Ode to E Pluribus Unum for Sunday July 21 2024

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NASA's 3D Tour of a Famous Cosmic Masterpiece Is Exquisite

Using NASA data, a team at the Space Telescope Science Institute created a 3D tour of the Pillars of Creation.
Credit: NASA / ESA / CSA / STScI

It's hard to pick a favorite view of space, but many astronomers hold dear the Pillars of Creation, a stunning cloud of interstellar gas and dust that resembles a human hand.

Now NASA scientists have created a narrated 3D tour of this cosmic marvel, a small portion of the enormous Eagle Nebula about 6,500 light-years away in the Milky Way.The Pillars of Creation are mostly made of small dust grains of carbon and hydrogen, weathered by the ultraviolet radiation of nearby hot, young stars. The fingerlike pillars are gigantic, with the tallest among them stretching farther than the width of our own solar system — more than three light-years.

New stars, only a few hundred thousand years old, poke out around the edges of the cloud as rubies, courtesy of Webb's infrared view. The reddish fingertips, the result of energetic hydrogen, are coming from young stars that sometimes shoot out wavy jets.

NASA has previously described the pillars as "practically pulsing with their activity." This new perspective gives scientists a better feel for how baby stars shed their dust cocoons over millions of years.

https://youtu.be/jlzq5QOOKrE?t=1

Rather than an artistic rendering, the movie (shown below) is based on actual scientific data acquired from a host of observatories, including the Hubble Space Telescope, which took its first pictures of the famous pillars in 1995, and the James Webb Space Telescope, which views the universe in infrared light. The movie also incorporates data from the Chandra X-ray Observatory and the retired Spitzer Space Telescope.

The video is intended to help people understand how different telescopes provide different kinds of information, while also giving the audience a general appreciation for how star formation occurs, said principal visualization scientist Frank Summers of the Space Telescope Science Institute in Baltimore. Summers will present it at the International Planetarium Society Conference in Berlin next month.

"Stars help create the dust pillars that actually are creating stars," Summers said in a statement. "Stars are forming inside the Eagle Nebula, which is a giant dust cloud."

You do not want to miss viewing the video…I promise you.

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Perseverance Cores 'Bunsen Peak'

NASA

Click here for animation

This animation shows NASA's Perseverance Mars rover collecting a sample from a rock the science team calls "Bunsen Peak" using a coring bit on the end of its robotic arm. It was the 21st rock core collected by Perseverance, and the 24th sample overall for the mission. The sample was collected on March 11, 2024, the 1,088th Martian day, or sol, of the mission.

The 33 images that make up this animation were taken by one of the rover's front hazard cameras. The animation has been sped up by 390 times.

A key objective for Perseverance's mission on Mars is astrobiology, including the search for signs of ancient microbial life. The rover will characterize the planet's geology and past climate, pave the way for human exploration of the Red Planet, and be the first mission to collect and cache Martian rock and regolith.

Subsequent NASA missions, in cooperation with ESA (European Space Agency), would send spacecraft to Mars to collect these sealed samples from the surface and return them to Earth for in-depth analysis.

The Mars 2020 Perseverance mission is part of NASA's Moon to Mars exploration approach, which includes Artemis missions to the Moon that will help prepare for human exploration of the Red Planet.

NASA's Jet Propulsion Laboratory, which is managed for the agency by Caltech, built and manages operations of the Perseverance rover.

For more about Perseverance: https://mars.nasa.gov/mars2020/

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In Petaluma, To-Go Cups Will Now Be Reused All Over Town

[Photo: Closed Loop Partners]

In a first-of-a-kind pilot, both big chains and local cafes are testing a new system designed to make reuse nearly as easy for customers as tossing a single-use cup in the trash. The cups are free to use. When you finish your drink, you can drop the cup in one of dozens of bins throughout the city. Then it will be collected, sanitized, and delivered back to another downtown restaurant to be used again. The three-month-long pilot has the potential to replace hundreds of thousands of single-use cups.

https://bit.ly/3Y9Ceqc

Don't you wish Petaluma had kept its chicken statue?

