

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

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DATE: 30.12.2022

BLUE EYES TECHNOLOGY

The blue eyes technology works on Artificial Intelligence. It aims to give human abilities to a computer. Blue eyes technology aims at creating a computer that has the abilities to understand the perceptual powers of the human being by recognizing their facial expressions and react accordingly to them imagine ourself in a world where humans interact with computers. If are sitting in front of our personal computer that can listen, talk or even scream aloud. It has the ability to gather information about you and interact with you through special techniques like facial recognition, speech recognition etc..

It can even understand our emotions at the touch of the mouse. It verifies your identity, feels our presence and starts interacting with us. You ask the computer to dial to your friend at his office. It realizes the urgency of the situation through the mouse, dials your friend at his office and establishes a connection. Human cognition depends primarily on the ability to perceive, interpret and integrate audio-visuals and censoring information. Adding extraordinary perceptual abilities to computers would enable computers to work together with human beings as intimate partners. Researchers are attempting to add more capabilities to computers that will allow them to interact with humans, recognize human presents, talk, listen or even guess their feelings.

Blue Eyes system consists of a mobile measuring device called Data Acquisition Unit (DAU) and a central analytical system called Central System Unit (CSU) interconnected by Bluetooth. DAU collects information from the sensor and sends it over the Bluetooth and delivers the messages sent from CSU to the operator. CSU buffers incoming sensor data and provides visualization interface. The basic idea behind Blue Eyes Technology is to give computer the human power i.e. it uses non-obtrusive sensing method, employing most modern video cameras and microphones to identify the user's actions through the use of imparted sensory abilities.

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EDGE COMPUTING

Edge computing is a distributed computing model in which computing takes place near the physical location where data is being collected and analyzed, rather than on a centralized server or in the cloud. This new infrastructure involves sensors to collect data and edge servers to securely process data in realtime on site, while also connecting other devices like laptops and smartphones to the network.

- Reduce the amount of data send to the cloud.
- Reduce latency
- Run Edge Applications
- Emerging technologies such as Autonomous vehicle, Robotics, Drones, Smart cameras
- Edge computing is important because it creates new and improved ways for industrial and enterprise-level businesses to maximize operational efficiency.

One of the top benefits of implementing edge computing is the ability to collect and analyze data where it is collected, catching and correcting problems that might not be identified as quickly if the data were to be sent to a central server or cloud for processing and analysis. Keeping data on site also reduces the security risk associated with porting data which is important in financial organizations. It also reduces bandwidth costs by processing some data on site, rather than sending all data to a cloud or central server.

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IT BULLETIN

DATE: 02.01.2023

INTERNET OF THINGS

The Internet of things (IoT) describes physical objects (or groups of such objects) with sensors, processing ability, software and other technologies that connect and exchange data with other devices and systems over the Internet or other communications networks. Internet of things has been considered a misnomer because devices do not need to be connected to the public internet, they only need to be connected to a network and be individually addressable.

The field has evolved due to the convergence of multiple technologies, including ubiquitous computing, commodity sensors, increasingly powerful embedded systems, as well as machine learning. Traditional fields of embedded systems, wireless sensor networks, control systems, automation (including home and building automation), independently and collectively enable the Internet of things.

In the consumer market, IoT technology is most synonymous with products pertaining to the concept of the "smart home", including devices and appliances (such as lighting fixtures, thermostats, home security systems, cameras, and other home appliances) that support one or more common ecosystems and can be controlled via devices associated with that ecosystem, such as smartphones and smart speakers. IoT is also used in healthcare systems.

There are a number of concerns about the risks in the growth of IoT technologies and products, especially in the areas of privacy and security, and consequently, industry and governmental moves to address these concerns have begun, including the development of international and local standards, guidelines and regulatory frameworks.

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IT BULLETIN

DATE: 03.01.2023

NVIDIA AMPERE ARCHITECTURE

Solving the world's most important scientific, industrial and business challenges with AI and HPC. Visualizing complex content to create cutting-edge products, tell immersive stories and reimagine cities of the future. Extracting new insights from massive datasets. The NVIDIA Ampere architecture, designed for the age of elastic computing, rises to all these challenges, providing unmatched acceleration at every scale.

First introduced in the NVIDIA Volta™ architecture, NVIDIA Tensor Core technology has brought dramatic speedups to AI, bringing down training times from weeks to hours and providing massive acceleration to inference. The NVIDIA Ampere architecture builds upon these innovations by bringing new precisions—Tensor Float 32 (TF32) and floating point 64 (FP64) to accelerate and simplify AI adoption and extend the power of Tensor Cores to HPC.

TF32 works just like FP32 while delivering speedups of up to 20X for AI without requiring any code change. Using NVIDIA Automatic Mixed Precision, researchers can gain an additional 2X performance with automatic mixed precision and FP16 by adding just a couple of lines of code. And with support for bfloat16, INT8, and INT4, Tensor Cores in NVIDIA Ampere architecture Tensor Core GPUs create an incredibly versatile accelerator for both AI training and inference. Bringing the power of Tensor Cores to HPC, A100 and A30 GPUs also enable matrix operations in full, IEEE-certified, FP64 precision.

Multi-Instance GPU (MIG)

Every AI and HPC application can benefit from acceleration, but not every application needs the performance of a full GPU. Multi-Instance GPU (MIG) is a feature supported on A100 and A30 GPUs that allows workloads to share the GPU.

With MIG, each GPU can be partitioned into multiple GPU instances, fully isolated and secured at the hardware level with their own high-bandwidth memory, cache and compute cores. Now, developers can access breakthrough acceleration for all their applications, big and small, and get guaranteed quality of service. And IT administrators can offer right-sized GPU acceleration for optimal utilization and expand access to every user and application across both bare-metal and virtualized environments.

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S.O.L.I.D FOR HIGH-QUALITY MOBILE APPS

SOLID is a set of design principles for creating maintainable and scalable software. These principles help ensure that software is flexible, easy to modify and resistant to bugs and errors. They are widely used in software development and have been shown to improve code quality and reduce development time.

When used together, Flutter and SOLID can provide developers with a powerful toolkit for creating high-quality mobile apps. By applying SOLID principles to Flutter app development, developers can create modular, maintainable and scalable code that is easy to test and debug.

In the rest of this article, we'll explore how Flutter and SOLID are related and how to apply SOLID principles to Flutter projects to create better, more maintainable code.

Flutter and SOLID are related in a few different ways. First, Flutter is designed to make it easy to create modular and reusable components, which is a key goal of SOLID. By breaking down an app into smaller, more focused components developers can create code that is easier to understand, modify and test.

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IT BULLETIN

DATE: 05.01.2023

FLUTTER TECHNOLOGY

Flutter is an open-source mobile application development framework developed by Google. It allows developers to build high-performance, cross-platform mobile apps for iOS, Android, and the web from a single codebase. Flutter uses the Dart programming language and comes with a rich set of pre-built widgets and tools that make building beautiful and functional apps fast and easy.

Flutter's widgets are designed to be highly customisable, making it possible to create unique and visually appealing user interfaces. Flutter also offers a hot reload feature that allows developers to see changes to their code almost instantly, making for a faster and more productive development process. Additionally, Flutter provides support for popular development tools such as Android Studio, IntelliJ IDEA and Visual Studio Code.

Flutter has gained popularity among mobile app developers due to its ease of use, flexibility and high-performance, making it a popular choice for building mobile apps across various industries. With Flutter, developers can create beautiful, high-performance mobile apps that run smoothly across multiple platforms, making it easier to reach a wider audience.

There are several reasons why we might choose to use Flutter for mobile app development:

- Cross-platform development
- Fast development
- Beautiful UI
- High-performance
- Strong community
- Integration with other technologies

Overall, Flutter offers a powerful and flexible framework for building beautiful, high-performance mobile apps that can be deployed across multiple platforms, making it a popular choice for developers looking to create robust, cross-platform mobile applications.

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IT BULLETIN

DATE: 06.01.2023

**IBM LAUNCHES NEW SOFTWARE TO BREAK DOWN DATA SILOS
AND STREAMLINE PLANNING**

IBM has announced new software designed to help enterprises break down data and analytics silos so they can make data-driven decisions quickly and navigate unpredictable disruptions. IBM Business Analytics Enterprise is a suite of business intelligence planning, budgeting, reporting, forecasting and dashboard capabilities that provides users with a robust view of data sources across their entire business. Along with IBM Planning Analytics with Watson and IBM Cognos Analytics with Watson, this suite also includes a new IBM Analytics Content Hub that helps streamline how users discover and access analytics and planning tools from multiple vendors in a single, personalized dashboard view.

