INFOTAINMENT EDGE™

Friday, November 10, 2023 (Daily E-booklet on Artificial Intelligence, VR, Tech, Robotics, Coding, Global Info, Health, Science & more)

SECTION 1 – TECH BUZZ

ARTIFICIAL INTELLIGENCE

AI For Public Good

Former Australian Prime Minister Julia Gillard has emphasized the importance of harnessing artificial intelligence (AI) for the betterment of scientific endeavours over the next decade. Gillard, who currently chairs the London-based health research charity the Wellcome Trust, underscored the significance of providing scientists with access to AI tools, describing it as a "public policy challenge for the next 10 years."

- During a speech delivered in Westminster, Gillard highlighted the need to democratize AI access, stating, "I think using AI for good." She further elaborated on this point, emphasizing that AI's potential to revolutionize science can only be fully realized if it is widely accessible to researchers.
- Gillard commended Google-owned Deep Mind for making its AI-driven protein folding technology open source, allowing scientists worldwide to utilize it freely. She commended their decision, stating, "They did that out the goodness of their heart." Gillard acknowledged that Deep Mind could have opted to privatize the technology, monetizing it to a significant degree. However, they chose to prioritize scientific progress over financial gains.
- Gillard reiterated the urgency of ensuring that AI tools reach the hands of scientists who need them, emphasizing that this must be a key focus of public policy initiatives over the next decade. She also advocated for broader accessibility of technology and research resources, suggesting the adoption of shared platforms as a viable solution.

- "We are getting better and better platforms for further discoveries, but they have got to be collaborative, they have got to be shared," Gillard stated.
- Gillard's call for increased access to AI tools and research resources resonates with the recent global summit on AI safety held in the UK. The summit concluded with a series of "landmark" agreements between governments and businesses worldwide, including a provision allowing the UK's new AI Safety Institute to test new AI models developed by major firms before their public release.

Samsung Galaxy AI

Samsung is taking significant strides in leveraging AI technology, particularly in its smartphones. The company is poised to transform the mobile experience with its comprehensive AI capabilities, introducing Galaxy AI.

- With One UI 6, Samsung introduced AI-powered enhancements to the Galaxy camera app, elevating the photography and videography experience. Now, Samsung is committed to expanding AI functionalities beyond just the camera app.
- Galaxy AI seamlessly integrates Samsung's on-device AI with cloud-based AI through collaborations with industry leaders. This powerful combination promises barrier-free communication, simplified productivity, and unconstrained creativity.
- Samsung's proprietary generative AI model, Samsung Gauss, unveiled at the Samsung AI Forum 2023, is expected to play a crucial role in Galaxy AI's capabilities.
- Live Translate Call, a feature teased ahead of the Galaxy AI launch, will enable real-time audio and text translations during phone calls, eliminating the need for third-party apps. With a focus on security and privacy, Galaxy AI ensures that private conversations remain private.
- Samsung has only provided a glimpse of Galaxy AI, with its official rollout anticipated early next year alongside the Galaxy S24 series. Additional features are expected to be revealed closer to the launch date.
- Wonjoon Choi, EVP and Head of R&D, Mobile eXperience Business, expressed his enthusiasm for Galaxy AI's potential: "Mobile technology has an incredible power to enable connection, productivity, creativity and more for people around the world, but until now, we haven't seen mobile AI ignite that in truly meaningful ways. Galaxy AI is our most comprehensive intelligence offering to date, and it will change how we think about our phones forever."
- Samsung's commitment to AI innovation is evident in the development of Galaxy AI, which promises to revolutionize the mobile experience by enhancing communication, productivity, and creativity. With its focus on security and privacy, Galaxy AI ensures that users can confidently embrace the transformative power of AI.

Environmental Implications of Generative AI

Artificial intelligence (AI), particularly generative AI, has the potential to revolutionize various aspects of our world. We have already witnessed its transformative impact across numerous industries, and its potential applications are only beginning to be explored. However, amidst the excitement surrounding AI's capabilities, a paradoxical issue has emerged: the relationship between AI and sustainability.