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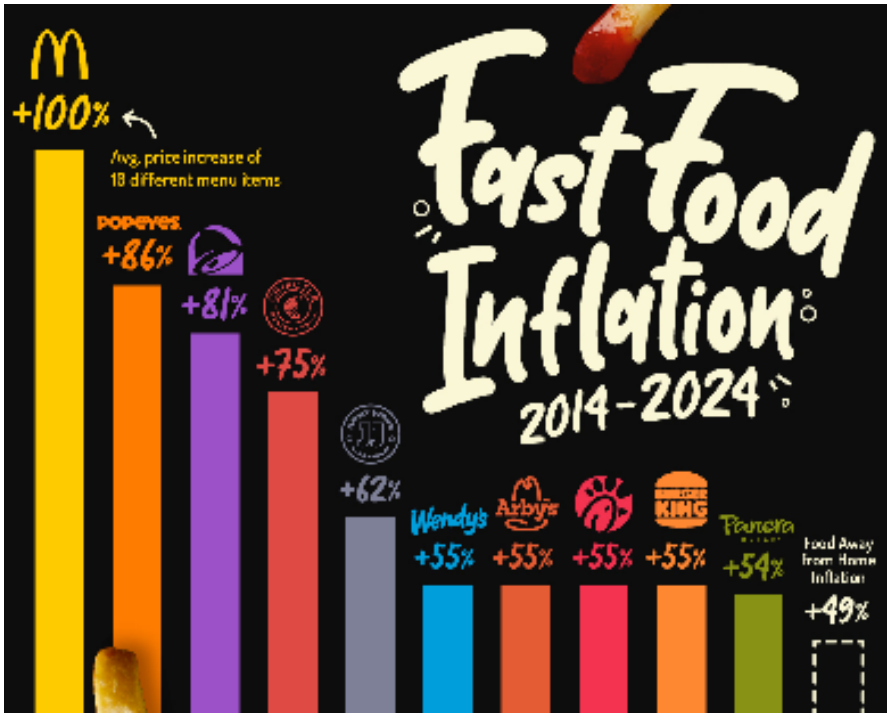
Inflation Across U.S. Fast Food Chains (2014-2024)



voronoi

As the cost of dining out has increased across the board, with even fast food options surpassing overall inflation, consumers are running out of cheaper alternatives when it comes to having food away from home.

https://bit.ly/3WbnILK

Mac just keeps chugging along leading the pack

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The Brains of "Superagers" Show Less Atrophy, Study Finds

Maria Voronovich/ iStock

We've previously reported on the concept of "superagers," or individuals over the age of 80 with the memory abilities of someone 20-30 years younger. But new research is continuing to surface on the mechanisms behind their exceptional memories.

Emily Rogalski, who published one of the first superager studies in 2012, told The New York Times that a lot of the data around memory focuses on people with dementia and Alzheimer's, but looking at superagers can be just as important. "If we're constantly talking about what's going wrong in aging, it's not capturing the full spectrum of what's happening in the older adult population," she said.

In a study published April 29, 2024, scientists built off of Rogalski's previous findings, concluding that the brains of superagers have less atrophy and more brain volume in the hippocampus and entorhinal cortex, two areas that are essential for memory, when compared to the average older adult.

They were surprised to see that many other factors, like diet, sleep, and tobacco use, were consistent between the superagers in the study and the control group, which could indicate a genetic cause, neuroscience researcher Tessa Harrison said. While the experts continue working that out, check out some brain health tips from a neurologist.

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College Admission Rates for U.S. Schools Compared

fastweb.com

Here are rates for about 1,400 institutions that award at least a bachelor's degree and have at least 500 undergraduates.

https://bit.ly/3Lf6jwR

Do you really want to go to Caltech? Lotsa Luck

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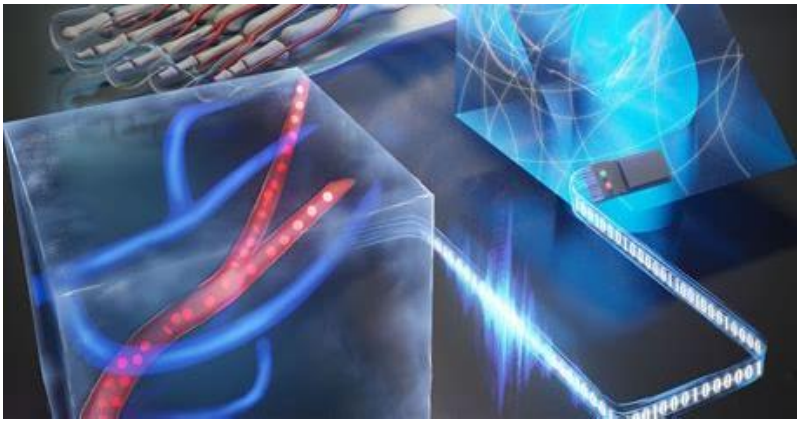
Laser-Based Imaging Simpler and Three-Dimensional



CalTech

There are times when scientific progress comes in the form of discovering something completely new. Other times, progress boils down to doing something better, faster, or more easily.