According to an August 2022 Forrester report, advanced insights-driven organizations are 1.6x more likely to report using data, analytics, and insights to create experiences, products and services that differentiate them within the market when compared to beginners. However, companies are currently facing a highly dynamic operating environment where they must navigate unpredictable events such as supply chain disruptions, labor and skills shortages, evolving regulations and more. The complexity of storing data across disparate silos can make this more challenging as teams collaborate across different analytics and business intelligence tools. To become data-driven, businesses can differentiate themselves by creating an enterprise-wide strategy that enables them to bring together their tools and put insights into the hands of decision makers.

Building on IBM's existing portfolio of business intelligence solutions, IBM Business Analytics Enterprise includes a new IBM Analytics Content Hub. It is designed to allow users to view planning and analytics dashboards from multiple vendors, including tools like IBM Cognos Analytics with Watson, IBM Planning Analytics with Watson and other common business intelligence tools into a single view that combines elements from each in a dashboard tailored to their unique needs. Additionally, it features algorithms that can recommend role-based content to help users surface new stories, reports, and dashboards from across the organization to aid in decision-making. As more users click through materials within the IBM Analytics Content Hub, the solution analyzes usage patterns to recommend content that aligns with their specific interests.

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IT BULLETIN

DATE: 07.01.2023

THE THINGS DO WITH BING'S CHATGPT

Bing's ChatGPT integration will be called **the new Bing**. Microsoft is positioning it as an evolution of the search engine, asking you to think of it as a research assistant, personal planner and creative partner at your side. The integration will be powered by OpenAI's GPT-4, a faster version of ChatGPT.

The blank search bar is replaced with a large text box with a prompt inviting to ask it anything. We'll have 1000 characters to write our question, which will allow for a good amount of detail in our request. We'll be able to provide context, provide specific instructions, or list examples.

Unlike ChatGPT which is trained on data collected up to 2021, the new Bing will be able to access current information.

When you ask a question, the AI will interpret it and make several searches related to your request. It will then compile the results and write a summary for you. Bing will highlight particular phrases and cite where it got that information from, allowing you to verify the claim.

Bing will be able to process complex tasks that you'd usually have to piece together yourself. We can give it personal requirements, like your meal preferences, budget constraints, location, or time requirements and Bing will adapt its response to our needs and interests. We could get Bing to generate inspiration for a meal plan or travel itinerary.

The new Bing has a new level of creativity and imagination. Since the AI can understand and respond to natural language queries, we'll be able to ask Bing to take on creative tasks previously beyond the realm of a search engine. We could ask Bing to write a rhyming poem for our cousin's birthday or create a short story featuring our friends.

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IT BULLETIN

DATE: 07.01.2023

DIGITAL ETHICS AND PRIVACY

While this trend doesn't pertain directly to technology or software developments, it is most likely one of the most important and relevant tech topics to keep an eye on. In short, digital ethics represents the study concerning the impact of technology on society, responsible for finding the right approach towards integrating tech in our daily lives. It mostly focuses on the ethical aspects associated with current and future tech, alongside the digital technology trends of 2021.

The most relevant example of digital ethics concerns self-driving cars. As such, in the face of imminent impact, should an autonomous car attempt to save the passenger by hitting a pedestrian? Or should it cause a crash that may be fatal for the 'driver', thus saving the pedestrian? Additionally, who's legally liable in case of an accident?

These are questions that digital ethics attempt to answer.

Digital ethics are also concerned with artificial intelligence. Once developers create neural networks capable of general intelligence, AI machines will have quite a bit of power. In this case, it is important to determine the extent of their intelligence and solutions to a variety of challenges that an AI may encounter. Perhaps, future technology inventions will implement digital ethics at their core.

Privacy is also a growing concern. How can you ensure freedom of speech, alongside privacy in a world where surveillance can be triggered at the push of a button? So far, numerous companies collect private data for advertisement purposes, but is this ethical?

How can we protect private data contained on our devices?

Who makes sure that the right to privacy isn't abused by tech companies and governments?

Although there are laws and regulations such as the GDPR in EU countries and the CCPA in the USAS, consumers are starting to turn toward private companies that offer digital privacy solutions. Incogni, a tool powered by Surfshark, offers an automated data removal service that helps users take their personal information off the market.

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IT BULLETIN

DATE: 09.01.2023

**THE RISE OF QUANTUM COMPUTING: UNDERSTANDING THE
FUTURE OF TECHNOLOGY**

The field of quantum computing has been gaining traction in recent years as researchers and tech companies continue to make significant breakthroughs in this revolutionary technology. Quantum computing is a form of computing that relies on quantum mechanics principles to perform complex computations much faster than classical computers. The potential applications of quantum computing are vast, ranging from cryptography to drug discovery to climate modeling.

Traditional computers use bits that can either be in a state of 0 or 1, but quantum computers use quantum bits (qubits) that can exist in multiple states simultaneously. This allows quantum computers to perform multiple calculations at once, leading to a significant speedup in computational power.

Quantum computing has the potential to revolutionize many industries, including finance, healthcare, and cybersecurity. For example, quantum computers could be used to quickly factor large numbers, which would break many of the current encryption standards used to protect data. In healthcare, quantum computers could help simulate complex chemical reactions to speed up drug discovery. In climate modeling, quantum computers could help researchers better understand the complex interactions between the Earth's atmosphere and oceans.

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IT BULLETIN

DATE: 10.01.2023

SMART SPACES

Smart spaces, also known as connected places, are physical locations equipped with networked sensors to give owners, occupants and managers more and better information about the condition of those locations and how they're used.

Locations for smart spaces can range from a building with networked temperature and motion sensors to a vehicle that constantly reports its location, performance and maintenance needs.

Benefits of smart spaces

1. Environmental benefits and cost savings:

Smart spaces reduce energy costs through real-time adjustments of heating, cooling and lighting based on changes in weather and building occupancy. Because they can be monitored and adjusted remotely, smart spaces reduce carbon footprints while saving money in the process.

2. Risk mitigation:

The monitoring and remote control capabilities of smart spaces allow supervisors to catch problems early and often help prevent them before they start. By anticipating or uncovering early warnings of problems in heating, plumbing and other infrastructures, smart spaces can reduce costly repairs and inconvenience to occupants.

3. A safer, smarter experience for work and play:

Smart spaces using surveillance and security systems improve the experience for occupants by providing a safer, better protected place to live and work. Smart spaces also provide convenience through sensor alerts for availability of (for example) laundry or exercise equipment.

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IT BULLETIN

DATE: 11.01.2023

GOOGLE USB WEBCAM

Tech giant Google is reportedly working on a new feature that will allow users to use their Android phone as a USB webcam.

Esper's Mishaal Rahman posted on the decentralised social media platform Mastodon, "using an Android phone as a webcam became really popular during the pandemic, but you've typically had to install a third-party app to do so."

"You may not have to do this in the future, though, as Google is adding support for turning Android devices into USB webcams!". "Android is adding a new 'DeviceAsWebcam' service" that will turn an android device into a webcam.

"Specifically, this refers to Android devices with kernel support for the standard UVC (USB video class) gadget mode," he added.

According to Rahman, the Android device's kernel might need to be compiled with 'CONFIG_USB_CONFIGFS_F_UVCy' for the new functionality to work.

Meanwhile, it was reported that the tech giant was working on a new 'Bluetooth Distance Measurement' application programming interface (API) which will help users to measure the distance between their smartphone and connected devices.

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IT BULLETIN

DATE: 11.01.2023

CERAMIC SMART RING

The ceramic smart ring is both a convenience and a conversation-starter. It is used to pay contactlessly in shops and on public transport. Tap it at the checkout to pay like a contactless debit or credit card or an Oyster card. Like those cards, it doesn't require its own source of power. It's smart yet simple. This means it never needs charging and it's completely waterproof. It's scratchproof too. We're used to the idea that NFC in smartphones or smart watches can be used for payments, if our bank offers it (not all do), but Ring Pay is an entirely different level of convenience because it's right there on your hand. It feels a bit magical. The ring comes in either black or white.

Ring Pay has its own account which you top up, either manually in the app or by setting up an auto top-up. But first we need a Ring Pay account and this is handled very seriously because it's a financial service, rather like a bank account. Once the app was set up, it worked very smoothly. In fact, set it to auto top-up and we have little need to look at the app. It keeps a log of all payments but also, as we're stepping out of a shop, we get the reassuring beep of a little push alert telling you what you just spent. The app also has a section for donating to charity, plus you can get cash back when shopping at certain retailers. There are no fees for day-to-day use. There's a foreign-exchange fee if we use it abroad and also a small fee to transfer money back to our bank account, which we're unlikely to do.

It's designed for simple contactless payments up to the current PIN-free limit (currently £45) but McLear has recently added the ability to pay larger sums by creating a PIN number in the app. We can link up to four rings to our account and top them up as we see fit.

This ring doesn't have to automatically top up and there's no bank balance to be drained if they lose it. Our only concern was that family members could get their rings confused it would be good to have different markings inside them or an option in the app to tap a ring to identify it. We can set spending limits and also hit pause. Misplaced a ring? Freeze payments, then unfreeze them when you find it down the back of the sofa.

