIN **Date : 19.12.2017**

QUANTUM KEY DISTRIBUTION GETS A SPEED BOOST

A method for scrambling data to protect it from the super powerful computers of the future has received a speed boost from a team of researchers from Duke and Ohio State universities and the Oak Ridge National Laboratory. The method uses quantum key distribution to guard data from prying eyes. The problem in the past with the technology was it's slow. Transfer speeds typically are measured in kilobits per second. However, the researchers found a way to increase key transmission rates between five and 10 times, bringing them into the megabit per second range. Making quantum key distribution practical is viewed as a way to counter the future threat to encrypted data. One powerful aspect of quantum encryption is that it is secure against quantum computers. Its strength does not depend on mathematical complexity, like current cryptography, but on physical principles.

Quantum computers pose a serious threat to cybersecurity because most current cryptosystems potentially could be broken with a powerful quantum computer in a reasonable amount of time. Quantum key distribution with symmetric encryption is one of the very few methods that can provide provable security against an attack aided with a quantum computer, they maintained. A major limitation of most current QKD systems, though, is the rate at which the secret key is generated, the researchers wrote. It is orders of magnitude lower than existing digital communication rates a limitation that ultimately prevents QKD from being useful for a wide range of communication tasks. With their system, though, the researchers were able to generate provably secure cryptographic keys at megabit-per-second rates over metropolitan distances 10 to 50 miles.

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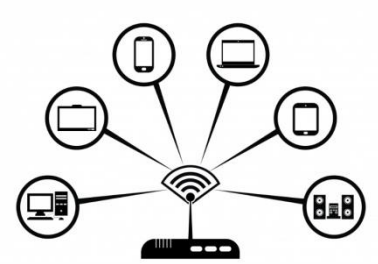
IT BULLETIN **Date : 21.12.2017**

WIFI UPDATED VERSION



IEEE 802.11-2016 is a revision based on IEEE 802.11-2012, incorporating 5 amendments (11ae, 11aa, 11ad, 11ac, 11af). In addition, existing MAC and PHY functions have been enhanced and obsolete features were removed or marked for removal. Some clauses and annexes have been renumbered.

IEEE 802.11 is a set of media access control (MAC) and physical layer (PHY) specifications for implementing wireless local area network(WLAN) computer communication in the 900 MHz and 2.4, 3.6, 5, and 60 GHz frequency bands. They are created and maintained by the Institute of Electrical and Electronics Engineers (IEEE) LAN/MAN Standards Committee (IEEE 802). The base version of the standard was released in 1997, and has had subsequent amendments. The standard and amendments provide the basis for wireless network products using the Wi-Fi brand. While each amendment is officially revoked when it is incorporated in the latest version of the standard, the corporate world tends to market to the revisions because they concisely denote capabilities of their products. As a result, in the marketplace, each revision tends to become its own standard.

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IT BULLETIN **Date : 22.12.2017**

BLUETOOTH 5.0

The Bluetooth SIG officially unveiled Bluetooth 5 during a media event in London. Its new features are mainly focused on emerging Internet of Things technology. The Samsung Galaxy S8 launched with Bluetooth 5 support in April 2017. The iPhone 8, 8 Plus and iPhone X launched with Bluetooth 5 support as well. Apple also integrated 'Bluetooth 5.0' in their new HomePod offering released. Marketing drops the point number so that it is just "Bluetooth 5" (not 5.0 or LE like Bluetooth 4.0). The change is for the sake of "Simplifying our marketing, communicating user benefits more effectively and making it easier to signal significant technology updates to the market.

Bluetooth 5 provides, for BLE, options that can double the speed (2 Mbit/s burst) at the expense of range, or up to fourfold the range at the expense of data rate, and eightfold the data broadcasting capacity of transmissions, by increasing the packet lengths. The increase in transmissions could be important for Internet of Things devices, where many nodes connect throughout a whole house. Bluetooth 5 adds functionality for connectionless services such as location-relevant navigation of low-energy Bluetooth connections.