New research from the lab of Caltech's Lihong Wang, the Bren Professor of Medical Engineering and Electrical Engineering, is the latter. In a paper published in the journal Nature Biomedical Engineering, Wang and postdoctoral scholar Yide Zhang show how they have simplified and improved an imaging technique they first announced in 2020.

That technique, a form of photoacoustic imaging technology called PATER (Photoacoustic Topography Through an Ergodic Relay), is a specialty of Wang's group.

In photoacoustic imaging, laser light is pulsed into tissue where it is absorbed by the tissue's molecules, causing them to vibrate. Each vibrating molecule serves as a source of ultrasonic waves that can be used to image the internal structures in a fashion similar to how ultrasound imaging is performed.

However, photoacoustic imaging is technologically challenging because it produces all its imaging information in one short burst. To capture that information, early versions of Wang's photoacoustic imaging technology required arrays of hundreds of sensors (transducers) to be pressed against the surface of the tissue being imaged, which made the technology complicated and expensive.

Wang and Zhang reduced the number of required transducers by using a device called an ergodic relay, which slows down the rate at which information (in the form of vibrations) flows into a transducer. As explained in a previous story about PATER:

In computing, there are two main ways to transmit data: serial and parallel. In serial transmission, the data are sent in a single stream through one communication channel. In parallel transmission, several pieces of data are sent at the same time using multiple communication channels.

The two types of communication are roughly analogous to the way cash registers might be used in a store. Serial communication would be like having one cash register. Everyone gets in the same line and sees the same cashier. Parallel communication would be like having several registers and a line for each.

The system Wang designed with 512 sensors is similar to the store with many cash registers. All of the sensors are working at the same time, with each taking in part of the data about the ultrasonic vibrations generated by the laser pulse.

Since the ultrasonic vibrations from the system come in one short burst, a single sensor would be overwhelmed if it were used to try and collect all the data in that short amount of time. That's where the ergodic relay comes in.

As Wang describes it, an ergodic relay is a sort of chamber around which sound can echo. When the ultrasonic vibrations pass through the ergodic relay, they are stretched out in time. To return to the cash-register metaphor, it would be like having another employee assisting the single cashier by telling the customers to walk a few laps around

the store until the cashier is ready to see them, so the cashier does not become overwhelmed.

The latest version of this technology, called PACTER (Photoacoustic Computed Tomography Through an Ergodic Relay) goes even further, allowing the system to operate using a single transducer that, through the use of software, can collect as much data as 6,400 transducers.

https://youtu.be/L7r5eNtaLq4

PACTER improves on PATER in two other ways, says Wang, who is also the Andrew and Peggy Cherng Medical Engineering Leadership Chair and executive officer for medical engineering.

One improvement is that PACTER can create three-dimensional images, whereas PATER can only generate 2D images. This was enabled by the development of improved software.

"Transitioning to 3D imaging significantly escalates the data requirement. The challenge was funneling the immensely increased data through a single transducer," Zhang says. "Our solution emerged by altering our approach. Rather than a direct and computationally intensive method of reconstructing 3-D images from the single-transducer data, we first expanded one transducer into thousands of virtual ones. This idea simplified the process of 3D image reconstruction, aligning it more closely with the traditional methods in our photoacoustic imaging."

Secondly, unlike PATER, PACTER does not need to be calibrated each time it is used.

"With PATER, we had to calibrate it each time to use it and that's just not practical. We got rid of this per-use single-time calibration," Wang says.

Calibration was needed because when the system fires a pulse of laser light into tissue, an "echo" of that pulse would bounce back into the transducer, preventing it from sensing direct ultrasound information.

Wang says PACTER gets around that issue by adding something called a delay line to the system. The delay line forces the echo to take a longer physical path on its way back to the transducer so that it arrives after the direct ultrasound information has been received.

"Even though I always said this was possible, I knew it would be challenging," Wang says.