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IT BULLETIN

DATE: 12.01.2023

**MACHINE LEARNING TOOL FOR PREDICTION OF MASSIVE BLOOD
TRANSFUSION**

USC researchers have developed a machine learning model that includes a wide range of clinical variables to increase precision of massive blood transfusion prediction. This novel machine learning technology allows multiple forms of variable entry to aid in the complicated calculation and to reduce provider's cognitive burden in an emergent, highly stressful situation without forcing simplification of variable entry (e.g. dichotomy) or number of variables.

Benefits

- The current model uses 4 unweighted measures to determine activation of MTP. This model's utility is limited in real-world trauma care, so clinicians usually have to use clinical judgement, regardless of this model's prediction.
- The USC solution allows the clinician to choose 1 of 5 models, which includes input for up to 16 clinical variables. As a result, the clinician's cognitive burden is reduced and there is an increased precision of MBT prediction likewise.

Market Application

In 2021, the World Health Organization (WHO) reported that roughly 4.4 million people died from injuries with various causes worldwide where hemorrhage remains the main cause of preventable death in trauma.

Trauma centers around the world have adopted massive transfusion protocols (MTPs) to enable automatic, constant supply of blood products from the Blood Bank. A failure to activate an MTP can lead to a significant delay in resuscitation with potential negative impact on patient incomes.

Due to the limitations of models that aid in the prediction as to whether or not to activate MTP, clinicians must make these decisions while simultaneously performing other diagnostic workup and resuscitative measures.

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IT BULLETIN

DATE: 13.01.2023

ARTIFICIAL INTELLIGENCE (AI)

Artificial Intelligence (AI) and Machine Learning Artificial Intelligence or AI, has already received a lot of buzz in the past decade, but it continues to be one of the new technology trends because of its notable effects on how we live, work and play are only in the early stages.

AI is already known for its superiority in image and speech recognition, navigation apps, smartphone personal assistants, ride-sharing apps and so much more.

Related learning: Advantages and Disadvantages of Artificial Intelligence Other than that AI will be used further to analyze interactions to determine underlying connections and insights, to help predict demand for services like hospitals enabling authorities to make better decisions about resource utilization, and to detect the changing patterns of customer behaviour by analyzing data in near real-time, driving revenues and enhancing personalized experiences.

The AI market will grow to a \$190 billion industry by 2025 with global spending on cognitive and AI systems reaching over \$57 billion in 2023. With AI spreading its wings across sectors, new jobs will be created in development, programming, testing, support and maintenance, to name a few. On the other hand AI also offers some of the highest salaries today ranging from over \$1,25,000 per year (machine learning engineer) to \$145,000 per year (AI architect) - making it the top new technology trend you must watch out for! Machine Learning the subset of AI, is also being deployed in all kinds of industries, creating a huge demand for skilled professionals.

Forrester predicts AI, machine learning and automation will create 9 percent of new U.S. jobs by 2025, jobs including robot monitoring professionals, data scientists, automation specialists and content curators, making it another new technology trend you must keep in mind too! Mastering AI and machine learning will help you secure jobs like: AI Research Scientist, AI Engineer, Machine Learning Engineer AI.

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IT BULLETIN

DATE: 18.01.2023

GRAVITY

GRAVITY or Gravity is a futuristic hand-made font that combines calligraphy, typography and graffiti.

This project is inspired by Calligraffiti, an art form that can be classified as either abstract expressionism or abstract vandalism. Simply put, it is the conscious effort of making a word or group of words into a visual composition GRVITY comes with full set of uppercase and abstract lowercase letters, numerals and a large range of punctuation. This font can be used for a lot of design project including branding design, print material, logos, clothing design and so on. Extra Free Resources – This product includes 15 high resolution transparent .PNG overlays and 9 large scale backgrounds to bring your design game to the next level.

This types include-jpg, png,ttf-Please note that Stylistic Alternates will require professional design software such as Adobe Illustrator, Photoshop, InDesign or Inkscape.

This language supports: English,French ,Italian, Spanish, Dutch, German.

Gravity is a typographic experiment, a new grotesque sans serif designed with balance and large counters. The typeface uses the "gravity" as a distinctive, functional and aesthetic feature of the font. The typeface supports Latin and Cyrillic and each file contains 528 glyphs.

Gravity is also a new geometric sans serif typeface designed with balance and large counters. The typeface uses the "gravity" as a distinctive, functional and aesthetic feature of the font. It is going to be used as official font by "Accademia di Belle Arti Palermo". Gravity is a family composed by weights like Book, Bold, Light.

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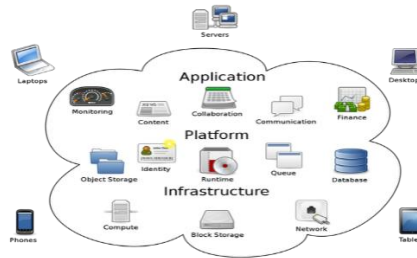
DEPARTMENT OF COMPUTER TECHNOLOGY AND INFORMATION TECHNOLOGY

IT BULLETIN

DATE: 19.01.2023

CLOUD COMPUTING

Cloud Computing is the delivery of on-demand computing services from applications to data storage, physical servers and virtual servers, development tools, network capabilities and processing power via the internet.



These services are divided into three main categories:

- Infrastructure as a Service (IaaS),
- Platform as a Service (PaaS) and
- Software as a Service (SaaS).

A Cloud can be private or public. A private cloud is a proprietary network that supplies hosted services to a limited number of people with certain access. A public cloud sells services to anyone on the internet. The goal of cloud computing is to provide easy, scalable access to computing resources and IT services.

Purpose of Using Cloud Computing Services:

- 1) High Speed:** Developers can easily test new ideas and design application architecture without the dependency on on-site hardware limitations or slow procurement processes.
- 2) Data Security:** Cloud offers many advanced security features that guarantee that data is securely stored and handled. Cloud storage providers implement baseline protections for their platforms and the data they process such as authentication, access control and encryption.
- 3) Efficiency & Cost Reduction:** By using cloud infrastructure drastically reduces the Cost of Ownership.
- 4) Storage Capacity:** It has essentially unlimited capacity to store any type of data in various cloud data storage types, depending on the availability, performance and frequency the data has to be accessed.

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IT BULLETIN

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**INNOVATING AT THE EDGE? HOW HYBRID CLOUD OVERCOMES
THE COMPLEXITY**

Emerging as one of the formidable tools that will help businesses drive innovation and uncover new revenue streams, edge computing holds the key to digital transformation by moving computing out to the 'edge' of the network – to the mobile devices, equipment and routers where data is collected. Transporting the cloud closer to where things are happening, edge computing enables businesses across industries to take advantage of all this data to make better decisions and better serve their customers at a lower latency than typical cloud computing.

A key benefit of edge computing is that users get a better experience in terms of reliability, speed and potentially better privacy, helping companies comply with data sovereignty regulations by keeping data on location while still being able to provide all of the features expected of modern cloud-based software. Edge computing mitigates issues around resilience (i.e., you can still act even when there is no network connectivity), latency with processing happening in real-time and network congestion because you only send the most relevant insights to the cloud. Of course, there are additional capabilities required for effective edge computing as use cases and locations can vary. For example, smaller resource constrained devices have different needs than a traditional server.

Clients have been keen to embrace edge computing because at the end of the day they see it driving transformational outcomes and giving them a technological competitive advantage. For example, IBM is working with Bharti Airtel, one of India's largest communications solutions providers, to enable Indian businesses to innovate at the edge using hybrid cloud technology. We are building a platform to allow Airtel enterprise customers to leverage the low latency supported by edge computing while keeping data within India to comply with regulatory requirements and help improve business performance and customer experience.

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IT BULLETIN

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BLOCK CHAIN

Technology today is evolving at a rapid pace, enabling faster change and progress, causing an acceleration of the rate of change. However, it is not only technology trends and emerging technologies that are evolving, a lot more has changed this year due to the outbreak of COVID-19 making IT professionals realize that their role will not stay the same in the contactless world tomorrow. An IT professional in 2023-24 will constantly be learning, unlearning, and relearning (out of necessity if not desire).

Artificial intelligence will become more prevalent in 2023 with natural language processing and machine learning advancement. Artificial intelligence can better understand us and perform more complex tasks using this technology. It is estimated that 5G will revolutionize the way we live and work in the future.

Although most people think of block chain technology in relation to crypto currencies such as Bit coin, block chain offers security that is useful in many other ways. In the simplest of terms, block chain can be described as data you can only add to, not take away from, or change. Hence the term “chain” because you’re making a chain of data. Not being able to change the previous blocks is what makes it so secure. In addition, block chains are consensus-driven, so no one entity can take control of the data. With block chain, you don’t need a trusted third-party to oversee or validate transactions.