The major areas of improvement are:

- Slot Availability Mask (SAM)
- 2 Mbit/s PHY for LE
- LE Long Range
- High Duty Cycle Non-Connectable Advertising
- LE Advertising Extensions
- LE Channel Selection Algorithm #2

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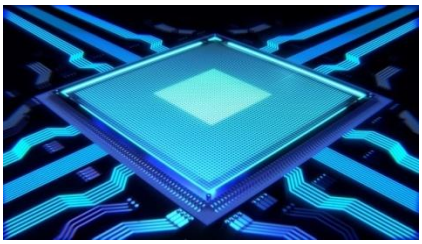
IT BULLETIN **Date : 23.12.2017**

ICE LAKE MICROARCHITECTURE(10th GEN)



Ice Lake is codename for Intel's 10th generation microarchitecture, representing an enhancement of the 'Architecture' of the preceding generation Kaby Lake/Cannon Lake processors (as specified in Intel's Process-Architecture-Optimization execution plan). With Cannon Lake having successfully moved from a 14nm to 10nm manufacturing process, Ice Lake is also expected to feature an enhanced 10nm process (10nm+).

Ice Lake will be the first Intel CPU to feature in-silicon mitigations for the hardware vulnerabilities discovered Meltdown and Spectre. These side-channel attacks exploit branch prediction's use of speculative execution. These exploits may cause the CPU to reveal cached private information which the exploiting process is not intended to access as a form of timing attack.

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IT BULLETIN **Date : 26.12.2017**

OPTICAL DISC DRIVE

Fourth-generation

The following formats go beyond the current third-generation discs and have the potential to hold more than one terabyte (1 TB) of data and meant for distributing Ultra HD video :

- Archival Disc
- Holographic Versatile Disc
- LS-R
- Protein-coated disc
- Ultra HD Blu-ray
- Stacked Volumetric Optical Disc

An optical disc is designed to support one of three recording types: read-only (e.g.: CD and CD-ROM), recordable (write-once, e.g. CD-R), or re-recordable (rewritable, e.g. CD-RW). Write-once optical discs commonly have an organic dye recording layer between the substrate and the reflective layer. Rewritable discs typically contain an alloy recording layer composed of a phase change material, most often AgInSbTe, an alloy of silver, indium, antimony, and tellurium. Optical discs are most commonly used for storing music (e.g. for use in a CD player), video (e.g. for use in a Blu-ray player), or data and programs for personal computers (PC). The Optical Storage Technology Association (OSTA) promotes standardized optical storage formats. Although optical discs are more durable than earlier audio-visual and data storage formats, they are susceptible to environmental and daily-use damage. Libraries and archives enact optical media preservation procedures to ensure continued usability in the computer's optical disc drive or corresponding disc player.

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IT BULLETIN **Date : 27.12.2017**

ULTRA HD BLUE RAY

Ultra HD Blu-ray is a digital optical disc data storage format that supersedes Blu-ray. Ultra HD Blu-ray discs are incompatible with existing Blu-ray players. Ultra HD Blu-ray supports 4K UHD (3840 × 2160 resolution) video at frame rates up to 60 frames per second, encoded using High Efficiency Video Coding. The discs support both high dynamic range by increasing the color depth to 10-bit per color and a greater color gamut than supported by conventional Blu-ray video by using the Rec. 2020 color space.

SPECICATIONS

The specification allows for three disc capacities, each with its own data rate: 50 GB with 82 Mbit/s, 66 GB with 108 Mbit/s, and 100 GB with 128 Mbit/s. Ultra HD Blu-ray uses a new revision of AACS DRM, AACS 2.The Blu-ray Disc Association revealed completed specifications and the official Ultra HD Blu-ray logo. Unlike conventional DVDs and Blu-rays, the new 4K format does not have region coding. The BDA released Ultra HD Blu-ray with mandatory support for HDR10 Media Profile video and optional support for Dolby Vision.

