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1. xAI releases Grok-1, AI chatbot as open source (March 21, 2024)

Grok-1 is an AI chatbot developed by xAI, a company founded by Elon Musk.

An Overview of the News

- xAI announced that Grok has been made open source, fulfilling a promise made by Musk.
- GROC-1, the base model, is a 314 billion parameter mixture-of-experts model trained from scratch.
- xAI released the base model weights and network architecture of Grok-1 on GitHub, promoting transparency and collaboration in AI development.
- Elon Musk aims to set an example by open-sourcing Grok.
- Open-sourcing Grok has a significant impact on the AI industry, encouraging knowledge sharing and fostering innovation.
- "Grok" was named for Robert A. Named after a word from Heinlein's science fiction novel "Stranger in a Strange Land", meaning to understand something deeply.
- Elon Musk, in addition to founding XAI, is known for his roles as CEO of Tesla and SpaceX and his influence in the tech industry.

About Elon Reeve Musk

- Elon Reeve Musk, born on June 28, 1971, is a prominent businessman and investor.
- He holds various leadership positions in several high-profile companies:
 - Founder, chairman, CEO, and CTO of SpaceX.
 - Angel investor, CEO, product architect, and former chairman of Tesla, Inc.
 - Owner, executive chairman, and CTO of X Corp.
 - Founder of the Boring Company and xAI.
 - Co-founder of Neuralink and OpenAI.
 - President of the Musk Foundation.
- Musk is recognized as one of the wealthiest individuals globally, with an estimated net worth of US\$190 billion as of March 2024 according to Bloomberg Billionaires Index, and \$195 billion according to Forbes.
- His wealth primarily stems from his ownership stakes in Tesla and SpaceX.

2. Tamil Nadu Creates History with India's Second Privately Developed Rocket (March 21, 2024)

Agnikul Cosmos Private Limited, one of Tamil Nadu's space companies, is preparing to launch its first rocket, Agnibaan Sub Orbital Technology Demonstrator (SOrTeD), from the Satish Dhawan Space Center in Sriharikota, Andhra Pradesh.

An Overview of the News

- Agnibaan SOrTeD marks India's inaugural launch from a private launchpad, marking a significant advancement in the country's space industry.
- The launch will also represent India's first rocket powered by a semi-cryogenic engine, showcasing advancements in propulsion technology.

Innovation with 3D Printed Engines:

- Agnikul Cosmos has achieved another milestone with the production of the world's first single-piece 3D-printed engine, highlighting indigenous innovation and engineering expertise.

Founders and Collaborative Efforts:

- Founded in 2017 by Srinath Ravichandran, Moin SPM and Satya Chakraborty, Agnikul Cosmos Pvt Ltd became the first Indian company to collaborate with the Indian Space Research Organization (ISRO) under the IN-SPACe project.
- The partnership, launched in December 2020, provided Agnikul Cosmos with access to ISRO's resources and expertise, facilitating the development of Agnibaan.

Prior Achievements:

- India's journey into privately developed rockets began in 2022 with the launch of Vikram-S developed by Skyroot Aerospace Pvt Ltd.
- Vikram-S achieved a peak altitude of 89.5 kilometers during its initial mission, marking India's entry into the privately developed rocket market and boosting its aspirations in the private space sector.

About ISRO

Founder - Vikram Sarabhai

Headquarters - Bengaluru

Established - 15 August 1969

Chairman - Shridhar Somnath

Officeholder - S. Somnath

3. Amazon's Project Kuiper launches prototypes for global Internet access (Oct. 10, 2023)

Amazon.com, Inc. (AMZN.O) successfully launched its first two prototype satellites, KuiperSat-1 and KuiperSat-2, into low Earth orbit (LEO) at an altitude of 500 kilometers (311 miles) as part of the "Protoflight" mission of Project Kuiper.

An Overview of the News

- The launch was performed using a United Launch Alliance (ULA) Atlas V rocket from the Cape Canaveral Space Force Station in Florida, United States.

About Project Kuiper:

- Project Kuiper is a satellite system composed of satellites operating in LEO at altitudes between 590 and 630 kilometers (about 367 to 391 miles).
- Its primary objective is to provide fast and affordable internet access to over 10 million underserved communities globally.
- The project plans to deploy 3,236 satellites, spaced carefully to minimize overlap.

Launch Agreements and Partnerships:

- Amazon has partnered with three commercial space companies - Arianespace, Blue Origin, and United Launch Alliance - to facilitate satellite launches.
- These companies will launch 83 rockets to deploy the Kuiper satellites.
- The project represents the largest commercial procurement of space launch services in history.

Important Points:

- Project Kuiper faces competition from SpaceX's Starlink project, which shares the same goal of providing global Internet coverage through a satellite constellation.
- Amazon.com, Inc. Headquartered in Seattle, Washington, United States, it is led by Chairman and CEO Andy Jassy and was founded in 1994.
- The project's launch agreements include 38 launches on ULA's Vulcan Centaur rocket, 18 launches on Arianespace's Ariane 6 rocket, and 12 launches on Blue Origin's New Glenn rocket, with an option for 15 additional launches.