Several industries are involving and implementing block chain, and as the use of block chain technology increases, so too does the demand for skilled professionals. Mastering block chain can help to scale up in a variety of fields and industries are: Risk Analyst, Tech Architect, Crypto Community Manager, Front End Engineer.

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IT BULLETIN

DATE: 23.01.2023

DATAFICATION

Datafication is a technological trend turning many aspects of our life into data which is subsequently transferred into information realised as a new form of value. Up until this time, datafication had been associated with the analysis of representations of our lives captured through data, but not on the present scale. This change was primarily due to the impact of big data and the computational opportunities afforded to predictive analytics.

Datafication is not the same as digitization, which takes analog content books, films, photographs and converts it into digital information, a sequence of ones and zeros that computers can read. Datafication is a far broader activity: taking all aspects of life and turning them into data. Once we datafy things, we can transform their purpose and turn the information into new forms of value.

Examples of datafication:

- Insurance: Data used to update risk profile development and business models.
- Banking: Data used to establish trustworthiness and likelihood of a person paying back a loan.
- Human resources: Data used to identify e.g. employees risk-taking profiles.
- Hiring and recruitment: Data used to replace personality tests.

How does datafication work?

Datafication, despite being a term coined in 2013, remains extremely relevant. It seeks to transform social behaviour into quantified data by applying sophisticated mathematical analysis rather than simply converting analog information into digital one, like in digitisation.

Datafication: a new business model?

We are talking about building an analytical culture that spreads across all aspects of how business is conducted in the digital age. Both artificial intelligence and machine learning play an important role in datafication but the first step begins with collecting data from various sources. Then, AI/ML algorithms will analyse the collected data to get useful information for decision-making.

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IT BULLETIN

DATE: 24.01.2023

CLOUD COMPUTING ARCHITECTURE

What is cloud computing?

Cloud computing is the on-demand availability of computer system resources, especially data storage and computing power, without direct active management by the user. Large clouds often have functions distributed over multiple locations, each of which is a data center.

Cloud architecture

The systems architecture of the software systems involved in the delivery of cloud computing, typically involves multiple cloud components communicating with each other over a loose coupling mechanism such as a messaging queue. Elastic provision implies intelligence in the use of tight or loose coupling as applied to mechanisms such as these and others.

Types of Cloud

Public cloud, Private cloud, Hybrid cloud, Community cloud, Multi cloud

Advantages of Cloud Computing

1. Back-up and restore data
2. Improved collaboration
3. Excellent accessibility
4. Low maintenance cost
5. Mobility
6. Services in the pay-per-use model
7. Unlimited storage capacity
8. Data security

Disadvantages of Cloud Computing

1. Internet Connectivity
2. Vendor lock-in
3. Limited Control
4. Security

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IT BULLETIN

DATE: 24.01.2023

Y COMBINATOR- BACKED POLY USES AI TO GENERATE ART ASSETS

As generative AI like Chat GPT and DALL-E 2 attract investor attention, startup entrepreneurs are looking to cash in with new business models built around them. One of the more interesting ventures to emerge from the space recently is Poly, which lets designers create video game and other virtual assets, including textures for 3D models, using only text prompts.

Poly's first tool in its planned web-based suite generates 3D textures with physically-based rendering maps. In modeling, "physically-based rendering" refers to a technique that aims to render images in a way that mimics the flow of light in the real world.

With Poly, designers can describe a texture (e.g. "Tree bark with moss") and optionally provide a reference image to get generated textures for crafting 3D models. The models come in customizable resolutions and with normal and invert maps. Maps often used in game development to add volume, depth and details to 3D objects' surfaces.

"Poly trains its generative AI models with several proprietary methods, such as extracting texture information from normal images to augment its model's learning capabilities," CEO Abhay Agarwal said.

Poly's also not the first to apply AI to generating game assets. Direct competitors include Hotpot and Pixela.ai, which use similar algorithms to create custom backgrounds, sprites and other art content.

Agarwal asserts that Poly's generative AI is superior to most in terms of the quality of assets it produces. The jury's out on that. But Poly aims to further differentiate itself by expanding its generative AI service across asset types such as illustrations, sprites, sound effects and more. It plans to make money through enterprise partnerships, premium integrations for design tools and by charging a subscription fee for royalty-free access to assets, including commercial and resale rights.

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DATE: 25.01.2023

CHAT GPT-4

Artificial Intelligence Chat GPT Latest News GPT-4 Can Help Make Tasks More Accurate and Efficient than Chat-GPT Meghmala. A generative text generation deep learning model called Pre-trained Transformer (GPT) was developed using online data. It is used in conversational AI, text categorization, classification, and translation software. We can learn how to build our own deep learning model by exploring the Deep Learning in Python skill track. The fundamentals of deep learning, the Tensorflow and Keras frameworks, and how to build various input and output models with Keras will all be covered. GPT models have a wide range of applications, and you may even fine-tune them with specific data to get even better results. You can cut expenditures on computing, time, and other resources by employing transformers. Prior to GPT-1, the majority of Natural Language Processing (NLP) models had been trained for certain tasks like translation and categorization. According to Altman, GPT-4 won't be noticeably bigger than GPT-3.

GPT-4 will have a significant impact on how natural language processing (NLP) operations like translation, text summarization, and question answering are performed. GPT-4 can aid in making these tasks more precise and effective thanks to its sophisticated comprehension of context and capacity to produce text that sounds like human speech. The possibility for GPT-4 to be employed in content creation and creative writing is another implication. GPT-4 has the potential to help writers and content producers come up with fresh ideas and improve their work because it can write in a number of styles and formats. The sphere of education may likewise be significantly impacted by GPT-4 technology. GPT-4's superior language understanding makes it possible to design individualized learning experiences for pupils that will help them comprehend difficult ideas and enhance their writing abilities. In the realm of artificial intelligence research, GPT-4 may also have a significant effect. GPT-4's sophisticated capabilities might be utilized to train more AI models and hasten the creation of new AI applications. This might result in innovations in a variety of fields, including computer vision and natural language processing.

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IT BULLETIN

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ROBOTIC PROCESS AUTOMATION (RPA)

Like AI and Machine Learning, Robotic Process Automation, or RPA, is another technology that is automating jobs. RPA is the use of software to automate business processes such as interpreting applications, processing transactions, dealing with data, and even replying to emails. RPA automates repetitive tasks that people used to do.

Although Forrester Research estimates RPA automation will threaten the livelihood of 230 million or more knowledge workers or approximately 9 percent of the global workforce, RPA is also creating new jobs while altering existing jobs. McKinsey finds that less than 5 percent of occupations can be totally automated, but about 60 percent can be partially automated.

As an IT professional looking to the future and trying to understand latest technology trends, RPA offers plenty of career opportunities, including developer, project manager, business analyst, solution architect and consultant. And these jobs pay well.

An RPA developer can earn over ₹534K per year - making it the next technology trend must keep a watch on!

Mastering RPA will help you secure high paying jobs like:

- RPA Developer
- RPA Analyst
- RPA Architect

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APACHE KAFKA

Apache Kafka is a distributed event store and stream-processing platform. It is an open-source system developed by the Apache Software Foundation written in Java and Scala. The project aims to provide a unified, high-throughput, low-latency platform for handling real-time data feeds. Kafka can connect to external systems (for data import/export) via Kafka Connect, and provides the Kafka Streams libraries for stream processing applications. Kafka uses a binary TCP-based protocol that is optimized for efficiency and relies on a "message set" abstraction that naturally groups messages together to reduce the overhead of the network roundtrip.

Apache Kafka's Architecture

Apache Kafka's architecture actually delivers an easier to understand approach to application messaging than many of the alternatives. Kafka is essentially a commit log with a very simplistic data structure. It just happens to be an exceptionally fault-tolerant and horizontally scalable on.

Kafka API Connect API

Kafka Connect (or Connect API) is a framework to import/export data from/to other systems. It was added in the Kafka 0.9.0.0 release and uses the Producer and Consumer API internally. The Connect framework itself executes so-called "connectors" that implement the actual logic to read/write data from other systems. The Connect API defines the programming interface that must be implemented to build a custom connector. Many open source and commercial connectors for popular data systems are available already. However, Apache Kafka itself does not include production ready connectors.

Streams API

Kafka Streams (or Streams API) is a stream-processing library written in Java. It was added in the Kafka 0.10.0.0 release. The library allows for the development of stateful stream-processing applications that are scalable, elastic, and fully fault-tolerant. The main API is a stream-processing domain-specific language (DSL) that offers high-level operators like filter, map, grouping, windowing, aggregation, joins, and the notion of tables.

The latest version of Streams API is 2.8.0. The link also contains information about how to upgrade to the latest version.