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IT BULLETIN **Date : 28.12.2017**

VIRTUAL REALITY

Facebook has 400 employees focused on VR development; Google, Apple, Amazon, Microsoft, Sony and Samsung all had dedicated AR and VR groups. Dynamic binaural audio was common to most headsets released that year. However, haptic interfaces were not well developed, and most hardware packages incorporated button-operated handsets for touch-based interactivity. Visually, displays were still of a low-enough resolution and frame-rate that images were still identifiable as virtual.HTC shipped its first units of the HTC VIVE SteamVR headset. This marked the first major commercial release of sensor-based tracking, allowing for free movement of users within a defined space. A patent filed by Sony showed they were developing a similar location tracking technology to the VIVE for PlayStation VR, with the potential for the development of a wireless headset.

Several virtual reality head mounted displays (HMD) were released for gaming during the early-mid 1990s. These included the Virtual Boy developed by Nintendo, the iGlasses developed by Virtual I-O, the Cybermaxx developed by Victormaxx and the VFX1 Headgear developed by Forte Technologies.Commercial tethered headsets for VR gaming include the Oculus, the HTC Vive and PlayStation VR. Systems in development include: the StarVR, FOVE, and the Magic Leap. While the Samsung Gear VR is an example of a mobile-phone based device.Virtual reality has been used to control robots in telepresence and telerobotic systems.

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IT BULLETIN **Date : 29.12.2017**

5G COMMUNICATION

5th generation wireless systems, abbreviated **5G**, are improved networks deploying. Which technologies should be called "5G" is disputed. Millimeter wave bands (26, 28, 38, and 60 GHz,) are 5G and offer performance as high as 20 gigabits per second. Massive MIMO (64-256 antennas) offers performance up to ten times current 4G networks,"Low-band 5G" uses frequencies from 600 MHz to 6 GHz, especially 3.5-4.2 GHz.

Verizon and AT&T announced millimeter wave commercial deployments. Softbank deployed Massive MIMO. In 2018 T-Mobile announced low band 5G for 30 cities. Millimeter wave 5G offers higher capacity than 4G and lower latency Qualcomm estimates millimeter wave median speeds to the customer of 1.4 gigabits and low band speeds of 490 megabits. Peak speeds are much higher, with IMT-2020 millimeter wave requiring peak speeds of 20 gigabits down and 10 gigabits up.

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IT BULLETIN **Date : 30.12.2017**

STEALTH TECHNOLOGY

Stealth technology also termed **low observable technology** (**LO technology**) is a sub-discipline of military tactics and passive electronic countermeasures, which cover a range of techniques used with personnel, aircraft, ships, submarines, missiles and satellites to make them less visible (ideally invisible) to radar, infrared, sonar and other detection methods. It corresponds to military camouflage for these parts of the electromagnetic spectrum (Multi-spectral camouflage).

Development of modern stealth technologies in the United States began in 1958, where earlier attempts in preventing radar tracking of its U-2 spy planes during the Cold War by the Soviet Union had been unsuccessful. Designers turned to develop a particular shape for planes that tended to reduce detection, by redirecting electromagnetic waves from radars. Radar-absorbent material was also tested and made to reduce or block radar signals that reflect off from the surface of planes. Such changes to shape and surface composition form stealth technology as currently used on the Northrop Grumman B-2 Spirit "Stealth Bomber".

The concept of stealth is to operate or hide without giving enemy forces any indications as to the presence of friendly forces. This concept was first explored through camouflage by blending into the background visual clutter. As the potency of detection and interception technologies (radar, Infra-red search and track, surface-to-air missiles, etc.) have increased over time, so too has the extent to which the design and operation of military personnel and vehicles have been affected in response. Some military uniforms are treated with chemicals to reduce their infrared signature.

