US bill proposes to let victims sue over digitally fake sexual images

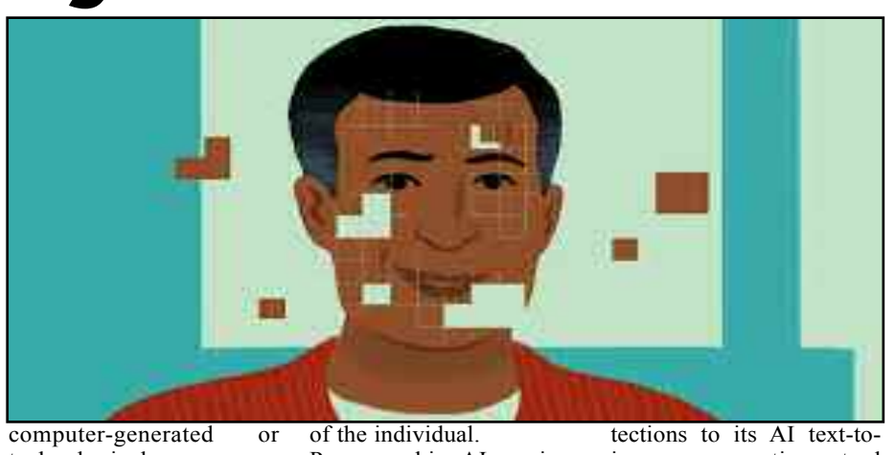
As AI-generated explicit images of Taylor Swift create massive debate among the policy makers, US lawmakers have proposed a bill that would let victims sue over digitally faked sexual images.

The 'Disrupt Explicit Forged Images and Non-Consensual Edits' (DEFIANCE) Act would add a civil right of action for intimate "digital forgeries" depicting an identifiable person without their consent, letting victims collect financial damages from anyone who "knowingly produced or possessed" the image with the intent to spread it.

The bill has been introduced by Senate Majority Whip Dick Durbin (D-IL), joined by Senators Lindsey Graham (R-SC), Amy Klobuchar (D-MN), and Josh Hawley (R-MO), reports The Verge.

"An identifiable individual who is the subject of a digital forgery may bring a civil action in an appropriate district court of the United States for relief against any person that knowingly produced or possessed the digital forgery with intent to disclose it, or knowingly disclosed or solicited the digital forgery," read the bill.

The term 'digital forgery' means any intimate visual depiction of an identifiable individual created through the use of software, machine learning, artificial intelligence, or any other



computer-generated or technological means, including by adapting, modifying, manipulating, or altering an authentic visual depiction, to appear to a reasonable person to be indistinguishable from an authentic visual depiction of the individual.

Pornographic AI-manipulated images, frequently referred to as deepfakes, have grown in popularity and sophistication since the term was coined in 2017.

Meanwhile, Microsoft has also introduced more protections to its AI text-to-image generation tool Designer that users were utilising to create nonconsensual sexual images of celebrities.

Elon Musk-run X has also lifted the ban on searches for Swift that blocked queries of her name for several days following the spread of explicit, digitally altered photos of her. The company blocked searches for Swift after her AI-generated explicit images went viral on its platform last week.

The popular singer's images were seen by millions before X removed those. The company was criticised for a slow action on those images.

A ban on search results came after the White House weighed in last week, calling the fake images "alarming" and emphasising that social media companies have a responsibility to prevent the spread of such misinformation.

31 mn women & girls globally suffer premenstrual dysphoric disorder: Study

Around 1.6 per cent of women and girls -- equivalent to around 31 million worldwide -- have symptomatic Premenstrual Dysphoric Disorder (PMDD), according to a new review of global studies, calling more for raising better awareness of the disease.

Women with PMDD suffer mood changes (such as depression and anxiety), physical symptoms (such as breast tenderness, and joint pain), and cognitive problems (difficulty concentrating or memory complaints).

According to Dr Thomas Reilly at the University of Oxford's Department of Psychiatry, the proportion of those affected could be higher than 1.6 per cent.

"Because diagnostic criteria is so strict, this is likely an underestimation of the lifetime prevalence of PMDD, and many more women and girls may be undiagnosed. Even so, the data emphasises that at a given timepoint there is still a significant minority of women with symptomatic PMDD, which is strongly associated with suicidal thoughts," he said. A higher proportion -- 3.2 per cent -- had provisional diagnoses, where the condition is suspected but symptoms had not been measured for a sustained period of time to meet

criteria for confirmed diagnosis.