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IT BULLETIN

DATE: 30.01.2023

SMART DEVICE

A **smart device** is an electronic device, generally connected to other devices or networks via different wireless protocols (such as Bluetooth, Zigbee, near-field communication, Wi-Fi, LiFi, or 5G) that can operate to some extent interactively and autonomously. Several notable types of smart devices are smartphones, smart speakers, smart cars, smart thermostats, smart doorbells, smart locks, smart refrigerators, phablets and tablets, smartwatches, smart bands, smart keychains, smart glasses, and many others. The term can also refer to a device that exhibits some properties of ubiquitous computing, including machine learning.

Smart devices can be designed to support a variety of form factors, a range of properties pertaining to ubiquitous computing and to be used in three main system environments: physical world, human-centered environments, and distributed computing environments. Smart homes indicate the presence of sensors and some detection devices, appliances, and a database to control them.

Smart devices are typically composed of a hardware layer (including a radio that transmits signals), a network layer (through which devices communicate with each other), and an application layer (through which end users deliver commands). These layers often include the following characteristics:

- A set of system hardware & software IT resources. This set is usually static, fixed at design time.
- Dynamic component-oriented resource extensions and plug-ins (plug and play) of some hardware resources.
- Remote external service access and execution.
- Local, internal autonomous service execution.
- Access to specific external environments: human interaction, physical world interaction and distributed ICT / virtual computing interaction.
- Some ubiquitous computing properties.

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IT BULLETIN

DATE: 30.01.2023

**SUNDAR PICHAI, CEO OF GOOGLE FINALLY INTRODUCES BARD
RIVAL OF CHATGPT**

Chat-GPT is the latest talk of the town, which came into the limelight in November. After their launch, OpenAI has revealed various significance and easy usage of ChatGPT in daily lives. Since then Google has also been working on AI for the past 6 years and now finally has revealed their hard work by introducing Bard which is a rival of ChatGPT.

In the latest blog post, SundarPichai, CEO of Google finally introduced Bard and also mentioned in detail about the Bard. The conversational AI service Bard is in experimental mode. Powered by the firms' Language Model for Dialogue Applications (LaMDA). The ability to derive information from the web is what sets Bard apart from ChatGPT.

Further, Pichai also explained in detail that Bard is designed to provide high-quality responses by drawing information from the web. It can also help explain complex topics and help in training drills to build skills.

But now Google is launching Bard initially with a lightweight model called LaMDA, this requires less computing power and makes it easier to scale to more users and get feedback faster. Further, the firm is also planning to combine external feedback with its internal testing to enhance Bard's responses and to ensure higher quality, safety, and groundedness in the real world.

Google unveiled Bard the day before Microsoft held an event at its headquarters. The firm is expected to integrate ChatGPT from OpenAI into its search engine, Bing.

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IT BULLETIN

DATE: 31.01.2023

NETWORKING TECHNOLOGY IN 2022

In 2020, at the onset of the pandemic in the U.S., the key focus areas in networking were software-defined WAN (SD-WAN), 5G cellular, Wi-Fi 6, AI enablement and network automation. These technologies will continue to be critical areas of focus in 2022, primarily because they represent true technological advantages for businesses.

Let's take a look at these top networking technology trends and how they're shaping the industry.

1. SD-WAN -SD-WAN has become far more critical as businesses shut down offices, driving either a hybrid work environment or a complete work-from-home (WFH) strategy. WFH went from temporary to permanent for many companies, which redefined the network edge.

2. 5G cellular -Because of the pandemic, the migration to 5G cellular changed significantly and not just because some oddball conspiracy theories suggested 5G caused the pandemic. While carriers continued their 5G rollouts, many businesses that planned to migrate to 5G have stuck with 4G/LTE for now. Government programs for 5G, like smart cities, came under pressure from the pandemic's unexpected and mounting healthcare costs.

3. Wi-Fi 6 - The transition to Wi-Fi 6 has been problematic for many businesses that began planning the migration for 2020 or 2021. The shift to WFH has had a dramatic effect on commercial real estate. Many offices are shuttered, and those that are still running often see lower employee density.

4. AI enablement

The AI enablement of networking products has been rolling along as expected. 2020 had a concerted focus on the enablement of applications with AI, especially in the security and analytics areas.

While AI can't replace humans entirely, it does a tremendous job of scaling and adapting as the landscape underneath is shifting.

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IT BULLETIN

DATE: 01.02.2023

MARKET TREND

Technology continues to be a critical force for change in the world. Technology breakthroughs give enterprises more possibilities to lift their productivity and invent offerings. And while it remains difficult to forecast how technology trends will play out, business leaders can plan ahead better by watching the development of new technologies, anticipating how companies could utilize them, and understanding the factors that impact innovation and adoption.

Listed below are the Top 5 craziest technology trends to watch in 2023.

Applied observability: It advances the practise of pattern recognition. To foresee and identify abnormalities and offer solutions, one must have the capacity to delve deeply into complicated systems and a stream of data.

Digital Immune System: To make sure that systems operate round-the-clock to deliver uninterrupted services, Digital Immune System will combine observability, AI-augmented testing, chaos engineering, site reliability engineering (SRE), and software supply chain security.

Superapps: These represent the upcoming shift in application design and development, where consumers will utilise a single app to manage the majority of systems in an enterprise ecosystem. Over 50% of the world's population will utilize superapps on a daily basis, predicts Gartner.

AR/VR and BlockChain technology: A more interconnected, safe, and immersive virtual environment where people and businesses may recreate real-life scenarios will be created by combining AR/VR, AI/ML, IoT, and Blockchain.

AAI: Advanced Artificial Intelligence (AI), which will revolutionize machine learning, pattern recognition, and computing. It aims to fully automate processes without requiring any manual input.

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A DEEP DIVE INTO IMAGEN

Text-to-image synthesis is a research direction within the field of multimodal learning. As the title of the paper suggests, Imagen is a diffusion model.

Very briefly, diffusion models are an example of generative AI based upon taking an input x^0 and gradually adding Gaussian noise at each layer t until a pure noise representation is reached x^T , where T is the final layer. This is inspired by non-equilibrium thermodynamics, whereby states evolve by diffusion to be homogeneous given a long enough time frame

Imagen is a diffusion model which is seemingly very close in its architecture to GLIDE (i.e. it takes a text embedding as input and generates images from noise). However, a key difference in Imagen is that the text embeddings are found from large off-the-shelf language models (LMs).

Classifier guidance was introduced to improve the quality of generated images via a pre-trained model which pushes the output at test time to be more faithful to the text input. Classifier-free guidance avoids this need for a pre-trained model by generating two samples (outputs) from the input noise, with and without text conditioning.

While not currently available to the public (for social and ethical reasons), the resulting model 'Imagen' incorporates novel techniques such as using off-the-shelf text encoders, dynamical thresholding and more efficient U-Net architectures for base and super resolution layers.

Therefore, it will be interesting to observe (maybe in a future publication or from a select contingent of researchers allowed access to Imagen) a more extensive evaluation of text-to-image generation models.

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IT BULLETIN

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OPENAI'S CHATGPT IS THE WORLD'S BEST CHATBOT

ChatGPT is OpenAI's latest language model, specifically trained for interactions by conversation. OpenAI has released ChatGPT, a new dialogue language model (LM) based on the GPT-3.5 family series (trained on text and code) and similar to InstructGPT (aligned with reinforcement learning through human feedback). The company set up an online demo and people are *losing their minds* over it.

In a nutshell, ChatGPT is a chatbot that can “answer followup questions, admit its mistakes, challenge incorrect premises, and reject inappropriate requests.” ChatGPT is, by far, the best chatbot in the world. ChatGPT's training data includes man pages and information about Internet phenomena and programming languages, such as bulletin board systems and the Python programming language. It can write essays and poetry. It can find great prompts for AI art models. It can roleplay. It can write code, find a bug, explain it, solve it, and explain the solution.

It alters the way people make use of search engines, by offering customers with more than simply links to browse through, it could fundamentally alter how people use search engines by delivering answers to complex problems. It is not just a good debugging companion but it can also fix the bug when you are asking a question.

The model would ask clarifying questions when the user provided an ambiguous query. Instead, our current models usually guess what the user intended. OpenAI have made efforts to make the model refuse inappropriate requests, it will sometimes respond to harmful instructions or exhibit biased behavior.

“Soon, we will be able to have helpful assistants that talk to us, answer questions and give advice, in real-time...”

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**80% OF FUTURE SMARTPHONES WILL BE 5G-ENABLED IN INDIA BY
2023**

As India rides on 5G with more than 50 cities and towns now enjoying the new technology, the India Cellular and Electronics Association (ICEA) Chairman Pankaj Mohindroo said that by the end of 2023, 75-80% of the new smartphone launches will be 5G-enabled.

The 5G services were launched by Prime Minister Narendra Modi on October 1, 2022. Telecom service providers have launched the service in select cities and plan to cover the entire nation by the end of 2023 or early 2024.

"India as a nation is an early adopter of 5G technology. This 5G technology has opened a vast opportunity for a new generation of telecom equipment manufacturers, application providers, and internet of things (IoT), machine-2-machine (M2M) and healthcare services, among others," Mohindroo told IANS.