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IT BULLETIN **Date : 09.01.2018**

SMALL SATELLITES

Small satellites, **miniaturized satellites**, or **smallsats**, are satellites of low mass and size, usually under 500 kg (1,100 lb). While all such satellites can be referred to as "small", different classifications are used to categorize them based on mass. Satellites can be built small to reduce the large economic cost of launch vehicles and the costs associated with construction. Miniature satellites, especially in large numbers, may be more useful than fewer, larger ones for some purposes, for example, gathering of scientific data and radio relay. Technical challenges in the construction of small satellites may include the lack of sufficient power storage or of room for a propulsion system. One rationale for miniaturizing satellites is to reduce the cost: heavier satellites require larger rockets with greater thrust that also has greater cost to finance. In contrast, smaller and lighter satellites require smaller and cheaper launch vehicles and can sometimes be launched in multiples. They can also be launched 'piggyback', using excess capacity on larger launch vehicles. Miniaturized satellites allow for cheaper designs as well as ease of mass production.

` Another major reason for developing small satellites is the opportunity to enable missions that a larger satellite could not accomplish, such as:

- Constellations for low data rate communications
- Using formations to gather data from multiple points
- In-orbit inspection of larger satellites
- University-related research

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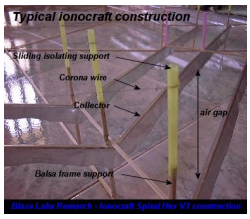
IT BULLETIN **Date : 10.01.2018**

IONOCRAFT



Anionocraft is a propulsion device based on ionic air propulsion that works without moving parts, uses only electrical energy, and is able to lift its own weight, not including its own power supply. The principle of ionic wind propulsion with corona-generated charged particles has been known from the earliest days of the discovery of electricity with references dating back to 1709 in a book titled Physico-Mechanical Experiments on Various Subjects by Francis Hauksbee. Its use for propulsion was given serious thought by Major Alexander Prokofieff de Seversky who contributed much to its basic physics and construction variations in 1960.

In fact, it was Major de Seversky himself who in 1964 coined the term Ionocraft in his (U.S. Patent 3,130,945). There are also designs by the American experimenter Thomas Townsend Brown, such as his 1960 patents for "Elektrokinetic Apparatus". Brown spent most of his life trying to develop what he thought was an anti-gravity effect, which he named the Biefeld–Brown effect. Since Brown's devices produce thrust along their axis regardless of the direction of gravity and do not work in a vacuum, the effect he identified has been attributed to electrohydro dynamics instead of anti-gravity.

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MAGNETIC LEVITATION

Magnetic levitation, **maglev**, or **magnetic suspension** is a method by which an object is suspended with no support other than magnetic fields. Magnetic force is used to counteract the effects of the gravitational acceleration and any other accelerations. The two primary issues involved in magnetic levitation are lifting forces: providing an upward force sufficient to counteract gravity, and stability: ensuring that the system does not spontaneously slide or flip into a configuration where the lift is neutralized. Magnetic levitation is used for maglev trains, contactless melting, magnetic bearings and for product display purposes.

Magnetic materials and systems are able to attract or press each other apart or together with a force dependent on the magnetic field and the area of the magnets. For example, the simplest example of lift would be a simple dipole magnet positioned in the magnetic fields of another dipole magnet, oriented with like poles facing each other, so that the force between magnets repels the two magnets.Essentially all types of magnets have been used to generate lift for magnetic levitation; permanent magnets, electromagnets, ferromagnetism, diamagnetism, superconducting magnets and magnetism due to induced currents in conductors.

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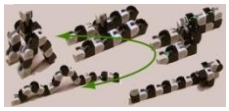
IT BULLETIN **Date : 22.01.2018**

SELF-RECONFIGURING MODULAR ROBOT



Modular self-reconfiguring robotic systems or **self-reconfigurable modular robots** are autonomous kinematic machines with variable morphology. Beyond conventional actuation, sensing and control typically found in fixed-morphology robots, self-reconfiguring robots are also able to deliberately change their own shape by rearranging the connectivity of their parts, in order to adapt to new circumstances, perform new tasks, or recover from damage. For example, a robot made of such components could assume a worm-like shape to move through a narrow pipe, reassemble into something with spider-like legs to cross uneven terrain, then form a third arbitrary object (like a ball or wheel that can spin itself) to move quickly over a fairly flat terrain; it can also be used for making "fixed" objects, such as walls, shelters, or buildings.