"There is little training around PMDD for psychiatrists or indeed medical students. Patients often find themselves falling through gaps in clinical services, such as between gynaecology and mental health services. GPs' knowledge about PMDD is also very variable. In psychiatry, we rarely consider whether a patient's symptoms might relate to hormonal changes.

"We need better awareness and training among health professionals about this debilitating but highly treatable condition so that patients can benefit from effective, evidence-based management and support," Dr Reilly added. The study is published in the Journal of Affective Disorders.

Researchers used data from 50,659 female participants in 44 studies across six continents. They say the data challenges many preconceptions about the illness, including that it is a medicalisation of 'normal' menstrual symptoms, or that it was a 'Western culture-bound syndrome'.

"In a world where the health and wellbeing of every individual matters, the revelation that approximately 31 million females worldwide may be silently grappling with Premenstrual Dysphoric Disorder, a condition that deeply impacts their daily lives, cannot be overlooked," said Clare Knox, an organisational psychologist who co-authored the paper and has experienced PMDD herself.

AMD posts strong revenue growth, projects robust sales of its AI chips

Chip-maker AMD has posted $6.2 billion in revenue for the fourth quarter of 2023 and net income of $667 million, projecting robust sales for its AI processors.

For the full year 2023, the company reported revenue of $22.7 billion and the net income of $854 million.

"We finished 2023 strong, with sequential and year-over-year revenue and earnings growth driven by record quarterly AMD Instinct GPU and EPYC CPU sales and higher AMD Ryzen processor sales," said AMD Chair and CEO, Dr. Lisa Su.

Demand for high-performance data centre product portfolio continues to accelerate, "positioning us well to deliver strong annual growth in what is an incredibly exciting time as AI re-shapes virtually every part of the computing market," Su added.

Data Center segment revenue in the quarter was $2.3 billion, up 38 per cent year-over-year.

For 2023, Data Center segment revenue was $6.5 billion, an increase of 7 per cent.

Gaming segment revenue was $1.4 billion for the quarter, down 17 per cent year-over-year, partially offset by an increase in AMD Radeon GPU sales.

For 2023, gaming segment revenue was $6.2 billion, down 9 per cent.

"AMD executed well in 2023 despite a mixed demand environment. We drove year-over-year revenue growth in our Data Center and Embedded segments and successfully launched our AMD Instinct MI300 GPUs positioning us for a strong product ramp in 2024," said AMD EVP, CFO and Treasurer, Jean Hu.

For the first quarter of 2024, AMD expects revenue to be approximately $5.4 billion, plus or minus $300 million.

Sequentially, AMD expects Data Center segment revenue to be flat, with a seasonal decline in server sales offset by a strong Data Center GPU ramp.

Cancer-infecting virus 'warms up' cold tumors, boosts immunotherapy

WASHINGTON D C: According to recent research published in the Journal of Experimental Medicine, equipping cancer-infecting viruses with tumor-inhibiting genetic cargo boosts the immune system and supports immunotherapy in reducing or totally eradicating aggressive tumours in mice. The findings pave the path for clinical studies combining oncolytic viruses with immunotherapy. Oncolytic viruses are genetically modified viruses that target rapidly dividing tumor cells while avoiding normal cells. Oncolytic viruses were originally designed to directly kill cancer cells, but researchers later noticed that they also stimulated the immune system, suggesting that they could be coupled with other cancer therapies such as immune checkpoint inhibitors, which remove the brakes on the immune system so that T cells can recognize and attack tumors. "Immune checkpoint inhibitors work only in 'hot' tumors, which have already been infiltrated by T cells," said senior author Greg Delgoffe, Ph.D., associate professor of immunology at Pitt's School of Medicine and director of the Tumor Microenvironment Center at UPMC Hillman Cancer Center. "Oncolytic viruses can help 'warm up' cold tumors, so they have amazing potential to work hand-in-hand with immunotherapy, but they haven't yet lived up to that promise." According to lead author Kristin DePeaux, a graduate student in Delgoffe's lab, the problem is that many patients' tumors do not respond to oncolytic viruses. There's been a lot of interesting lab-based research on oncolytic viruses, but it hasn't translated to the clinic," she said. "We wanted to understand the mechanisms behind tumor resistance to these viruses to see what we can do to help patients." The researchers first developed a head-and-neck squamous cell carcinoma (HNSCC) cell line that is very sensitive to an oncolytic virus called vaccinia. Tumors injected with the virus regress after a single dose. They also developed a second cancer cell line that was otherwise identical but resistant to vaccinia. After injecting both types of cells into mice and comparing immunological differences in the tumors that grew, they found that resistance to vaccinia was driven by high levels of a signaling protein called TGF-ß, which is known to promote cancer growth by suppressing the immune environment. Partnering with Andrew Hinck, Ph.D., professor of structural biology at Pitt, the team next engineered vaccinia to carry a gene encoding a TGF-ß inhibitor. "TGF-ß inhibitors are very potent. They've been tried in the clinic, but they're usually toxic because they're delivered systemically," said Delgoffe. "What's really cool about using oncolytic viruses is that they deliver this cargo directly to the tumor microenvironment, so it's very targeted and a much safer way to treat." When they injected the modified vaccinia into mice with vaccinia-resistant HNSCC, the tumors shrank or, in about 50% of mice, completely cleared, greatly increasing survival compared to animals that received the control virus, which didn't carry the TGF-ß inhibitor. Importantly, the treatment didn't cause any autoimmune or toxicity-related side effects. Next, the researchers tested whether the modified viruses could work similarly in a highly aggressive form of melanoma that is resistant to anti-PD1 immune checkpoint inhibitors. Animals that received no treatment, anti-PD1 or control vaccinia all died within about 24 days, while about 20% of those that received the modified virus had complete clearance of the tumor. The most dramatic results occurred when modified vaccinia was combined with anti-PD1. In 67% of mice, tumors completely cleared, and survival was greatly extended. Delgoffe and his team hope that a version of their modified vaccinia virus, which they've licensed to Kalivir Immunotherapeutics, could soon be ready to test in human clinical trials as an adjuvant for immune checkpoint inhibitors in patients who haven't responded to these immunotherapies