- On one hand, AI holds immense promise for enhancing sustainability efforts. It can optimize energy consumption, reduce waste, and promote the development of sustainable products and supply chains. For instance, AI algorithms can analyze energy usage patterns and identify areas for improvement, leading to significant reductions in energy consumption.
- However, the very technology that can drive sustainability progress also carries the potential to hinder it. The hardware required for generative AI, particularly data centers, consumes vast amounts of energy and resources. As AI applications continue to grow, the demand for data centers will surge, potentially straining power grids and exacerbating environmental concerns.
- This paradoxical situation highlights the need for a balanced approach to AI development and deployment. While we embrace the transformative power of AI, we must also carefully consider its environmental impact.
- The rapid growth of AI, particularly generative AI, is expected to place significant strain on data center infrastructure. According to the Synergy Research Group, hyperscale data center capacity is projected to nearly triple in the next six years, driven by the increasing demand for AI computing power. This growth will inevitably lead to increased energy consumption, land use, and resource utilization.

Key Environmental Concerns Associated with Generative AI

- **Massive Power Utilization**: AI computing is incredibly energy-intensive. Gartner predicts that AI will consume more power than the entire human workforce by 2025. This surge in energy demand will strain power grids and could lead to increased reliance on fossil fuels, further exacerbating greenhouse gas emissions.
- **Power Generation and Power Distribution**: Current power grids are already stretched to their limits, and the demand for additional power from data centers is only expected to grow. This will necessitate the construction of new power plants and power distribution lines, which will further strain resources and increase emissions.
- **Land Use, Water Use, and Construction Material Use**: Data centers require significant amounts of land, water, and construction materials. As AI infrastructure expands, so will the demand for these resources, potentially leading to land clearing, water depletion, and increased greenhouse gas emissions.
- **New Hardware Requirements**: Generative AI applications demand specialized hardware, including GPUs, DPUs, cabling, new racks, and power distribution equipment. The manufacturing and transportation of this hardware also contribute to greenhouse gas emissions and resource consumption.

Liquid Cooling: A Promising Solution
In the face of these environmental challenges, liquid cooling emerges as a promising solution for mitigating the impact of generative AI infrastructure. Liquid cooling is a highly efficient cooling technology that can significantly reduce energy consumption, rack densities, and construction material needs.

Benefits of Liquid Cooling for Generative AI Infrastructure
Increased Cooling Efficiency: Liquid cooling is far more efficient than conventional air cooling, reducing energy waste and minimizing power consumption.

- **High-Density Rack Support**: Liquid cooling enables data centers to accommodate higher rack densities, allowing for more computing power within a smaller footprint.
- **Reduced Data Center Size**: Liquid cooling allows data centers to be smaller, reducing construction material use and minimizing construction time.

Conclusion
The rapid advancement of AI, particularly generative AI, presents both immense opportunities and significant challenges. While AI has the potential to drive sustainability progress, its energy-intensive nature poses environmental concerns. Liquid cooling emerges as a promising solution for mitigating the environmental impact of generative AI infrastructure. By embracing liquid cooling and adopting sustainable practices, we can harness the power of AI while minimizing its footprint on the environment.

SOFTWARE

WildFly 30: Preparing for Java SE 21
In October 2023, Red Hat released WildFly 30, the latest version of its popular Java application framework. This release focuses on preparing WildFly for the upcoming Java SE 21 LTS release and introduces several new features and enhancements.
Key Highlights of WildFly 30