They can also contain actuators that are used for manipulating their location in the environment and in relation with each other. A feature found in some cases is the ability of the modules to automatically connect and disconnect themselves to and from each other, and to form into many objects or perform many tasks moving or manipulating the environment.

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GYNOID

A **gynoid** (or **fembot**) is a humanoid robot that is gendered as feminine. Gynoids appear widely in science fiction film and art. As more realistic humanoid robot design is technologically possible, they are also emerging in real-life robot design.

A gynoid is anything that resembles or pertains to the female human form. Though the term android refers to robotic humanoids regardless of apparent gender, the Greek prefix "andr-" refers to man in the masculine gendered sense. Because of this prefix, many read Android as referring to male-styled robots. The term gynoid was first used by Gwyneth Jones in her 1985 novel Divine Endurance to describe a robot slave character in a futuristic China, that is judged by her beauty.

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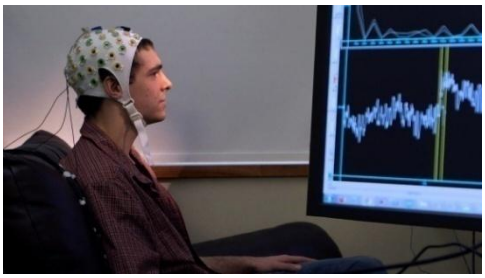
IT BULLETIN **Date : 24.01.2018**

BRAIN COMPUTER INTERFACE



A brain–computer interface (BCI), sometimes called a neural-control interface(NCI), mind-machine interface (MMI), direct neural interface (DNI), or brain–machine interface (BMI), is a direct communication pathway between an enhanced or wired brain and an external device. BCI differs from neuromodulation in that it allows for bidirectional information flow. BCIs are often directed at researching, mapping, assisting, augmenting, or repairing human cognitive or sensory-motor functions.

Research on BCIs began in the 1970s at the University of California, Los Angeles(UCLA) under a grant from the National Science Foundation, followed by a contract from DARPA. The papers published after this research also mark the first appearance of the expression brain–computer interface in scientific literature.

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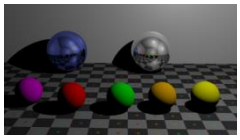
IT BULLETIN **Date : 29.01.2018**

COMPUTER GENERATED IMAGERY



Computer-generated imagery (**CGI**) is the application of computer graphics to create or contribute to images in art, printed media, video games, films, television programs, shorts, commercials, videos, and simulators. The visual scenes may be dynamic or static and may be two-dimensional (2D), though the term "CGI" is most commonly used to refer to 3D computer graphics used for creating scenes or special effects in films and television. Additionally, the use of 2D CGI is often mistakenly referred to as "traditional animation", most often in the case when dedicated animation software such as Adobe Flash or Toon Boom is not used or the CGI is hand drawn using a tablet and mouse.

The term 'CGI animation' refers to dynamic CGI rendered as a movie. The term virtual world refers to agent-based, interactive environments. Computer graphics software is used to make computer-generated imagery for films, etc. Availability of CGI software and increased computer speeds have allowed individual artists and small companies to produce professional-grade films, games, and fine art from their home computers. This has brought about an Internet subculture with its own set of global celebrities, clichés, and technical vocabulary. The evolution of CGI led to the emergence of virtual cinematography in the 1990s where runs of the simulated camera are not constrained by the laws of physics.As people hold onto their cars for longer than ever, Robutt's representative rear end will ensure drivers and passengers continue riding in comfort.

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IT BULLETIN **Date : 30.01.2018**

iOS 11

iOS 11 is the eleventh major release of the iOS mobile operating system developed by Apple Inc., being the successor to iOS 10. Among iOS 11's changes the lock screen and Notification Center are combined, allowing all notifications to be displayed directly on the lock screen. The various pages of the Control Center are unified, gaining custom settings and the ability to 3D Touch icons for more options. The App Store receives a visual overhaul to focus on editorial content and daily highlights. A "Files" file manager app allows direct access to files stored locally and in cloud services. Siri can now translate between languages and use a privacy-minded "on-device learning" technique to better understand a user's interests and offer suggestions.