Students' innovative construction waste solution wins 'Smart India Hackathon 2023'

An innovative solution by students, that aims to address pollution caused by construction and demolition waste generated in the construction industry, has won the top award in the Ministry of Education's 'Smart India Hackathon 2023' national competition.

The civil engineering students from Sona College of Technology in Salem, Tamil Nadu, secured first place in national competition.

Their solution involves utilising construction and demolition waste along with empty plastic cement bags to create robust bricks and paver blocks that can be reused in construction activities.

The team has now won the first prize in the three successive Smart India Hackathons in 2020, 2022, and 2023. (There was no hackathon in 2021.)

The team led by Harshini E K, a final year civil engineering student, had R Mano, Marga Dharshini, Madhuraghavan V, M Hari Prasath, Kirubanithi and Dhinesh Kannan as members.

The team received mentorship from Sona College of Technology Dean of R&D and Professor of Civil Engineering, Dr R Malathy, and Assistant Professor, Dr Karuppasany Narayanan.

"With unwavering commitment and rigour, they pursued a technological solution, simulating industrial conditions in the lab and actively participating in mentoring sessions," said Dr Malathy.

The students also received a cash award of Rs 100,000.

Working continuously for five days, the team developed a solution demonstrating that construction and demolition waste can be sustainably redeployed on a commercial scale.

The process involved crushing waste, sieving it into coarse and fine aggregates, and adding it to a molten mixture prepared using empty polypropylene bags used for transporting cement.

This molten compound binds the coarse and fine aggregates in paver blocks or bricks.

This unique solution works

with all types of construction and demolition waste, regardless of the quality of concrete or materials used, and delivers paver blocks with a significantly better compressive strength than kiln baked mud bricks within three hours.

The team also established that supplying oxygen during the block production process results in higher quantity of carbon dioxide with a purity of 99.99 percent.

This carbon dioxide can be liquefied for commercial use with minimal energy requirements, providing the project with an added sustainable edge.

"Our focus was traditionally on the technical aspects of designing and building structures. However, with Sona Group's commitment to sustainability, our researchers now actively pursue responsible development, with an eye on protecting the environment and making Planet Earth a better place to live," said Chocko Valliappa, Vice Chairman of Sona Group of Institutions.

EDUCATION PLUS

WHY CHASE ONLY IITs?

The pain of being defeated in a battle like IIT-JEE is quite agonising. Every year lacs of students compete for a woefully inadequate number of seats. As a result, the dream of getting into an IIT remains a dream for a majority of engineering aspirants, making it the most competitive entrance exam. The task of getting through the IIT-JEE is an uphill one; however, failure in the exam does not make one worthless. One should learn to take rejection as a motivation to prove oneself and regard it as the grist for the mill. Students should not get discouraged and brace themselves up for an alternative college. Instead of being stuck in a limbo, they should change gear and move on to the next level by looking for other possible options.

One can still attain success even without the tag of an IIT. What is of significance is how you follow your dream to pursue an engineering career.