The paper describing the work, "Ultrafast longitudinal imaging of haemodynamics via single-shot volumetric photoacoustic tomography with a single-element detector," appears in the November 30 issue of Nature Biomedical Engineering. Co-authors are

Peng Hu (PhD '23), former graduate student in medical engineering; Lei Li (PhD '19), former postdoc in medical engineering; Rui Cao, postdoc in medical engineering; Anjul Khadria, former postdoc in medical engineering; Konstantin Maslov, former staff scientist at Caltech; Xin Tong, graduate student in medical engineering; and Yushun Zeng, Laiming Jiang, and Qifa Zhou of USC.

Funding for the research was provided by National Institutes of Health.

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X-15 Pilot, Space Shuttle Test Pilot Joe Engle Dead at 91

NASA photo of X-15 test pilot Joe Engle
(Image credit: NASA)

Joe Engle's aviation and space exploration career was remarkable in part because it spanned the transition from atmospheric flight to space flight, including participation in the Apollo lunar missions and flying atmospheric test aircraft into space and landing on earth in the X-15, a precursor to the operational space shuttle program. Engle helped develop reusable spacecraft and actively participated in their operational deployment.

https://bit.ly/3Y2DjzX

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Twice Stolen Renaissance Painting Could Sell for Nearly $32M

Sean Dempsey - PA Images/PA Images via Getty Images

"The Rest on the Flight Into Egypt" has taken a rocky path to Christie's Classic Week auction. The Renaissance painting was created by artist Tiziano Vecellio, or Titian, in early 16th century Venice. It depicts a biblical scene: Joseph, Mary, and baby Jesus on a journey to seek safety in Egypt.

The masterpiece was sold to a British nobleman in the 17th century, and later acquired by Austria's Archduke Leopold Wilhelm. In 1809, it was looted by French troops who had occupied Vienna. Then it had a stint in Scotland, and one back in England at the estate of John Alexander Thynne, the fourth marquess of Bath.

There, in 1995, it was stolen a second time, and ended up at a London bus stop in 2002. Charles Hill, whom Christie's describes as "a leading art detective of the day," discovered Titian's work and returned it to its owner. Now that it's preparing to change hands once again, the painting is expected to fetch up to $31.7 million.

"This is a painting, then, that has been coveted by aristocrats, archdukes, and emperors alike: prized for its vividly colored scene of familial affection within the natural world. Like its subjects, 'The Rest on the Flight Into Egypt' has been on a long and eventful journey — a journey that's far from over," the auction house said.

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The 2024 Audubon Photography Awards

Mating, fighting, dive-bombing for food: This year's prize-winning images and videos are packed with avian action—now, in even more categories.

Audubon.org

Birds evolved over millions of years to thrive in specific habitats, yet they're also remarkably adaptable. Many live in our cities and alongside our infrastructure and readily spread to unfamiliar terrain. The Birds in Landscapes Prize, a new category in this year's Audubon Photography Awards, celebrates the beauty of birds in the broader context of both natural and developed surroundings. Its winner, an image of the globe-trotting California Quail in its preferred scrubby turf, is a stunner—as are all the photos and videos that follow.

https://bit.ly/3KWYUlK

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Poetry Corner

Warsan Shire

Photo by Amaal Said

The daughter of Somali parents who fled their home country for Kenya, Shire was born in Nairobi and raised in London, where her family moved shortly after she was born. In 2014 she was named London's first Young Poet Laureate.

Many of Shire's poems address the experiences of refugees, particularly political and sexual violence. In 2016 Shire collaborated with R&B singer and songwriter Beyoncé on the music superstar's acclaimed visual album Lemonade, which brought the poet worldwide renown. In 2022 Shire published her first full-length poetry collection, Bless the Daughter Raised by a Voice in Her Head.

> *no one leaves home unless*
> *home is the mouth of a shark.*
> (from "Home")

She is the youngest member of the Royal Society of Literature and is included in the Penguin Modern Poets series. Shire wrote the poetry for the Peabody Award–winning visual album Lemonade and the Disney film Black Is King in collaboration with Beyoncé

Knowles-Carter. She also wrote the short film Brave Girl Rising, highlighting the voices and faces of Somali girls in Africa's largest refugee camp.

Shire lives in Los Angeles with her husband and two children. Bless the Daughter Raised by a Voice in Her Head is her full-length debut poetry collection.

