

# Weekly Update

## 1. New mathematical proof helps to solve equations with random components

*Darwin was not a good mathematician. In fact, on the contrary, he admitted that he did not understand mathematics. According to Herschel and Huell Hassan, Newton's principle was that Newton presented his words in the language of mathematics. History shows that Herschel and Huell's request to Darwin to provide quantitative rules in the theory of evolution was not unreasonable. This request to Darwin reflects their strong spirit and today we should not base their opposition to Darwin only on their ideology. The association of mathematics and evolution can be used to increase social cooperation to improve general human welfare.*

**Source:** University of Münster

<https://www.uni-muenster.de/news/view.php?cmdid=14123>

## 2. Cure for tantrums? Longitudinal associations between parental digital emotion regulation and children's self-regulatory skills

*"Bitter times cannot be healed by using digital devices," study author Veronika Konok, a researcher at Budapest-Lorand University in Budapest, Hungary, said in a press release. Some parents give their children cell phones and tablets to calm their anger, but recent research shows that this hinders children from learning emotion regulation skills. Children should learn to manage their negative emotions on their own. "They need their parents' help during the learning process, not digital devices."*

**Source:** Frontiers

<https://www.frontiersin.org/journals/child-and-adolescent-psychiatry/articles/10.3389/frcha.2024.1276154/full>

## 3. New AI Program from BU Researchers Could Predict Likelihood of Alzheimer's Disease

*Researchers at Boston University have developed an artificial intelligence model that can be used for normal everyday interactions at home with minimal human intervention, allowing more people to be monitored. This model can detect the development of illness in people who do not regularly visit medical centers. In this way, the number of people whose mental health is being monitored is significantly increased.*

**Source:** Boston University

<https://www.bu.edu/articles/2024/new-ai-program-could-predict-alzheimers-disease/>

## 4. Girls — especially girls of color — are getting their first menstrual periods earlier

*Socioeconomic stress and abuse: Stress related to socioeconomic problems and forms of abuse can also contribute to premature puberty. Since 1950, the number of girls experiencing their first menstrual period prematurely (before the age of eleven) has nearly doubled. This phenomenon, which is well documented and occurs globally, can have serious consequences for women's physical and mental health.*

**Source:** Association of Healthcare Care Journalists

<https://healthjournalism.org/blog/2024/06/girls-especially-girls-of-color-are-getting-their-first-menstrual-periods-earlier/>

### **5. Predator or prey? This 'switch' in the brain toggles when you're hunting or being hunted**

*The answer lies in the hypothalamus, a small structure in the brain that is responsible for switching between hunting and being hunted. A new study published in the journal PLOS Biology shows that the hypothalamus also manages survival behavior in the transition between hunting and being hunted. These findings expand our understanding of the human hypothalamus from an area that regulates our internal body conditions to an area that controls survival behavior and coordinates strategic survival behavior.*

**Source:** [Live Science](https://www.livescience.com/health/neuroscience/predator-or-prey-this-switch-in-the-brain-toggles-when-youre-hunting-or-being-hunted)

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### **6. Bones reveal first evidence of Down syndrome in Neanderthals**

*This evidence was obtained from adults and the scientists felt that this behavior is a kind of reciprocal helping and is not rooted in altruism. What is new and surprising in this research is that an immature individual is supported by people other than its mother from birth, so this cannot be considered reciprocal support.*

**Source:** [Science Adviser](https://www.science.org/content/article/bones-reveal-first-evidence-down-syndrome-neanderthals)

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### **7. EU dreams data centers that work “above clouds”**

*Space data centres are not free from pollution and a lot of pollution is generated when rockets send them into space. Establishing data centres in space can expand Europe's digital landscape and provide a more environmentally friendly and unique way to process and host data. Researchers are looking for new ways such as space data centres to provide processing power that consumes less energy and causes less harm to the environment.*

**Source:** [dataconomy](https://dataconomy.com/2024/07/01/eu-dreams-data-centers-that-work-above-clouds/#:~:text=EU%2Dbacked%20ASCEND%20says%20it's,produced%20%E2%80%9Cvery%20encouraging%E2%80%9D%20results.)

<https://dataconomy.com/2024/07/01/eu-dreams-data-centers-that-work-above-clouds/#:~:text=EU%2Dbacked%20ASCEND%20says%20it's,produced%20%E2%80%9Cvery%20encouraging%E2%80%9D%20results.>

### **8. Study Uncovers Earth's Inner Core Slowing Down, Backtracking**

*According to researchers, the change could be due to the interaction of the Earth's inner or outer layers, oceans, tides or even weather. There is also an idea that the length of the day could increase by a very small amount, as small as a thousandth of a second. Such a small amount is very difficult to detect. The wheel of time no longer turns as it used to and the Earth's inner core has been rotating at a slower rate for about 15 years.*

**Source:** [Modern Sciences](https://modernsciences.org/study-uncovers-earths-inner-core-slowing-down-backtracking/)

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### **9. Telltale greenhouse gases could signal alien activity**

*Members of the research team are not only eager to find possible signs of intelligent extraterrestrial life, but are also excited about how close current technology has brought us to that goal. To achieve these calculations, the researchers simulated a planet in the TRAPPIST-1 system, which is about 40 light-years from Earth. In an atmosphere like Earth, only one molecule in every million molecules belongs to one of these gasses, and although it is potentially detectable.*

***Source:* University of California, Riverside**

<https://epsci.ucr.edu/news/2024/06/25/telltale-greenhouse-gases-could-signal-alien-activity>

### **10. Wirelessly Powered Relay Will Help Bring 5G Technology to Smart Factories**

*Scientists at Tokyo Tech have designed a 256-element wireless receiver for 5G communications. The researchers have developed a wireless relay transceiver that expands 5G network coverage even in areas where connectivity is blocked. The increased flexibility and coverage area could potentially make high-speed, low-latency communications more accessible.*

***Source:* Tokyo Institute of Technology**

<https://www.titech.ac.jp/english/news/2024/069465>