- **Compatibility with Java SE 21**: WildFly 30 is fully compatible with the latest LTS Java version, Java SE 21. It also passes Technology Compatibility Kits (TCKs) for Jakarta EE 10 Platform, Core Profile, and Web Profile when running on Java SE 11 and Java SE 17.
- **Support for MicroProfile 6.0**: WildFly successfully passes the TCKs for the MicroProfile 6.0 specifications when running on Java SE 21. However, it doesn't support MicroProfile Metrics, preventing it from claiming full compatibility.
- **Enhanced Configuration Options**: WildFly 30 introduces a new feature to configure the "max-read-page-bytes" parameter in the messaging-activemq subsystem, providing more control over messaging behaviour.
- **Dependency Upgrades**: WildFly 30 includes dependency upgrades for Galleon to 5.2.1.Final and Galleon plugins to 6.5.0.Final, Hibernate ORM to 6.2.12.Final, Hibernate Search to 6.2.1.Final, JGroups to 5.2.17.Final, Apache Artemis to 2.31.0, and several minor upgrades and bug fixes.
- **Licensing Changes**: A significant change in WildFly 30 is the move of WildFly core and WildFly main source code to the Apache Software License 2.0. This change aligns with the licensing model of other Red Hat products and ensures compatibility with a wider range of projects.
- **Recommendation for Java Version**: WildFly recommends that developers use Java SE 17 for execution as it represents the latest LTS version and has undergone comprehensive

testing with WildFly. While WildFly 30 is thoroughly tested with Java SE 11, this or the next release will be the last to support it as the focus shifts to newer Java versions.
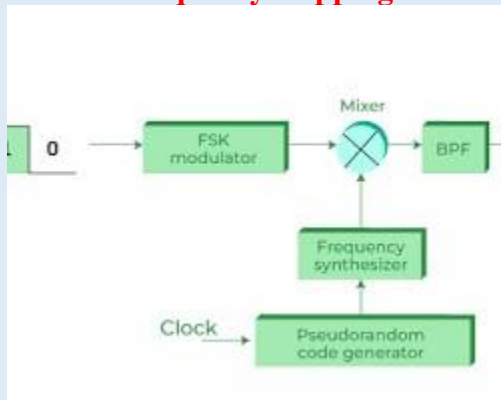
- **Next Release**: WildFly announced changes to their release schedule earlier this year, with new versions now set to be released in January, April, July, and October. WildFly tentatively plans to release its next version, WildFly 31, in January 2024.
- **Conclusion**: WildFly 30 is a significant release that prepares the application framework for future Java versions and introduces new features and enhancements. Developers are encouraged to evaluate WildFly 30 and start using it for their projects.

TECHNOLOGY

Hedy Lamarr: The Unsung Inventor Behind Modern Wireless Technologies
Hedy Lamarr, an Austrian-American actress who captivated audiences during Hollywood's Golden Age, also holds a remarkable place in the history of technology. Her groundbreaking invention of frequency hopping laid the foundation for modern wireless communications, including WiFi, Bluetooth, and GPS.

What is Frequency Hopping?

Frequency hopping is a technique that allows a signal to rapidly switch between different frequencies, making it difficult for an enemy to jam or intercept the signal. This technique is particularly useful for military applications, as it ensures secure communication even in hostile environments.

- **Lamarr's Contribution to Frequency Hopping**
  During World War II, Lamarr, along with avant-garde composer George Antheil, developed a frequency-hopping system for torpedo control. They proposed using synchronized player piano rolls to control the transmitter and receiver, ensuring that they would change frequencies simultaneously. Although the US Navy initially showed interest in the invention, it wasn't until the 1960s that its true potential was realized.

Frequency Hopping in Modern Technologies
Today, frequency hopping is widely used in various wireless technologies, including:

- **WiFi**: WiFi networks rely on frequency hopping to avoid interference from other wireless signals and to maintain reliable connections.

- **Bluetooth**: Bluetooth devices use frequency hopping to establish and maintain connections, as well as to avoid interference from other wireless signals in the 2.4 GHz frequency band.
- **GPS**: GPS receivers use frequency hopping to acquire and track signals from satellites, ensuring accurate positioning and timekeeping.

Recognition for Lamarr's Invention

Despite her significant contributions to technology, Lamarr never received the recognition she deserved during her lifetime. Her invention wasn't patented until 1942, and it wasn't until the 1990s that its importance in modern wireless communications was widely acknowledged.