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The House

i
Mother says there are locked rooms inside all women; kitchen of lust,
bedroom of grief, bathroom of apathy.
Sometimes the men - they come with keys,
and sometimes, the men - they come with hammers.

ii
Nin soo joog laga waayo, soo jiifso aa laga helaa,
I said *Stop*, I said *No* and he did not listen.

iii
Perhaps she has a plan, perhaps she takes him back to hers
only for him to wake up hours later in a bathtub full of ice,
with a dry mouth, looking down at his new, neat procedure.

iv
I point to my body and say *Oh this old thing? No, I just slipped it on.*

v
Are you going to eat that? I say to my mother, pointing to my father who is lying on the dining room table, his mouth stuffed with a red apple.

vi
The bigger my body is, the more locked rooms there are, the more men come with keys. Anwar didn't push it all the way in, I still think about what he could have opened up inside of me. Basil came and hesitated at the door for three years. Johnny with the blue eyes came with a bag of tools he had used on other women: one hairpin, a bottle of bleach, a switchblade and a jar of Vaseline. Yusuf called out God's name through the keyhole and no one answered. Some begged, some climbed the side of my body looking for a window, some said they were on their way and did not come.

vii
Show us on the doll where you were touched, they said.
I said *I don't look like a doll, I look like a house.*
They said *Show us on the house.*

Like this: two fingers in the jam jar
Like this: an elbow in the bathwater
Like this: a hand in the drawer.

viii
I should tell you about my first love who found a trapdoor under my left breast nine years ago, fell in and hasn't been seen since. Every
now and then I feel something crawling up my thigh. He should make himself known, I'd probably let him out. I hope he hasn't
bumped in to the others, the missing boys from small towns, with pleasant mothers, who did bad things and got lost in the maze of
my hair. I treat them well enough, a slice of bread, if they're lucky a piece of fruit. Except for Johnny with the blue eyes, who picked my locks and crawled in. Silly boy, chained to the basement of my fears, I play music to drown him out.

ix
Knock knock.
Who's there?
No one.

x
At parties I point to my body and say *This is where love comes to die. Welcome, come in, make yourself at home*. Everyone laughs, they think I'm joking.
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Backwards

The poem can start with him walking backwards into a room.
He takes off his jacket and sits down for the rest of his life;
that's how we bring Dad back.
I can make the blood run back up my nose, ants rushing into a hole.
We grow into smaller bodies, my breasts disappear,
your cheeks soften, teeth sink back into gums.
I can make us loved, just say the word.
Give them stumps for hands if even once they touched us without consent,
I can write the poem and make it disappear.
Step-Dad spits liquor back into glass,
Mum's body rolls back up the stairs, the bone pops back into place,
maybe she keeps the baby.
Maybe we're okay kid?
I'll rewrite this whole life and this time there'll be so much love,
you won't be able to see beyond it.

You won't be able to see beyond it,

I'll rewrite this whole life and this time there'll be so much love.
Maybe we're okay kid,
maybe she keeps the baby.
Mum's body rolls back up the stairs, the bone pops back into place,
Step-Dad spits liquor back into glass.
I can write the poem and make it disappear,
give them stumps for hands if even once they touched us without consent,
I can make us loved, just say the word.
Your cheeks soften, teeth sink back into gums
we grow into smaller bodies, my breasts disappear.
I can make the blood run back up my nose, ants rushing into a hole,
that's how we bring Dad back.
He takes off his jacket and sits down for the rest of his life.
The poem can start with him walking backwards into a room.

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Fly into Jupiter's Great Red Spot with NASA's Juno Mission

Take this simulated plunge and dive into the upper atmosphere of Jupiter, the Solar System's ruling gas giant.

The awesome animation is based on image data from JunoCam, and the microwave radiometer on board the Jupiter-orbiting Juno spacecraft.

Your view will start about 3,000 kilometers above the southern Jovian cloud tops, and you can track your progress on the display at the left. As altitude decreases, temperature increases while you dive deeper at the location of Jupiter's famous Great Red Spot. In fact, Juno data indicates the Great Red Spot, the Solar System's largest storm system, penetrates some 300 kilometers into the giant planet's atmosphere.

