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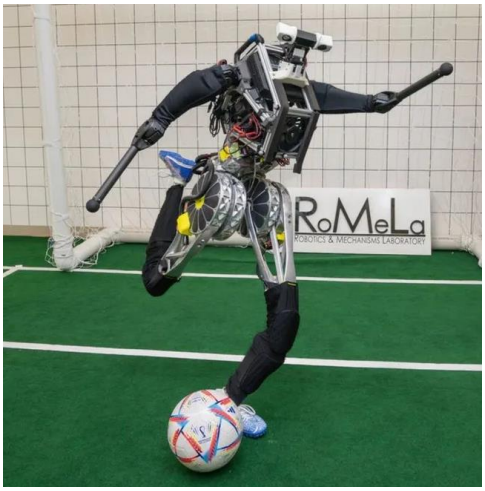
Story 1: Researchers have created world's fastest walking humanoid robot

Source: Interesting Engineering Story by Baba Tamim

Link: https://interestingengineering.com/innovation/artemis-worlds-fastest-robot



See video here: https://www.youtube.com/watch?v=gTkupawAG6w

- Humanoid robots have been a big deal in recent years with private industry and academic outfits around the world competing to outdo each other.
- And here's the most recent competitive milestone:
- Robotics researchers at the University of California, Los Angeles have created a cutting-edge humanoid robot called ARTEMIS that has been timed walking about 6 feet, 11 inches per second, making it the fastest walking humanoid robot in the world!
- The speed walking of this 85-pound, nearly five-foot-tall robot is not the only advanced feature this bot has to offer!

- ARTEMIS has exceptional balance while walking on uneven terrain due to its groundbreaking actuators designed to function like human biological muscles.

- Actuators are mini electric, pneumatic, or hydraulic devices that use energy to create motion in a robot.

- Most humanoid robots use stiff, position-controlled actuators.

    - ARTEMIS' actuators are more fluid, springy, and force controlled.

- As a result, it can quickly [and that's the key word here "quickly"] sprint, jump, and walk on uneven and unstable surfaces.

- Even when ARTEMIS is violently shoved its actuators keep the robot upright.

- Folks, I recommend checking out the UCLA team's video to see this achievement in action!

Story 2: New drug rapidly counteracts intoxication, quickly sobers up drunk mice
Source: ScienceAlert.com Story by David Nield
Link: https://www.sciencealert.com/new-drug-counteracts-intoxication-rapidly-sobers-up-drunk-mice

- Imagine someday rapidly reducing the effects of drunkenness or alcohol poisoning with a single injection in the arm.

- Using mice as their test subjects, researchers at the University of Texas Southwestern Medical Center discovered that a hormone called fibroblast growth factor 21 increases alertness in the brain.

- Tests on the mice revealed that this hormone fights the drowsiness and lack of coordination brought on by drunkenness.

- As the livers of mice and humans produce the same hormone the researchers contend it could do this for us too.

- Ultimately, the goal is to determine an injectable dosage level of the hormone that would dramatically accelerate rousing a human suffering from alcohol poisoning or extreme drunkenness.

- MARK If this pans out, I can see hypodermic syringes with fibroblast growth factor 21 being in the medical kits of future first responders.

Story 3: Artificial intelligence and machine learning offer recyclers a new way to separate compostable and conventional plastics

Source: Frontiersin.org

Link: https://blog.frontiersin.org/2023/03/14/separating-compostable-conventional-plastic-waste/

- Most of today's plastic recycling facilities are remarkable places where waste plastics on conveyor belts are shuttled under sophisticated optical scanners that identify plastic from other non-plastic contaminants.

- After the optical scanning step workers then conduct manual sorting to improve overall sorting results.

- This process generally works well, but there's a big problem.
- Today's optical scanners often can't tell the difference between compostable plastics [which offer a great recycling advantage] and conventional petroleum-based plastics.

- Okay, so why is it important for a recycling system to accurately identify and separate out compostable plastic?

    - Because unlike conventional plastics, compostable plastics [which are made with a key ingredient derived from dextrose, a sugar produced by plants] will biodegrade in a compost site.

- So, to tackle this sorting challenge, researchers at University College London recently announced they used machine learning to create an artificial intelligence system that can accurately identify compostable plastics from conventional plastics.

- Time out, what is "machine learning"?

    - Machine learning refers to training an artificial intelligence system to make predictions and decisions without being explicitly programmed.

- After completing an extensive machine learning process, the University College London's proposed AI system model achieved perfect accuracy identifying compostable from conventional plastic materials when the samples measured about ½-by-½ inch or larger.

Story 4: Floating solar panels on water reservoirs, it's an idea gaining traction

Source: CleanTechnica.com Story by Steve Hanley

Link: https://cleantechnica.com/2023/03/16/new-study-gives-big-boost-to-floating-solar/

Source: Nature Sustainability

Link: https://www.nature.com/articles/s41893-023-01089-6.epdf

- This is not a science or technology blockbuster news item, but I still wanted to highlight this important new proposal.

- A recently released study authored by an international team of environmental experts promotes the idea of floating solar panels on many of the world's water reservoirs to provide a significant share of the renewable energy the world needs.

- The study notes floating photovoltaic solar panels on water reservoirs offers several advantages including:

    - Lower cost of installation as compared to land-based solar farms.
    - And, most compelling of all, reducing water evaporation by covering all or part of a reservoir with solar panels.

- The team estimates that if 30% of the world's nearly 115,000 water reservoirs were covered with floating solar panels it would generate approximately 9,500 Terawatt-Hours per year.

- And MARK that's a lot! One Terawatt-hour is equal to one million megawatt-hours.

- Okay, let's put this into perspective by using an example I think we can all immediately relate to:

    - Right now, the United States consumes about four thousand Terawatt Hours a year!

- So, that’s less than half what the researchers predict could be generated in one year’s time if 30% of the world’s reservoirs were covered with solar panels!