In 1997, Lamarr was inducted into the National Inventors Hall of Fame, and in 2014, she was posthumously awarded the Electronic Frontier Foundation's Pioneer Award. Today, she is recognized as a pioneer in the field of wireless communications and an inspiration for women in science and engineering.

Conclusion

Hedy Lamarr's invention of frequency hopping revolutionized wireless communications, paving the way for modern technologies that we rely on daily. Her story reminds us that innovation can come from unexpected places and that we should always strive to recognize and celebrate the achievements of women in science and technology.

GADGETS

LG's new ultrawide monitors

LG has released two new ultrawide gaming monitors, the 45GR65DC and 45GR75DC. These monitors are slightly smaller and more affordable than the company's previous 49-inch ultrawide monitor, the 49GR85DC.

- Both monitors have 5120 x 1440 1500R curved VA panels that support 95 percent of the DCI-P3 gamut, plus VESA DisplayHDR 600, VESA Adaptive Sync, and AMD FreeSync Premium Pro at up to 200Hz. They also have one DisplayPort 1.4 input, two HDMI 2.1 ports, one USB-B 3.0 upstream port, and two downstream ports. They also have headset jacks.
- The main difference between the two monitors is that the 45GR75DC has a USB-C port with 90W power delivery, while the 45GR65DC does not. If you're looking for a monitor that you can use with a work laptop and a gaming rig, then the 45GR75DC is the better option. However, if you're just going to be using the monitor with a gaming PC, then you can save $100 by getting the 45GR65DC.
- If you've been considering an ultrawide gaming monitor but were put off by the high price tag or the large size of previous models, then the LG 45GR65DC and 45GR75DC are worth considering. They offer a great gaming experience at a more affordable price.

SECTION 2 – GLOBAL INFO

EUROPE

RUSSIA

In an effort to thwart Russia's attempts to circumvent sanctions imposed following its invasion of Ukraine, the UK's National Crime Agency (NCA) has issued a red alert to the financial sector. The NCA has cautioned that Russia is using gold to evade these restrictions, necessitating heightened vigilance.

- The NCA has warned that Russia is making deliberate attempts to launder sanctioned gold, disguising its origin and funnelling it into supply chains for sale in the UK and globally. This illicit activity involves shipping gold exported from Russia since July 2022 to countries that do not impose sanctions on Russian gold. Once in these countries, the gold is melted down and recast or refined, effectively erasing its origins.
- To combat this circumvention of sanctions, the UK has imposed 29 new sanctions on "individuals and entities operating in and supporting Russia's gold, oil and strategic sectors." These sanctions target those involved in laundering sanctioned gold and supporting Russia's economy, including a United Arab Emirates-based network responsible for channelling over $300 million in gold revenues to Russia.
- The NCA's red alert serves as a stark reminder to the financial sector of the urgent need to remain vigilant and implement robust measures to detect and prevent the laundering of sanctioned gold. By working together, the UK and its allies can effectively counter Russia's attempts to evade sanctions and disrupt its financial operations.

EUROPEAN UNION

The European Commission's annual enlargement report, which was originally expected to be released in early October, has been postponed until December. The delay is due to a number of factors, including:

- A wish from EU member states that the report not be released ahead of the EU summit on October 26-27. There were concerns that the report could "hijack" discussions on other important issues, such as the bloc's budget and migration.
- The size and complexity of the report. The report assesses the progress of 10 countries on their path to EU membership: Albania, Bosnia-Herzegovina, Georgia, Kosovo, Moldova, Montenegro, North Macedonia, Serbia, Turkey, and Ukraine. EU member states need time to study the report before making a decision on how to proceed.
- A desire to give some countries more time to fulfill certain conditions and reforms. The European Commission has been generous with the time it has given some countries to meet the requirements for EU membership. This is partly due to the difficult circumstances that some of these countries are facing, such as the war in Ukraine.
- EU member states will vote on the enlargement questions at the EU's General Affairs Council on December 12. If a decision is made to open accession negotiations with any of the candidate countries, this will need to be rubber-stamped at the EU summit two days later.