For comparison, the deepest point for planet Earth's oceans is just under 11 kilometers down. Don't worry though, you'll fly back out again.

https://youtu.be/uj3Lq7Gu94Y

Animated Video Credit: NASA, JPL-Caltech, SwRI, MSSS, Gerald Eichstadt, Justin Cowart

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1940s America –People, Classic Cars, and Cities in Color

maddlyodd.com

Within these photos, you'll see classic American cars in action – before they were classics. You'll also see people living their daily lives so many years ago. These photos are not colorized but actually were taken at the time using color film. Kodak came out with their color film, Kodachrome, in the 1930s, which most of these pictures were likely shot on.

https://youtu.be/SMmMRUhUYHE

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Can 'Green' Floor Replace Steel?

A living space module is hoisted in Brooklyn, New York, for installation into the world's tallest modular building. Natural-material floor cassettes could one day replace traditional steel-and-concrete surface assemblies in multistory buildings.
Credit: SHoP Architects

Researchers at the Department of Energy's Oak Ridge National Laboratory and the University of Maine have designed and 3D-printed a single-piece, recyclable natural-material floor panel tested to be strong enough to replace construction materials like steel.

To construct the floor panel, researchers used a large-scale 3D printer to deposit the PLA/wood flour mixture in a precise, geometric shape. By working continuously and autonomously, the printer produced the SM2ART Nfloor cassette at scale, layer upon layer, in about 30 hours. The process created a labor-savings of about 33% compared to the effort needed to construct a similar steel floor assembly by hand.

https://bit.ly/4clEbDz

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The New Math of How Large-Scale Order Emerges

The puzzle of emergence asks how regularities emerge on macro scales out of uncountable constituent parts. A new framework has researchers hopeful that a solution is near.

depositphotos

As pedestrians each try to weave their path on a crowded sidewalk, they begin to follow one another, forming streams that no one ordained or consciously chose.

The world is full of such emergent phenomena: large-scale patterns and organization arising from innumerable interactions between component parts. And yet there is no agreed scientific theory to explain emergence. Loosely, the behavior of a complex system might be considered emergent if it can't be predicted from the properties of the parts alone. But when will such large-scale structures and patterns arise, and what's the criterion for when a phenomenon is emergent and when it isn't? Confusion has reigned. "It's just a muddle," said Jim Crutchfield, a physicist at the University of California, Davis.

https://bit.ly/4es3khH

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Some Inspirational Quotes for E Pluribus Unum

Perpetual optimism is a force multiplier.
Colin Powell

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If you find yourself in a fair fight, you didn't plan your mission properly.
David Hackworth

******

History does not entrust the care of freedom to the weak or the timid.
General Dwight Eisenhower

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A people that values its privileges above its principles soon loses both.
General Dwight Eisenhower

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If men make war in slavish obedience to rules, they will fail.
General Ulysses S. Grant

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Evolution of the dad

Most male mammals have little or nothing to do with their kids. Why is our own species different?

fineartamerica

"Human fathers engage in really costly forms of care," says Gettler, an anthropologist at the University of Notre Dame. In that way, humans stand out from almost all other

mammals. Fathers, and parents in general, are Gettler's field of study. He and others have found that the role of dads varies widely between cultures — and that some other animal dads may give helpful glimpses of our evolutionary past.

https://bit.ly/3z1O5fs

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Does Alcohol Go Bad? Here's What You Need to Know

Photo By Victor Protasio / Prop Styling By Claire Spollen

The age of your spirits can be the difference between something lackluster or a life changing cocktail.

For better cocktails at every happy hour, here's how to know when it is time to replace your spirits, liqueurs, and other alcoholic ingredients, along with the best ways to store them.

https://bit.ly/3VYG9nX

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Meet the 2024 Gerber Baby, Sonny!

Beep beep! Make way for cuteness.
Courtesy the McLeod famil

The 1-year-old, whose full name is Akil McLeod Jr., got his nickname at the perfect moment.

Sonny's mother, Dominque McLeod, secretly submitted her baby's photo for Gerber's 14th annual photo search. Figuring that the odds of winning were so low, she didn't tell a soul, including Sonny's father, Akil Sr.

https://bit.ly/4cGr6VN

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Wild Nike Heating Boots Athletes Will Wear at the Olympics

Nike teamed up with Hyperice on two new garments that help athletes warm up and recover.

nike

Alongside Nike's new breaking gear are a vest and pair of boots that will debut on some athletes at the Paris Olympic Games. Nike is a company known for performance on the field or court, but these innovations are their attempt to expand their purview into athlete prep and recovery.

https://bit.ly/3xN9ys9

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AI Can't Replace Teaching, but It Can Make It Better

getty images

Even techno-optimists hesitate to say teaching is best left to the bots, but there's a debate about where to draw the line.