4. India's first solar roof cycling track 'Healthway' inaugurated in Hyderabad (Oct. 2, 2023)

India's first solar rooftop cycling track 'Healthway' inaugurated in Hyderabad, paving the way for sustainable urban mobility.

An Overview of the News

- The program was presided over by State Municipal Administration and Urban Development Minister K Tarakrama Rao.
- The cycling track is named "Healthway" and is a pioneer project in India.

- This is the second program of its kind globally, showcasing innovation in sustainable infrastructure.

Location and features of the cycling track:

- The track is located along the Outer Ring Road (ORR) between the main carriageway and the service road.
- Its total length is 23 kilometers and it consists of two sections: a pink line of 8.5 kilometers and a blue line of 14.5 kilometers.
- The track is three lanes wide, measuring 4.5 metres, with one meter of green space on each side.

Facilities and Services Available:

- The cycling track is designed as a hub for cyclists and visitors.
- It provides amenities like adequate parking space, surveillance cameras, food courts, drinking water, first aid facilities and toilets.
- Additionally, there will be bicycle repair shops, bicycle docking stations, rental services and more to enhance the visitor experience.

Solar Energy Generation and Environmental Benefits:

- A total of 16,000 solar panels have been installed along the track.
- These solar panels generate 16 megawatts (MW) of power, which is used to illuminate the track at night and provide protection to cyclists from sun, rain and adverse weather conditions.
- This initiative is in line with sustainability goals and promotes eco-friendly transportation options.

5. Iran's IRGC successfully launches Nour 3 Military Imaging Satellite into Orbit (Sept. 30, 2023)

Iran's Islamic Revolutionary Guard Corps (IRGC) successfully launched its third military imaging satellite, Nour 3, from Iran's Shahroud Spaceport.

An Overview of the News

- The satellite was sent into orbit using a three-stage cassette carrier, which was developed by the IRGC.
- In Persian, "**nour**" (or "**noor**") translates to "**light**", while "**Qased**" means "**messenger**".
- Noor 3 was placed in low Earth orbit (LEO) at an altitude of 450 km (280 mi) above the Earth's surface.

- The primary purpose of the Nour-3 satellite is to **collect data and images for intelligence purposes by the IRGC.**

Previous versions of the Noor satellite include:

- **Nour 1** - It was the first military reconnaissance satellite launched by Iran in April 2020. It orbited at an altitude of 425 km (265 mi) above the Earth.
- **Nour 2** - It launched in March 2022, and operated in a low orbit at an altitude of 500 km (310 mi).

Other satellites of Iran

- In August 2022, Iran's high-resolution, remote-sensing Khayyam satellite was launched using Russia's Soyuz-2.1B rocket. The launch took place from the Russian-controlled Baikonur Cosmodrome in Kazakhstan.

About Iran

- President - **Ibrahim Raisi**
- Capital - **Tehran**
- Currency - **Iranian Rial**

6. Union Minister Hardeep S Puri flags off India's first green hydrogen fuel cell bus (Sept. 26, 2023)

On September 25, 2023, Union Petroleum Minister Hardeep Singh Puri inaugurated India's first green hydrogen fuel cell bus on the 'Kartavya Path' in Delhi.

An Overview of the News

- India's ambition is to become a global hub of hydrogen production and export.

Benefits of hydrogen-powered buses

- Environmental benefits of fuel cell buses: Zero harmful emissions and quick charging.
- The higher energy density of hydrogen than conventional fuels.
- Collaboration between Indian Oil and Tata Motors for indigenous fuel cell technology and infrastructure.

Green Hydrogen Mission and Sustainability Goals

- The Green Hydrogen Mission aims to establish a green hydrogen ecosystem in India.
- Hydrogen has the potential to transform India's energy landscape and reduce carbon emissions.

- IndianOil's commitment to sustainable solutions and the goal of achieving net-zero emissions by 2070.

7. 1,000-year-old alien corpse unveiled in Mexican Congress (Sept. 23, 2023)

Jaime Maussan, a leading UFO expert, recently revealed in the Mexican Congress two alleged "non-human" bodies believed to be 1,000 years old.

An Overview of the News

- These bodies were reportedly found in a mine in Cuzco, Peru.
- Researchers claim that the genetic structure of these dead bodies is 30 percent different from that of humans.
- Carbon dating by the National Autonomous University of Mexico (UNAM) confirmed their age to be over 1,000 years.

Unusual Features:

- The bodies were human-like in shape but displayed distinctive features such as three-fingered hands and feet.
- They had retractable necks and long skulls that resembled bird-like features.
- The bones of these creatures were strong, light, and lacked teeth.

Implantation and Embryo:

- Eggs with embryos were found in one of these bodies.
- Implants made of the metals cadmium and osmium were discovered.

Previous claims by Maussan:

- In 2015, Jaime Maussan presented another alleged "alien" body, found near the Nazca Lines in Peru, famous for its giant and mysterious geoglyphs.

8. New genus and species Igai Semkhu of titanosaurian dinosaur discovered in Egypt (Sept. 10, 2023)

Paleontologists led by Eric Gorscak of Midwestern University recently discovered Igai Semkhu, a new genus and titanosaurian dinosaur species in Egypt.