- The delay in the release of the enlargement report has been met with disappointment from some quarters, particularly from Ukraine and Moldova, which are hoping to be granted candidate status. However, the delay also reflects the complex and sensitive nature of the EU enlargement process.

NORTH AMERICA

UNITED STATES

A top US general has expressed concern about the rapid modernization and increasingly assertive behavior of China's military. General Charles Flynn, who oversees over 107,000 US Army personnel stationed in the Pacific, highlighted China's significant military advancements over the past decade. "If you multiply the trajectory they've been on for the last decade into the next decade, that is a concerning trajectory," General Flynn stated.

- Under Chinese President Xi Jinping's decade-long leadership, the People's Liberation Army (PLA) has undergone a remarkable transformation from a poorly equipped and ineffective force into one of the world's fastest-growing and most formidable militaries. China boasts the world's largest navy and a rapidly expanding nuclear and ballistic arsenal, driven by a defense budget second only to that of the United States. In March, China announced a 7.2 percent increase in military spending, following a 7.1 percent increase the previous year.
- General Flynn's concerns underscore the growing rivalry between the United States and China in the Pacific region, where both nations vie for influence and strategic dominance. The US has also been bolstering its military presence in the region, conducting joint exercises with allies and upgrading its bases.
- The trajectory of China's military modernization and its increasingly assertive behaviour in the Pacific have raised concerns among US officials and analysts. They worry that China's growing military capabilities could embolden it to take more aggressive actions, potentially leading to miscalculations and conflict.

SECTION 3 – MIXED BAG

HEALTH

India's TB Elimination Efforts Show Significant Progress

India has made significant progress in tackling tuberculosis (TB), according to a recent World Health Organization (WHO) report. Case detection has increased significantly, with treatment coverage now reaching 80% of estimated TB cases. This is a remarkable 19% increase from the previous year. In addition, the incidence of TB in India has dropped by 16% since 2015,

surpassing the global decline rate of 8.7%. TB mortality rates have also decreased by 18%, both in India and globally.

- The WHO report highlights India's proactive strategies in combating TB, such as intensive case detection efforts. In 2022, India reported a record-high notification of cases, with over 24.22 lakh TB cases reported. This surpasses pre-COVID levels. Government initiatives, including active case-finding drives, molecular diagnostics, and private-sector engagement, have played a pivotal role in identifying and addressing missing cases.
- The Pradhan Mantri TB Mukt Bharat Abhiyan (Prime Minister's TB Free India Campaign) has also garnered substantial support, with more than 1 lakh Ni-kshay Mitras (TB Friends) adopting over 11 lakh TB patients. Ni-kshay Poshan Yojana, a financial assistance scheme for TB patients, has provided Rs 2613 crore to over 95 lakh TB patients since its launch in 2018. Patient-centric approaches like the Family Care Giver Model and Differentiated Care aim to further reduce mortality and enhance treatment success rates.
- India's commitment to TB elimination is evident through the allocation of additional resources to the National TB Elimination Programme under the National Health Mission. This showcases a comprehensive and multi-faceted approach in the ongoing battle against TB.

In Summary

- India has made significant progress in tackling TB, with case detection increasing significantly and treatment coverage reaching 80% of estimated TB cases.
- The incidence of TB in India has dropped by 16% since 2015, surpassing the global decline rate.
- TB mortality rates have also decreased by 18%, both in India and globally.
- India's proactive strategies in combating TB include intensive case detection efforts, government initiatives, and patient-centric approaches.
- India's commitment to TB elimination is evident through the allocation of additional resources to the National TB Elimination Programme.

Overall, India's dedication to tackling TB is commendable, and the country is on the right track to achieving its goal of TB elimination.

SOCIAL WELFARE

Lloyd's of London apologizes for slave trade links

Lloyd's of London, the world's oldest insurance market, has apologized for its role in the transatlantic slave trade and pledged to spend £52 million ($64 million) on racial-equality causes, but has been accused of "reparations washing" for stopping short of direct reparations.

- The apology comes after a report by Black Beyond Data, a research center at Johns Hopkins University, found that Lloyd's played a "significant role" in enabling the slave trade by providing insurance to slave ships and their owners.