Since the November 2022 launch of OpenAI's ChatGPT, an expanding cast of AI tutors and helpers is entering the learning landscape. Most of these tools are chatbots that tap large language models trained on troves of data to understand student inquiries and respond conversationally with a range of flexible and targeted learning assistance. These bots can generate quizzes, summarize key points in a complex reading, offer step-by-step graphing of algebraic equations, and provide feedback on the first draft of an essay, among other tasks.

As more tools proliferate and their capabilities keep improving, relatively few observers believe education can remain AI free. At the same time, even the staunchest techno-optimists hesitate to say that teaching is best left to the bots. The debate is about the best mix.

https://bit.ly/3W2kUR9

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Animals Count & Use Zero. How Far Does Their Number Sense Go?

Crows notice the quantities of items that they see, and have neurons that are tuned to those quantities, allowing them to distinguish a set of four items from a set of three or five.
Courtesy of Andreas Nieder

An understanding of numbers is often viewed as a distinctly human faculty — a hallmark of our intelligence that, along with language, sets us apart from all other animals.

But that couldn't be further from the truth. Honeybees count landmarks when navigating toward sources of nectar. Lionesses tally the number of roars they hear from an intruding pride before deciding whether to attack or retreat. Some ants keep track of their steps; some spiders keep track of how many prey are caught in their web. One species of frog bases its entire mating ritual on number: If a male calls out — a whining pew followed by a brief pulsing note called a chuck — his rival responds by placing two chucks at the end of his own call. The first frog then responds with three, the other with four, and so on up to around six, when they run out of breath.

https://bit.ly/3WbkM36

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Cats Love to Meow at Humans. Now We Know Why.

Cats meow at humans more than at their fellow felines. The reasons why are complicated.
(Image credit: Africa Studio via Shutterstock)

Meows are more than a cute sound — they're also a window into the relationship between humans and their feline friends.

Originally, cats were solitary creatures. This means they preferred to live and hunt alone, rather than in groups. Most of their social behaviour was restricted to mother-kitten interactions. Outside of this relationship, cats rarely meow at each other.

However, as cats began to live alongside humans, these vocalisations took on new meanings. In many ways, when a cat meows at us, it's as if they see us as their caregivers, much like their feline mothers.

https://bit.ly/4cLmlKy

Might this be true?

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How to Keep the Cat from Destroying Your Couch

cat-world.com

If your cat has a habit of tearing up couch cushions or carpets, scientists might be able to help. A new study investigates common triggers of this normal but destructive behavior in domestic cats, and how pet owners can manage their feisty felines.

The researchers surveyed 12,000 cat owners in France, asking them questions about their daily lives and home environments. After sifting through all the potential triggers for the scratching cats, they found a clear link between the behavior and the presence of children, an abundance of prolonged play sessions, and high nocturnal activity in the home. "Disruptive," "aggressive," and "stressed out" cats scratch the most.

Evaluating undesired scratching in domestic cats: a multifactorial approach to understand risk factors

While you can't change your cat's personality or evict your kids, you might be able to mitigate the destruction with strategically placed scratch posts or safe hiding places throughout the home. And when you play with your pet, keep it short and sweet.

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523-Mile Flight in an Evtol Powered by Hydrogen-Electric Tech

eVTOL developer Joby Aviation has completed its latest milestone in demonstrating the plausibility of zero-emission regional air travel. By using hydrogen-electric propulsion developed by its subsidiary H2FLY, Joby recently completed a 523-mile eVTOL flight in California.
Joby

n 2021, Joby acquired hydrogen-electric propulsion specialist H2FLY and helped it complete a piloted flight of its own in September 2023. Since then, Joby has begun exploring the integration of hydrogen fuel cells in its eVTOL aircraft and recently completed a test flight in one that delivered some of the most extended zero-emission flight ranges seen to date.

https://bit.ly/3S66fTK

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What Does Your Dog See and How Do We Test This?