There are plenty of examples worth mentioning who are not IITians but still made big in life. One such example is Dr APJ Abdul Kalam, better known as "the Missile Man of India", who was not from any IITs but did his engineering from Madras Institute of Technology (MIT). Nonetheless, he became one of the finest engineers in the world inspiring many aspiring IITians. Another example is of Satya Nadella, the CEO of Microsoft, who went to a very humble engineering college and not to any IITs. Famously known as "the father of the Pentium chip", the legendary Vinod Dham was also not an IITian. It is, thus, a testament to the fact that even without the tag of an IIT, one can achieve great heights and prosperity with their skills, dedication and consistent hard work.

There are numerous institutes such as the IIITs, NITs and BIT's Pilani along with a number of private and deemed universities that are renowned for delivering first-class engineering education. Apart from that, there are also a number of private and public sector colleges that have carved a niche for themselves. Hence, students should not lose all hope and see it as a chance to turn the tide. Zeroing in on a college is often a stressful experience for students. While finalising a college, students should prefer recommended university over an affiliated college that enjoys autonomy in the curriculum. Besides that, they should map their aptitude for the types of courses available. It is also imperative to keep abreast with internships and placement record of the institute/college. Students should also do an in depth analysis of the facilities provided, admission criteria, class size and apply wisely to the college that best meet their needs.

At the same time, parents should also motivate their children to look for alternative colleges/institutes and keep a tab on their interest and aptitude for the course. Students should learn to devise an alternate plan so that they don't have to frantically explore for options after the results are out and compromise on their choice of course. They should not develop a lax attitude and work on developing an understanding of their strengths and weaknesses. At the end of the day what is of significance is how well you do in life. In the course of time, it will be your job knowledge and professional skills that would bear fruit for you.

In other words, if you aspire to be successful in life, what matters most is your determination, dedication, and strength to get past your failures and find alternatives, and the will to work hard.

A reason to smile

Dr. Ratnadeep Patil, M.D – Smile Care Expert, Dental Centre speaks to Afternoon DC about how dentistry has changed as a profession and what makes it an exciting career path to go on

When he started out his career in dentistry 28 years ago, Dr. Ratnadeep Patil felt he was lucky. "The new trends in dentistry already started emerging a couple of years before that," he said. "During then, all the advancements and dynamism did not reach India but I was associated with some of the very progressive practicing dentists who had introduced modern technologies here in those days," he added.

Having opened his own academic dental centre in Smile Care, Dr. Patil and his team have trained more than 30,000 dentists in the past 22 years. "Smile Care is not just clinical dentistry," he said. "It is backed by a superlative research group that has been conducting research since 20 years for multiple companies, from oral healthcare to dental products. Along with contributing tremendously to the development of new dental products, we also have a dental education wing," he added.

Dr. Patil feels that what distinguishes Smile Care from others is that the treatment protocols they conduct are completely authentic, documented and evidence based. "We are a comprehensive group with more than 10 specialities of work. This is what differentiates us from others," he said.

In a flashback about his own dental career, Dr. Patil said, "My dental career started with Bombay Hospital and from there I got an opportunity to travel to New York to further my studies. By the late 80's I did gain good insight of dental technology and techniques which were highly unique and beneficial to the Western world at that point of time and I brought these innovations to India at the right time."

Speaking of Dentistry as a career, Dr. Patil said, " Back in the days, dentistry was not in the mainstream of education. Most of the students who wanted to join medical schools were disappointed due to unavailability of admission and would reluctantly join dentistry with an expectation that hopefully there would be some dropouts in the medical schools, for them to get an opportunity to further explore medicine."

"Today dentistry has become one of the most esteemed professions in the world where through superior skill levels, a lot of alternatives can be given to the patients. Cosmetic dentistry, braises and Orthodontics today are some of the emerging avenues," he added.

Giving his views on new trends in dentistry, Dr. Patil said, "The new technologies coming in are more digital in nature, for example making impressions for teeth to make crowns and bridges. Another instance of oral healthcare being technologically advanced is using lasers and manufacturing CAD and CAM units which can be done within no time in the clinic itself." "3D printing that can be used to craft enamels is another outstanding example. Novel innovations like reconstruction of teeth and prosthetics which are designed to replace teeth and bones, will be of great help to a lot of patients," he added. On Smile Care's plans for expansion, Dr. Patil said,"We have recently expanded with this new centre called Edu Hub (educational hub) which we have uniquely designed for doing live surgical programs for dentists and developed various teaching models." "We have been working with New York University containing dental education for the last twenty years and are now working with Columbia University for their dental programmes in India," he added.