- Lloyd's chairman Bruce Carnegie-Brown said the company was "deeply sorry" for its role in the slave trade and was committed to taking action to address the inequalities that persist today.
- "We're launching Inclusive Futures, a comprehensive programme of initiatives to help Black and ethnically diverse individuals and communities progress from the classroom to the boardroom," Carnegie-Brown said.
- However, some critics have accused Lloyd's of "reparations washing" for its decision to stop short of direct reparations to the descendants of enslaved people.
- "This is PR - giving an apology, making some commitments, but this is not serious," Kehinde Andrews, a professor of black studies at Birmingham City University, said.
- "Reparations washing is a term that has been coined to describe the practice of companies and organizations issuing apologies for their role in slavery and colonialism, but without making any meaningful financial or other reparations to the affected communities."
- It remains to be seen whether Lloyd's Inclusive Futures program will be enough to address the legacy of its role in the slave trade. However, the company's apology and commitment to racial equality are a welcome step in the right direction.

FINANCE

Switzerland ends electric car tax exemption

Switzerland has scrapped a tax exemption for imports of electric cars, citing the growing presence of electric vehicles on Swiss roads and the resulting decline in tax revenues.

- The exemption had been in place since 1997, when the government wanted to create incentives for people to buy electric vehicles. However, the government now says that the exemption is no longer necessary, as the share of electric vehicles in total car imports has increased significantly and the prices of electric vehicles are now comparable to those of fossil fuel vehicles.
- In 2022, the tax exemption cost the government around 78 million Swiss francs ($89 million). The government estimates that if the exemption had continued, it would have cost the government between two and three billion francs in cumulative tax revenue by 2030.
- The government also says that the cost of producing electric vehicles is expected to be in line with the cost of producing fossil fuel vehicles by 2025. This means that electric vehicle manufacturers should still be able to make a profit without increasing prices for consumers or relying on government subsidies.
- The government says that the end of the tax exemption will help to ensure that the tax system remains fair and that the government can continue to fund important public services.

- The decision to end the tax exemption for electric cars is a significant one, as it signals a shift in the government's approach to promoting the adoption of electric vehicles. The government is now betting that the market will support the continued growth of electric vehicles without the need for government subsidies or incentives.
- It will be interesting to see how the market reacts to the end of the tax exemption. If electric vehicle sales continue to grow, it will suggest that the government's bet is paying off. However, if electric vehicle sales decline, it could be a sign that the government needs to reconsider its approach.

OFFBEAT

Swedish Town Encourages Residents to Greet Each Other More

The Swedish town of Lulea, home to some 80,000 people, has launched a campaign to encourage residents to greet each other more. The campaign is aimed at addressing the town's reputation for being introverted, as well as the increased feelings of loneliness reported by people aged 16 to 29.

- The campaign features a video of Lulea residents with stern faces who suddenly light up when they are greeted by a passer-by. The video is accompanied by the message: "Saying hi to your neighbours is a small thing, but research shows that it can contribute to social bonds and have a positive impact on health, safety, and well-being."
- Asa Koski, a social strategist with the municipality who is behind the campaign, says that the message has been displayed on buses and buildings in the city since October 31, and the campaign will run for four weeks.
- "Swedish people can be a bit inward," Koski said. "We need to connect with each other and this is a way to create relationships."
- Koski also says that the modern urban lifestyle is to blame for the lack of greetings. "The bigger the city the more you are by yourself," she said, adding that when people lived in villages "we were better at saying these simple things to each other."
- Koski hopes that the campaign will strengthen social ties and prompt people to greet each other more. "It's a small thing, but it can make a big difference," she said.
- The campaign has been met with positive feedback from residents. Many people have said that they appreciate the reminder to be more friendly and outgoing. Others have said that the campaign has made them more aware of how often they don't greet their neighbours.
- It remains to be seen whether the campaign will have a lasting impact on the social culture of Lulea. However, it is a positive step towards encouraging people to connect with each other more.

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