Color vision between human and dog
forestparkgolfclub

Contrary to popular myth, dogs don't see in just black and white—but they do see differently from humans, primarily due to the way light is received by their eyes' distinct anatomy.

https://youtu.be/EJXG-5mZfJM?t=1

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Chords & Riffs

Adam Schoenberg [1980 -]

Atlanta Symphony Orchestra

The Emmy Award-winning and Grammy-nominated composer has twice been named among the Top 10 most-performed living composers by orchestras in the United States. With more than 200 orchestral performances worldwide, his works have been performed by such orchestras as the New York Philharmonic, San Francisco Symphony, National Symphony Orchestra, Cleveland Orchestra, and Los Angeles Philharmonic at venues including The Kennedy Center, Library of Congress, and Hollywood Bowl among others. His numerous achievements include the Goddard Lieberson Fellowship and Charles Ives Scholarship from the American Academy of Arts & Letters, ASCAP Morton Gould Award, and two MacDowell Fellowships.

A graduate of Oberlin Conservatory of Music, Schoenberg earned his Masters and Doctor of Musical Arts from The Juilliard School where he was awarded the Palmer-Dixon Prize (for "Most Outstanding Composition"). A resident of Los Angeles, Schoenberg is Assistant Professor of Composition at Occidental College.

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American Symphony https://youtu.be/MpwbaxcPypE

Canto • Kaleidoscope Chamber Orchestra
https://youtu.be/5eV755gZohc?list=RDEMwK0tXV088IjOf7X-XtNNEw

Picture Studies:. Intro
https://youtu.be/tXno3KxNlgs?list=PLA7no0L9zTk4gSJYOXhhBG0Z6ywuLi2pv

Breath – CA Symphonic Strings https://youtu.be/wdJJ7_LJ5xM?t=16

Symphony No. 2, "Migration" https://youtu.be/2VG9TyXtiU4

A leader among the list of exciting new composers…of whom we will hear more.

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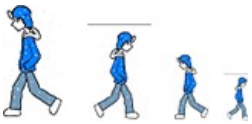
My Walking Thoughts



For Sunday July 21 2024

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Our Junior Birdman Grows Bolder

I could bore you with all the simulated emergencies I endured during the instructor conducted Transition and Precision flights in the T-28, but I won't. Instead, I'll regale you with tales of pleasures that come every time you push the throttle forward and experience the exhilaration of the 1300 horsepower powerplant shoving you back into the seat; the mesmerizing music of roaring slipstream and three-bladed prop slap as they envelop you in their symphonic cocoon; the unlimited freedom in three-dimension space granted you by controls harmonized to absolute perfection. Those, ladies and gentlemen, are the joys awaiting you as you begin to expand your flight horizons…horizons what only minutes before lay beyond your imagination.

You want to hear more? Well, how about we practice a barrelroll to the left?

Ok, starting in level flight at 200 knots, engine controls set at 2700 rpm and 31 inches of manifold pressure…ready? Let's go.

- Backstick to 3g's in two seconds, left stick to roll the aircraft to 90 degrees angle of bank through 45 degrees of turn with the nose pasted 45 degrees above the horizon.
- As we continue the roll (with lessening backstick pressure since gravity is now taking up an increasing amount of the nose position effort) we pass 90 degrees from the initial heading with wings level with the horizon.
- From here we maintain the rate of roll while steadily increasing back stick to reach a point 45 degrees from the original heading and 90 degrees angle of bank only this time with the nose 45 degrees below the horizon.
- We complete the maneuver in level flight, back on the initial heading.

It's more complicated than that of course. We're changing airspeed, so we need to vary the stick displacement of achieve the same pitch and roll performance throughout the maneuver. At the same time, we need to work the rudder to maintain balanced flight, no easy task, especially since it makes a difference which direction we're taking (it's that snarky P-factor thing again.)

So, you practice this to the left, to the right, again and again until your muscle memory is established. Then you do it some more, perhaps increasing or decreasing the rates of movement, testing your skills but also marveling in the thrall of such a beautiful maneuver. You don't know it then but in days to come, barrelrolls along with wingovers, loops, Cuban eights and an unlimited suite of 'octaflugerons' will become valuable maneuvers in your piloting toolkit.

A word about landing the T-28

How would I know. My logbook says I made 44 landings—touch and goes and full stops combined--but I will stick with my first experience, which was that the bird did all the work, I just retrimmed, raised the flaps, announced my intentions, and that was that. What an aircraft.

Next week we'll dive into the satanic world of instrument flight. *Groan*.

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