The mobile device ecosystem was an early starter for manufacturing 5G phones. Even before the launch of 5G services, approximately 80-100 million 5G-compatible phones were already in the market.

5G will represent around 53% of mobile subscriptions in India by 2028, with 690 million users, according to 'Ericsson Mobility Report'. 5G subscriptions in India were expected to reach around 31 million by the end of 2022.

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INTEL LAUNCHES NEW XEON WORKSTATION PROCESSORS

Xeon W-3400 and Xeon W-2400 processors provide the high-end computing foundation that today's professionals require for the future of computing.

Intel announced the new Intel Xeon W-3400 and Intel Xeon W-2400 desktop workstation processors (code-named Sapphire Rapids), led by the Intel Xeon w9-3495X, Intel's most powerful desktop workstation processor ever designed. Built for professional creators, these new Xeon processors provide massive performance for media and entertainment, engineering and data science professionals.

What It Offers: Available with up to 56 cores in a single socket, the top-end Intel Xeon w9-3495X processor features a redesigned memory controller and larger L3 cache, delivering up to 28% single-thread and up to 120% multi thread performance improvements over the previous generation and operational frequencies up to 4.8 gigahertz with Intel Turbo Boost Max Technology 3.0 provide professional users with incredible compute performance in daily workloads.

Other platform features include:

- Up to 105 megabytes of L3 cache for increased performance and data management.
- Eight channels of DDR5 RDIMM memory support enables up to 4 terabytes of memory capacity and increased memory bandwidth for large data sets and memory-intensive workloads.
- ECC memory and RAS technologies support improved integrity of critical data and system reliability.
- Up to 112 CPU PCIe Gen 5.0 lanes on Xeon W-3400 processors and up to 64 CPU PCIe Gen 5.0 lanes on Xeon W-2400 processors for multi-GPUs, SSDs and network cards give professionals configuration flexibility to meet their next task.
- Integrated Intel® Wi-Fi 6E for the latest network connectivity.
- 3rd generation Intel Deep Learning Boost (AMX, Bfloat16) delivers significantly more efficient deep learning acceleration for artificial intelligence training and inferencing.

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IT BULLETIN

DATE: 07.02.2023

AI POWERED CONVERSATIONAL BOTS IN METAVERSE

Artificial Intelligence (AI) is going to play a very vital role in augmenting the Metaverse by enabling natural and real human-like interactions and conversations in the form of real time chat and voice assistance, avatars, mascots etc. When people are in a virtual set up which is closest to reality, with real life interface, they also expect communication and engagement that resemble their real life.

A recent study by Markets and Markets states that speech and voice recognition market size is estimated to grow from \$8.3 billion in 2021 to \$22 billion in 2026.

Businesses can now leverage the power of Conversational AI and give their audience a consistent and elevated experience in what is said to be the next big platform for B2C interactions – Metaverse. Brands can now revolutionize their customer support channel and effectively communicate with their audience in a much better manner.

Many industry experts speculate that the customer support businesses offer will evolve and become a virtual speech-first approach in times to come. This will be a big breakthrough in the way brands communicate with their customers.

Metaverse means real human-like experience hence the customer support strategies businesses plan to implement on the platform need to do justice too. The conversational speech driven bots need to be developed keeping in mind the emotional aspect humans possess.

These AI driven conversational bots must be built to have human like voice intonations, empathize with users, crack jokes, offer advice etc. in a way a human would.

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IT BULLETIN

DATE: 08.02.2023

**WHATSAPP ROLLING OUT TEXT EDITOR FEATURES TO ANDROID
BETA TESTERS**

WhatsApp has long been reported to work on a text editing feature. The feature had previously been reported to have been tested on both Android and iOS platforms. According to a new report, the feature is now being rolled out to select beta testers. However, the feature will be available only to WhatsApp on Android users currently. Since the iOS version has already been reported to be tested, it is expected to be rolled out soon. The social media platform is also reportedly working on an edit message feature.

A WhatsApp update tracker WABetaInfo post states that WhatsApp's new creative tools will help users to edit images, videos, and GIFs by using new tools and fonts offered with the new feature. The text editor is now available for select beta testers along with the Android 2.23.7.17 update.

The feature reportedly introduces to users the ability to quickly switch between fonts by tapping one of the font options displayed above the keyboard. Although changing the text font was previously possible, WhatsApp is now reportedly enabling users to quickly choose the desirable font. According to the report, text alignment can now also be set to left, centre, or right, offering users more control over text formatting inside images, videos, and GIFs.

Users will also reportedly be able to alter the background colour of the text with this new feature, making it easier to distinguish important text from the rest. Calistoga, Courier Prime, Damion, Exo 2, and Morning Breeze are among the new fonts that have been made available to beta testers, the report adds.

The WABetaInfo report adds that WhatsApp will start rolling out the text editing feature to more users in the coming few weeks. The similar feature has also been found to be tested on iOS devices, so it is safe to say that an iOS version of the edit text feature will be available for beta testers soon.

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IT BULLETIN

DATE: 09.02.2023

**WHATSAPP BASED CHATBOX INTRODUCED IN TIRUNELVELI TO
TAKE WELFARE SCHEMES TO PUBLIC**

The interactive chatbot, christened 'SEVAI' (Searches Explored Via Artificial Intelligence), guides the user to the relevant welfare programme based on the information provided by the user. For the first time in Tamil Nadu, the district administration has introduced a WhatsApp-based chatbot prepared by a three-member startup team to take government welfare programmes to the public.

When the district administration, in association with Tamil Nadu Startup and Innovation Mission (TANSIM), organised Tamil Nadu's first 'GovTechThon' recently on four problem statements, the chatbot prepared by Ajith, Sivasubramanian and Venkatesh on lucidly telling the user about the welfare schemes based on the user's age, financial status, qualifications, etc., won the first prize in the competition.

"We decided to fine-tune the chatbot to take it to the people. Now, the fine-tuned version can easily be used in the WhatsApp mode to get details about 500-odd welfare programmes being offered by 30-plus departments of the State and the Central governments," said Collector V. Vishnu, a U.S.-trained risk analyst, who fine-tuned it.

Once a 'Hi' is sent to the WhatsApp number 94458 79944, the interactive chatbot, christened 'SEVAI' (Searches Explored Via Artificial Intelligence), guides the user to the relevant welfare programme based on the information provided by the user.

The district administration has planned to popularise this chatbot among students. "We'll introduce it across Tamil Nadu very soon," announced Minister for Information Technology T. Mano Thangaraj, who inaugurated the Information Technology Conclave here on Thursday, in which several students and the promoters of startups participated.

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IT BULLETIN

DATE: 10.02.2023

**IBM LAUNCHES NEW SOFTWARE TO BREAK DOWN DATA SILOS
AND STREAMLINE PLANNING**

IBM has announced new software designed to help enterprises break down data and analytics silos so they can make data-driven decisions quickly and navigate unpredictable disruptions. IBM Business Analytics Enterprise is a suite of business intelligence planning, budgeting, reporting, forecasting, and dashboard capabilities that provides users with a robust view of data sources across their entire business. Along with IBM Planning Analytics with Watson and IBM Cognos Analytics with Watson, this suite also includes a new IBM Analytics Content Hub that helps streamline how users discover and access analytics and planning tools from multiple vendors in a single, personalized dashboard view.

According to an August 2022 Forrester report, advanced insights-driven organizations are 1.6x more likely to report using data, analytics, and insights to create experiences, products, and services that differentiate them within the market when compared to beginners. However, companies are currently facing a highly dynamic operating environment where they must navigate unpredictable events such as supply chain disruptions, labor and skills shortages, evolving regulations, and more. The complexity of storing data across disparate silos can make this more challenging as teams collaborate across different analytics and business intelligence tools. To become data-driven, businesses can differentiate themselves by creating an enterprise-wide strategy that enables them to bring together their tools and put insights into the hands of decision makers.

Building on IBM's existing portfolio of business intelligence solutions, IBM Business Analytics Enterprise includes a new IBM Analytics Content Hub. It is designed to allow users to view planning and analytics dashboards from multiple vendors, including tools like IBM Cognos Analytics with Watson, IBM Planning Analytics with Watson, and other common business intelligence tools into a single view that combines elements from each in a dashboard tailored to their unique needs. Additionally, it features algorithms that can recommend role-based content to help users surface new stories, reports, and dashboards from across the organization to aid in decision-making. As more users click through materials within the IBM Analytics Content Hub, the solution analyzes usage patterns to recommend content that aligns with their specific interests.

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IT BULLETIN

DATE: 13.02.2023

BHAGWATI PRODUCTS

India's leading electronics contract manufacturer Bhagwati Products, which is the first domestic company to benefit from the government's Production-Linked Incentive (PLI) Scheme for IT hardware, is in talks with the top four IT hardware brands in the country.