The camera has new settings for improved portrait-mode photos and will use new encoding technologies to reduce file sizes on newer devices. In a future release, Messages will be integrated with iCloud to better synchronize messages across iOS and macOS devices. A previous point release also added support for person-to-person Apple Pay payments. The operating system also introduces the ability to record the screen, limited forms of drag-and-drop functionality, and support for augmented reality. Certain new features will appear only on iPad, including an always-accessible application dock, cross-app drag-and-drop, and a new user interface to show multiple apps at once.

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IT BULLETIN **Date : 31.01.2018**

IoT BECOMES BIoT

The biggest mistake most prognosticators make is underestimating the potential for fast growth in our hyper-connected world. Automobiles take time to catch on because would-be drivers had to wait for roads and gas stations to be built.But today's disruptive innovations rely on existing infrastructure for mobile devices that puts most companies just a few clicks from billions of consumers. One of those is the Internet of Things (IoT), which involves adding smart sensors to connected devices so that users can do things like ask Amazon's Alexa digital assistant to turn off the lights or order a pizza.But blockchain, one of the underlying technologies for the hot cryptocurrency bitcoin, can make IoT devices even more useful. It creates a digital record across hundreds or thousands of computers, vastly reducing the risk of hacking.

Combining IoT with blockchain or BIoT users in a whole host of new services and businesses. For example, BIoT can be used to track shipments of pharmaceuticals and to create smart cities in which connected heating systems better controls energy use and connected traffic lights better manage rush hour.In 2018, companies will begin to use Application Programming Interfaces, or software used to connect different databases and computer services. Combined with the blockchain Internet of things, it will be as easy to get data from sensors in a warehouse as accessing websites on our mobile phones.

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THE FINTECH RENAISSANCE

While bitcoin and blockchain were grabbing the headlines in 2017, social and mobile payments have fundamentally changed the financial markets. In China, mobile payment volumes now exceed $5 trillion annually.All aspects of the payments chain are open to disruption as blockchain speeds clearing house functions while smart contracts handle settlements. In 2018, look for biometrics such as facial recognition, voice ID, and fingerprints to help make shopping far quicker by eliminating the need to swipe a credit card at checkout, for instance. Instead, you will be able to verify your identity for a merchant scanning your eyes with your smartphone, in what's known as a retinal payment. A bold clairvoyant could even predict that some major retailers will hop on the cryptocurrency bandwagon and issue their own secure currency next year.

Fintech will likely also become greener in 2018. With cryptocurrencies reaching over $300 billion in total value, there is now a financial incentive for investments into quantum computing, which involves using the behavior of energy at a subatomic level to process computing functions at a billion times faster than today's microprocessors.
By some estimates, mining today's cryptocurrencies, such as bitcoin, requires more electricity annually than the amount of energy used in 159 countries. With cryptocurrency's carbon footprint rapidly growing, quantum computing has the potential to greatly reduce the estimated 28TWhs of electricity consumed by all of the current computers processing bitcoin. Analysts now anticipate that banks will derive over $1 billion annually from blockchain-based cryptocurrencies within the next two years as traditional financial institutions start treating cryptocurrencies.

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IT BULLETIN **Date : 02.02.2018**

AUGMENTED REALITY GOES MAINSTREAM

Before smartphones existed 10 years ago, most people would consider spending five hours daily staring at your phone as crazy. In 2018, the bent-neck trend will start to reverse itself. The mobile game Pokémon Go has unleashed a billion-dollar demand for augmented reality entertainment, and major brands are taking notice. Thanks to the introduction of affordable augmented reality glasses, our phones will remain in our pockets and Heads Up Displays (HUD) will improve how we work, shop, and play.