An Overview of the News

- This dinosaur species, Igai Semkhu, lived during the Campanian era of the Late Cretaceous era, about 75 million years ago.
- Igai Semkhu belongs to the titanosaurian group, a diverse category of herbivorous dinosaurs that are known for their large body size, extended neck, and wide stance.

- The titanosaurian group includes a wide range of species, from the largest terrestrial vertebrates ever known, to 'dwarf' species no larger than elephants.
- Igai Semkhu is one of the most informative dinosaurs yet recovered from the latest Cretaceous of Afro-Arabia.

Cretaceous-era:

- This is the third and last period of the Mesozoic era.
- This is often called the "Age of the Dinosaurs".
- Extending from about 145 million years ago to about 66 million years ago.
- It is one of the most extended geological eras in Earth's history.
- **Mass Destruction:**
 - The Cretaceous-Paleogene (K-Pg) mass extinction event marks the end of the Cretaceous era.
 - This end occurred approximately 66 million years ago.
 - This resulted in the extinction of approximately 75% of Earth's species, including non-avian dinosaurs.

9. India launches 'Hello UPI' and 'Bharat BillPay Connect' for voice-activated conversational payments. (Sept. 9, 2023)

- National Payments Corporation of India (NPCI) launched two conversational payments initiatives: 'Hello UPI' and 'Bharat BillPay Connect.'

An Overview of the News

- These initiatives were unveiled at the Global Fintech Fest with the goal of increasing user convenience and accessibility in digital transactions.

'Hello UPI':-

- 'Hello UPI' enables users to make payments through interactive interactions using their smartphones.
- It simplifies various payment tasks, including splitting restaurant bills, sending money to friends, and settling utility bills.

Multilingual Access:

- NPCI's 'Hello UPI' supports voice-enabled UPI payments in both Hindi and English.
- There are plans to expand language support to include other regional languages, ensuring inclusivity for a wider user base.

Collaborative Development:

- NPCI collaborated with the Bhashini Program at IIT Madras and AI4India to jointly develop a payment language model in Hindi and English.
- This collaboration promotes the advancement of indigenous technology and contributes to the success of these interactive payment initiatives.

Bharat BillPay Connect:-

- **Streamlining Bill Payments:** BillPay Connect aims to streamline the bill payment process by enabling users to easily pay their bills using natural interactions with popular voice assistants like Alexa.
- **Accessibility for all users:** This initiative is designed to cater to a wide range of users with different levels of technical proficiency. Whether individuals have access to a feature phone, smartphone, or merchant soundbox, digital bill payment has become accessible to all.
- **Instant Voice Confirmation:** Users can easily retrieve and settle their bills through voice commands on smart home devices and receive instant voice confirmation. Additionally, this facility extends to bill payments made at physical collection centers through Payment Soundbox devices.

10. India's first solar city inaugurated in Madhya Pradesh's Sanchi (Sept. 8, 2023)

Madhya Pradesh (MP) Chief Minister Shivraj Singh Chouhan inaugurated Sanchi in Raisen district as India's first solar city.

An Overview of the News

- The initiative is in line with Prime Minister Narendra Modi's vision of developing a solar city in every state by 2070.

About Sanchi Solar City:

- Sanchi Solar City has two solar plants - **a 3 MW solar plant at Nagauri** and a **5 MW solar plant at Gulgaon**, which cater to the city's power and agricultural needs.
- Currently, an 8 MW grid-connected solar plant is under construction within Sanchi city.
- **Madhya Pradesh Urja Vikas Nigam Limited (MPUVNL)** acted as the nodal agency for this solar city project.
- MPUVNL launched an '**Energy Literacy Campaign**' to educate the people of **Sanchi about energy-saving practices**.
- Sanchi Solar City is expected to reduce annual carbon dioxide emissions by about 13,747 tonnes, which is equivalent to the effect of planting more than 2 lakh adult trees.
- The project is expected to save over Rs 7 crore annually in energy-related expenses for both the government and citizens.

Initiatives under the Sanchi Solar City Project:

- Electric vehicle charging stations have been set up across the city to promote the adoption of electric vehicles.
- Public establishments have been fitted with rooftop solar systems to harness solar energy.
- Individual rooftop owners have also installed solar systems on their premises, thereby reducing their dependence on grid electricity.

National Renewable Energy Target:

- India has set a target of generating 40% of its total installed electricity generation capacity from renewable sources by 2030.

About Sanchi:

- Sanchi is famous for its Buddhist Stupa, which is recognized as a UNESCO World Heritage Site.
- The Great Stupa of Sanchi was built by Emperor Ashoka in the 3rd century BC.

Important Point:- In October 2022, Prime Minister Narendra Modi declared Modhera village in Gujarat as India's first 24x7 solar-powered village.

About Madhya Pradesh

- It is the second largest state of India by area after Rajasthan.
- Forests occupy 25.14 percent of its area.
- Governor - **Mangubhai Patel**
- Chief Minister - **Shivraj Singh Chauhan**
- Capital - **Bhopal**