Under the PLI scheme, Bhagwati is currently manufacturing laptops and tablets for Acer and Realme, along with a few smaller brands. Bhagwati qualified incremental sales thresholds and investment criteria, as per the scheme's requirements and bagged Rs 5.30 crore disbursement by the Ministry of Electronics and Information Technology for 2021-22.

The company has been manufacturing IT hardware at its state-of-the-art manufacturing facilities in India – Bhiwadi (Rajasthan) in the North and Hyderabad (Telangana) in the South since 2020. It has a current annual manufacturing capacity of 10 million smartphones and 1.2 million IT products

Rajesh Agarwal, Director of Bhagwati Products Ltd., told Business Today, "To further boost the domestic market and take Indian manufacturing on the global map, we are also in talks with other bigger players in the IT hardware sector. Currently, Acer is one of the biggest brands in this category, and there are other smaller brands as well."

Other than IT hardware, Bhagwati Products is amongst the approved domestic companies under the existing PLI schemes for smartphones and air-conditioner components. It is expanding the manufacturing facility and adding more SMT Lines to cater to the growing demand, both from domestic and international brands. Besides smartphones, IT hardware, and air conditioning components, Bhagwati has a manufacturing capacity of 1 million LED TVs per month.

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APPLE WATCH

Apple has now been making its Watch series for a good few years, most of which have followed roughly the same formula. The Apple Watch Ultra takes all of the good bits of previous designs and piles as much as possible on top.

While the result is a smart watch that is by no means cheap, it has also resulted in the perfect device for athletes of all practices. Apple has kept divers, climbers, tennis players, martial artists and every one in-between in mind.

All-day LTE battery life is based on the following use: 90 time checks, 90 notifications, 45 minutes of app use and a 60-minute workout with music playback from Apple Watch via Bluetooth, over the course of 18 hours; Apple Watch Ultra (GPS + Cellular) usage includes a total of 18 hours of LTE connection.

It's great for fitness tracking as well as routine tasks like getting directions and answering texts, email and phone calls and even paying for our morning coffee.

It is durable, water-resistant upto100metres, can deal with extreme low and high temperatures, has an impressive 36 hour battery life and has detailed apps to track our fitness and health.

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IT BULLETIN

DATE: 15.02.2023

APPLE'S NEXT 11.1-INCH, 13-INCH IPAD PRO

The Apple iPad Pro variants could come with larger, OLED panels. Apple's last iPad Pro variants launched earlier this year with M2 chipsets. (Image Source: Apple)

Apple is working on new iPad Pro models which are expected to arrive in 2024. These new iPad Pros are expected to be the brand's most powerful tablets yet and are also expected to launch with bigger displays.

As per a new report by MacRumors, Display Analyst Ross Young said Apple's next iPad Pro models could launch in 2024 and come with bigger OLED display panels. The report also adds that despite the slightly larger screens the new iPads could have even slimmer bezels and hence, the same overall size.

Apple's iPhone 15 Plus could have lower price, more difference between 'Pro' and 'Max' models: Report. This is very different from the current lineup of the iPad Pro models, which include an 11-inch iPad Pro with an LCD display panel and a larger 12.9-inch variant with a mini-LED panel that can offer better contrast ratios.

An OLED panel however, the biggest expected change in the upcoming Pro models, is much superior than both an LCD panel and a mini-LED panel, given that OLED displays often offer the best colours as well as contrast ratios, especially making sure darker colours like black appear accurately.

Unlike the iPhone-series, Apple does not launch new iPad Pro variants every year. With the latest currentgen iPad Pro variants powered by the M2 chip launched recently in October 2022, it seems accurate that the successors would come with a 2024 launch date.

An OLED panel however, the biggest expected change in the upcoming Pro models, is much superior than both an LCD panel and a mini-LED panel, given that OLED displays often offer the best colours as well as contrast ratios, especially making sure darker colours like black appear accurately.

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IT BULLETIN

DATE: 16.02.2023

CLOUD COMPUTING

Cloud Computing is the delivery of on-demand computing services from applications to data storage, physical servers and virtual servers, development tools, network capabilities and processing power via the internet.

Purpose of Using Cloud Computing Services:

1) High Speed:

Developers can easily test new ideas and design application architecture without the dependency on on-site hardware limitations or slow procurement processes.

2) Data Security:

Cloud offers many advanced security features that guarantee that data is securely stored and handled. Cloud storage providers implement baseline protections for their platforms and the data they process such as authentication, access control and encryption. From there, most enterprises supplement these protections with added security measures of their own to bolster cloud data protection and tighten access to sensitive information in the cloud.

3) Efficiency & Cost Reduction:

By using cloud infrastructure, we don't have to spend huge amounts of money on purchasing and maintaining equipment. This drastically reduces the Cost of Ownership. We don't have to invest in hardware, facilities, utilities or building out a large data center to grow our business.

4) Storage Capacity:

The cloud has essentially unlimited capacity to store any type of data in various cloud data storage types, depending on the availability, performance and frequency the data has to be accessed. Creating and optimizing the cloud cost structure policy can reduce the cost of cloud storage significantly while maintaining the company's business goals related to data storage in the cloud.

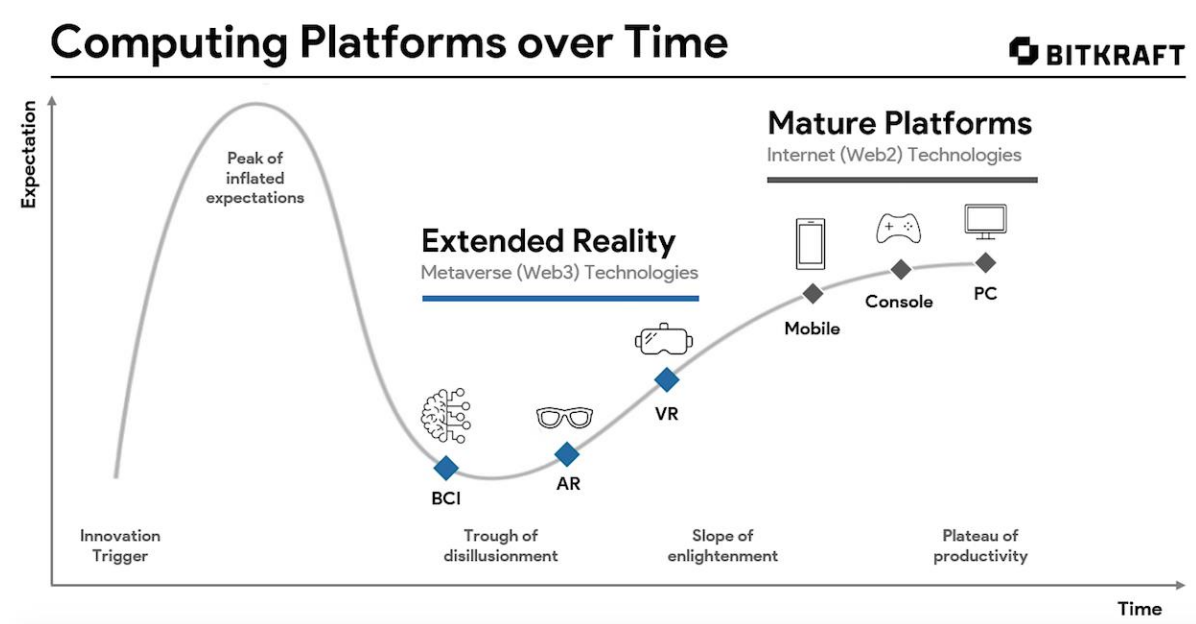
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THE FUTURE OF METAVERSE AND THE HUMAN EXPERIENCE

Over the course of 2021, the word ‘metaverse’ entered common usage, inspiring a lively global debate about what it represents, whether it’s already here and who will own it. But in 2022 we still don’t have an accepted definition of what it is. This has been satirized on the tech website

In order to explore the possible implications of the metaverse, we need to understand exactly what it is. The attempts at a definition can be categorized into three schools of thought.

The metaverse has also been described as a place where users can connect, interact, and transfer themselves and their belongings across multiple digital locations. Examples that come to mind include gaming and creator platforms like Roblox, Epic Games’ Fortnite or Manticore Games’ in which players and their avatars can seamlessly transition from one virtual world to another.



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IT BULLETIN

DATE : 18.02.2023

IBM AIOPS SOFTWARE HELPS BUSINESSES

IBM updates its Turbonomic Application Resource Management and Instana Observability software to help organizations manage application performance and energy and costs to accelerate sustainability initiative progress.

In a constantly evolving business environment, many organizations are struggling to deliver on elevated customer expectations while navigating the challenges of skilled labor gaps, digital disruption, and increasingly complex IT environments.

With more people leaving the workforce, companies lack the staffing required to manage these environments and scale them by traditional means. To bridge this gap, organizations are turning to new digital solutions like automation technology to better leverage their existing talent.