HUDs, best known today as the instrument gauges that fighter pilots monitor on their visors or windshields, will become a standard in consumer eyeglasses. Imagine walking down the street in a foreign country, for example, and having all of the store signs instantly translated into English thanks to your trendy sunglasses.AR will customize in-store experiences with mannequins that match your body type and display enough virtual inventory to rival any online site. Merchants will create AR experiences with their packaging so that demonstration videos can appear when you look at the product on the shelf or celebrity spokespeople can magically stand in the aisle to pitch the product. Virtual pop-up stores can be built to appear anywhere that crowds are gathered (in a stadium, a busy street corner, or even inside a subway). These non-brick and mortar retail locations will bring new opportunities for merchants to create engaging shopping experiences anywhere with accessible bandwidth. Li-Fi, a new light-base wireless connection with data speeds 100 times that of Wi-Fi, will bring high-definition virtual objects into stores. With Li-Fi and AR, consumers can see limitless virtual inventory in store, at scale.

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IT BULLETIN **Date : 03.02.2018**

THE INTERNET OF THINGS

After a few initial false starts, in 2018 the IoT (Internet of Things), particularly in conjunction with augmented technology, is set to enhance our homes, places of work, cars and leisure lives. This will be one of the biggest IT trends for 2018. The IoT is industry driven and is most successful when it focuses on finding solutions for specific problems. This sector, by definition, involves a focus on hardware centric software and firmware, which will suit those who enjoy developing solutions and meeting engineering needs.

There aren't many certificate level information technology courses that offer specialisation in the IoT but Upskilled's Certificate IV in Information Technology – Internet of Things Specialisation does just that. With units that include: cloud storage strategies, hardware component connectivity and hardware network installation, this is the perfect course for anybody who wants to jump on the IoT bandwagon.

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IT BULLETIN **Date : 13.02.2018**

VIRTUAL ASSISTANTS

It has been suggested that chatbots are the brand engagement tool of the future and the high take-up rate of virtual assistants like Amazon's Alexa, which is the current market leader, would not indicate otherwise. Self-help tools in the form of chatbots are going to be used by brands to improve customer experience and meet expectations through quick responses, targeted engagement and 24/7 availability. A great information technology course to lead into this area would be Upskilled's Diploma of Digital Media Technologies , which includes units on digital video, basic vision and sound editing and emerging web technology trends.

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IT BULLETIN **Date : 14.02.2018**

LINUX MALWARE

Malware targeting Linux systems is growing, largely due to a proliferation of devices created to connect to the Internet of Things. That is one of the findings in a report WatchGuard Technologies, a maker of network security appliances. The report, which analyzes data gathered from more than 26,000 appliances worldwide, found three Linux malware programs in the top 10 for the first quarter of the year, compared with only one during the previous period. Linux attacks and malware are on the rise wrote WatchGuard CTO Corey Nachreiner and Security Threat Analyst Marc Laliberte, coauthors of the report. This is because systemic weaknesses in IoT devices, paired with their rapid growth, are steering botnet authors towards the Linux platform.

Linux malware began growing at the end of last year with the Mirai botnet, observed Laliberte. Mirai made a splash in September when it was used to attack part of the Internet's infrastructure and knock millions of users offline. Now, with IoT devices skyrocketing, a whole new avenue is opening up to attackers. It's our belief that the rise we're seeing in Linux malware is going hand in hand with that new target on the Internet.

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IT BULLETIN **Date : 15.02.2018**

CARTO

CARTO is a software-as-a-service (SaaS) platform that creates geographic mapping tools to help businesses and designers create location-centric visualizations on the web. The company was initially developed as an open-source product from a Spanish company called Vizzuality. Their clients are extensive and include Bloomberg, Caixa Bank, Accenture, Twitter, and Google.

Their location intelligence platform means anyone can build self-service location based apps that help optimize operational performance, strategic investments, and everyday decisions. This is key to smart cities, where governments are working with businesses, universities, and citizens to create more of the predictive analysis that shapes the life of a city. It's easy to get excited by the bling of IoT-the hardware and the sensors and the big city projects that are popping up everywhere. But smart cities are not just places but homes to many who as citizens need to be first and foremost in mind in any smart city planning.

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