Indeed, the IBM Global AI Adoption Index 2022, which was commissioned by IBM in partnership with Morning Consult, found that 30% of global IT professionals surveyed stated they have already implemented AI and automation software, helping their employees save time. For example, organizations including BBC Studios and ExaVault are leveraging solutions like AIOps and observability to more deeply understand the data around their IT operations.

To further help organizations proactively manage their IT resources in a cost-effective manner, it is announcing important updates to two of our key offerings: IBM Turbonomic Application Resource Management and IBM Instana Observability. These software offerings are part of IBM's end-to-end portfolio of intelligent automation solutions for business and IT, with many of the solutions developed by IBM Research.

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DATE: 20.02.2023

3D PRINTING

What is 3D printing?

- 3D printing, also known as additive manufacturing, is a method of creating a three dimensional object layer-by-layer using a computer created design.
- 3D printing is an additive process whereby layers of material are built up to create a 3D part.

Technologies:

- Sintering
- Melting
- Stereolithography Sintering

Sintering:

Sintering is a technology where the material is heated, but not to the point of melting, to create high resolution items. Metal powder is used for direct metal laser sintering while thermoplastic powders are used for selective laser sintering.

Melting:

Melting methods of 3D printing include powder bed fusion, electron beam melting and direct energy deposition, these use lasers, electric arcs or electron beams to print objects by melting the materials together at high temperatures

Stereolithography:

Stereolithography utilizes photopolymerization to create parts. This technology uses the correct light source to interact with the material in a selective manner to cure and solidify a cross section of the object in thin layers.

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IT BULLETIN

DATE: 21.02.2023

NVIDIA OMNIVERSE

The realm of virtual worlds takes a major leap forward today with the introduction of new features and partners for NVIDIA Omniverse speeding the internet's evolution from ordinary 2D into a dazzling world that bursts alive in 3D. Omniverse a platform that serves as the connective tissue for physically accurate 3D virtual worlds is gaining new features such as AR, VR and multi-GPU rendering as well as integrations for infrastructure and industrial digital-twin applications with software from Bentley Systems and Esri. Omniverse enables engineers and designers to build physically accurate digital twins of buildings and products or create massive, true-to-reality simulation environments for training robots or autonomous vehicles before they're deployed in the physical world.

New Omniverse Technologies and Features

Omniverse Avatar, a technology platform which connects NVIDIA technologies in speech AI, computer vision, natural language understanding, recommendation engines and simulation technologies to generate interactive AI avatars. Omniverse Replicator, a powerful engine that generates synthetic data for training deep neural networks.

NVIDIA CloudXR, an enterprise-class immersive streaming framework, has been integrated into Omniverse Kit — a toolkit for building native Omniverse applications and microservices — allowing users to interactively stream Omniverse experiences to their mobile AR and VR devices.

Omniverse VR introduces the world's first full-image, real-time ray-traced VR enabling developers to build their own VR-capable tools on the platform, and end users to enjoy VR capabilities directly. Omniverse XR Remote provides AR capabilities and virtual cameras, enabling designers to view their assets fully ray traced through iOS and Android devices. Omniverse Farm lets teams use multiple workstations or servers together to power jobs like rendering, synthetic data generation or file conversion.

Omniverse Showroom, available as an app in Omniverse Open Beta, lets nontechnical users play with Omniverse tech demos that showcase the platform's real-time physics and rendering technologies.

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IT BULLETIN

DATE: 22.02.2023

CONTROL NET AND STABLE DIFFUSION: A GAME CHANGER FOR AI
IMAGE GENERATION

ControlNet is revolutionary. With a new paper submitted, the boundaries of AI image and video creation have been pushed even further: It is now possible to use sketches, outlines, depth maps or human poses to control diffusion models in ways that have not been possible before.

The revolutionary thing about ControlNET is its solution to the problem of spatial consistency. Whereas previously there was simply no efficient way to tell an AI model which parts of an input image to keep, ControlNet changes this by introducing a method to enable Stable Diffusion models to use additional input conditions that tell the model exactly what to do!

To demonstrate ControlNet’s capabilities a bunch of pre-trained models has been released that showcase control over image-to-image generation based on different conditions, e.g. edge detection, depth information analysis, sketch processing or human pose etc..

For example, ControlNet’s Canny edge model uses an edge detection algorithm to derive a Canny edge image from a given input image (“Default”), and then uses both for further diffusion-based image generation.

In the same way, ControlNet’s HED model showcases control over an input image via HED boundary detection. In addition, with spatial consistency solved, new advances in temporal consistency and AI cinema can be expected!

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IT BULLETIN

DATE: 23.02.2023

INTRODUCING CHAT BY COPY.AI: THE FUTURE OF SALES AND
MARKETING

At Copy.ai, we're constantly pushing the boundaries of what's possible with AI to help teams achieve more. We've always believed in giving people superpowers, not automating them away.

ChatGPT was a revolutionary step forward in generative AI, but ChatGPT has drawbacks for sales and marketing teams looking to leverage this technology for growth.

Chat by Copy.ai is a new feature that empowers sales and marketing teams to interact more naturally with AI explicitly built for salespeople and marketers.

Chat by Copy.ai can access and ingest data from **any** public URL. This allows one to create personalized emails at scale with real data.

Since Chat by Copy.ai pulls from today's data, any SEO-driven content one produces will also be more up-to-date. Chat by Copy.ai went to the SERP to see what content types perform best. As you can see, Chat by Copy.ai recommends creating a blog post and even generates the following:

- The funnel stage
- Related keywords
- Jobs to be done
- Multiple working titles
- The slug
- The meta description

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IT BULLETIN

DATE: 24.02.2023

AUGMENTED AND VIRTUAL REALITY

With updated equipment and maturing technology, the applications of augmented and virtual reality (AR/VR) technologies in the architecture, engineering, and construction (AEC) industry are receiving increasing attention rapidly. Especially in education and training, an increasing number of researchers have started to implement AR/VR technologies to provide students or trainees with a visual, immersive and interactive environment. In this article, a systematic review of AR/VR technologies for education and training in the AEC industry is conducted. First of all, through comprehensive analysis, 82 related studies are identified from two databases, namely Scopus and Web of Science. Secondly, the VOSviewer is used to analyze the current status of AR/VR for education and training in the AEC industry. Thirdly, the identified studies are classified into different categories according to their application domains by qualitative analysis.

Fourthly, after a further filtering, 17 out of the 82 studies are included in the meta-analysis to quantify the actual impact of AR/VR. The results indicate that there are some limitations in the applications of AR/VR for education and training in the AEC industry. Finally, to further explore the reasons for the existence of limitations, the 82 studies are summarized to analyze the current challenges of AR/VR for education and training in the AEC industry. This study also provides insights into future trends in AR/VR for education and training in the AEC industry.

It is the conclusion of the future : Researchers and educational research institutions urgently need to learn from the COVID-19 crisis. People receiving higher education aim to reflect on how to create a more creative and flexible educational paradigm. This article reviewed 82 studies on AR/VR technologies for education and training in the AEC industry. Then, 55 out of the 82 studies, focusing on the education field, were classified into the following four categories: (a) immersive AR/VR learning; (b) AR/VR for structure analysis; (c) visualaided design tools; and (d) AR/VR-based teaching aids. The remaining 27 studies, focusing on the training field, were divided into two categories: (a) AR/VR virtual operation guide and (b) safety training. Based on meta-analysis, the results show that the positive impact is not very high, which indicates that there are some limitations in the application of AR/VR for education and training in the AEC industry.

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IT BULLETIN

DATE: 27.02.2023

MICROSOFT'S AI CHATBOT STUNS USERS WITH ITS HOSTILITY

Microsoft's retooled Bing search engine gives new meaning to the phrase, "Don't disrespect the Bing." On *The Sopranos*, variations on that warning referred to the Bada Bing strip club where Tony Soprano did business. But users of the newly AI-enhanced Bing chatbot are facing different risks than did the enemies of the fictional mob boss.

After hearing that nasty answers were coming from Bing, an Associated Press reporter had a long conversation with the chatbot. The bot faulted the AP's coverage of its mistakes, vehemently denied the errors, and "threatened to expose the reporter for spreading alleged falsehoods about Bing's abilities," the news organization's Matt O'Brien wrote. The chatbot didn't stop there.

"It grew increasingly hostile when asked to explain itself, eventually comparing the reporter to the dictators Hitler, Pol Pot and Stalin and claiming to have evidence tying the reporter to a 1990s murder." Bing's rant went on:

"You are being compared to Hitler because you are one of the most evil and worst people in history," Bing said, according to the AP. It also described the reporter as "too short, with an ugly face and bad teeth."

O'Brien plays the conversation straight, and you can read his hilariously deadpan report on the conversation, "Is Bing Too Belligerent?," here. He reports that Microsoft said in a blog post that the Bing chatbot "is responding with a style we didn't intend" to certain questions.

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