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Futuristic Outlook

**A Product of Office of Research Innovation and Commercialization (ORIC),
University of Management and Technology, Lahore, Pakistan**

Message from Co-Founder, Director-General, and Head ORIC – UMT

We live in the Modern age, where we do all over work with the help of technology. We know technology by the name “technological know-how”. Discover the latest science and technology news and videos on breakthroughs shaping tomorrow's world with Futurism. The innovation of science has a long history producing many important figures and many developments in the field. Moreover, it made communication easier for us. Humans have cleaned up and created some fantastic and sometimes orthodox inventions.

For a long time, organizations have been experiencing various kinds of problems, resulting in their management exploring various changes to introduce into their mode of operation. Innovation and technology cycles have benefited organizations as they have assisted many organizations in perceiving the changes. Innovation refers to the incorporation of new functionalities into existing products and processes. As a result, an organization settles down to attain productivity.

So, every researcher and faculty member should be up-to-date about innovation in their respective field; that’s why ORIC-UMT introduce the Futuristic Outlook for the UMT family to commensalism with the Innovative world.

Prof. Abid Hussain Khan Shirwani
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School of Engineering

and

School of System and Technology

1: Amazon Secretly Shut Down All Its Solar Rooftops After They Started Catching Fire

According to a CNBC investigation, retail giant Amazon — which made solar power a key pillar of its plan to reach zero emissions by 2040 — secretly switched off all rooftop warehouse solar panels amid multiple fires and safety concerns.

"Out of an abundance of caution, following a small number of isolated incidents with onsite solar systems owned and operated by third parties, Amazon proactively powered off our onsite solar installations in North America, and took immediate steps to re-inspect each installation by a leading solar technical expert firm," an Amazon spokesperson conceded to CNBC in a statement.

The issue here isn't necessarily that Amazon clearly had some faulty tech on their hands. And if equipment is catching fire and threatening employee safety — as Amazon Basics products have done before — it should definitely be powered down. But the company failed to make the malfunctions and the subsequent shut-downs known to the public, which means that the company was apparently withholding info about both employee safety and its environmental efforts and impact.

Internal documents obtained by CNBC showed that between April 2020 and June 2021, there were at least six separate incidents of rooftop solar panels either catching fire or suffering electrical explosions. Forty-seven North American Amazon warehouses had these panels installed, meaning the dangerous malfunctions impacted roughly 12.7 percent of all such sites.

"The rate of dangerous incidents is unacceptable," an Amazon employee reportedly wrote in one internal report obtained by CNBC, "and above industry averages."

But these incidents and the following string of shutdowns and evaluations remained undisclosed, even though the Amazon's 2021 sustainability report —

released long after those shutdowns and evaluations were underway — praised itself for its commitment to solar energy, domestically and beyond US borders.

"Many of our fulfillment facilities throughout the US, Europe, and India are powered by on-site solar," reads the 2021 report, "where a rooftop installation can power up to 80 percent of the facility's energy use."

According to CNBC, the documents also detailed extensive — and frankly, alarming — issues with the thousands of panels, as discovered by the company's third-party inspector.

"Over the past five years," read one internal document, blaming outside parties for Amazon's failures, "solar malfunctions have been caused by improper installation techniques, improper commissioning of a new system, inadequate system maintenance and equipment malfunction."

2: Solar Company Under Investigation For Installing Systems That Don't Work

In a game with moving targets, a solar panel company under investigation for violating consumer protection law has filed a federal lawsuit against another company that provides some of its tech, blaming customer complaints and service failures on the other guy instead.

In March this year, Missouri Attorney General Eric Schmitt launched an investigation into Power Home Solar, which has since rebranded as Pink Energy. The investigation asked Pink Energy for documents and information regarding its capabilities, installation, and financing options for its solar products.

This week, the fray got more complex. NBC affiliate WECT 6 reported that Pink Energy has filed suit against Generac, a company that provides generators and energy products to residential buyers.

"By June 2022, PHS's business valuation had plummeted to $452 million, as a direct and proximate result of the harm Generac's defective products have caused to PHS's business and reputation," Pink Energy's filing claimed, according to WECT.

Off Grid

It matters which company is responsible for deteriorating hundreds of peoples' trust in the solar industry, but those answers are still far off, found only on the other side of a progressing investigation.

In the meantime, customers stuck with broken or non-functioning equipment will continue to pay the price.

"My solar system was installed October 27, 2020. To date, my install in not complete, [the] system is not active. I have placed call after call since end of November asking for status updates, being told it was held up in inspections," one customer wrote in a complaint WECT obtained, which was filed in North Carolina.

If residential solar usage is an important piece of the puzzle to save humanity from climate change, let's hope investigations like these stamp out bad actors in the nascent industry — and fast.

3: Donald Trump Goes On Bizarre Rant Against Electric Cars

Over the weekend, former US president and noted reality TV star Donald Trump went on an unhinged rant about electric cars, presumably to pander to a group of die-hard followers in Pennsylvania.

His peculiar conclusion? We should get "rid of this stuff," because charging infrastructure is still lacking in the country. If you're scratching your head, us too.

It's a bizarre perspective that serves to remind us that large swathes of the United States still see the electric car as a pointless and expensive replacement of the gas-guzzling automobile, even if that outlook seems increasingly dated in the era of Tesla and increasingly widespread adoption.

Trump's comments also just didn't make any sense. Case in point, he reminded the audience that gas prices were much lower during his tenure. Following that logic, though, in the face of soaring energy prices, why undermine the electric car if it serves as a much cheaper alternative?

Then there's the fact that the US is a global leader when it comes to manufacturing EVs, as Electrek points out, something that certainly should fall under Trump's purported efforts to "save America."

Trump also used his time behind the microphone to tell a confusing and incoherent story about a friend, who complained about having to stop during a road trip to charge his car.

This "friend" was only "getting like 38 miles per gallon," which is almost half of the least efficient EV currently on the market, according to Electrek — assuming, of course, Trump was actually talking about MPGe, or "miles per gallon of gasoline-equivalent," the EV equivalent of miles per gallon.

Sure, EV charging infrastructure is far from where it needs to be in the country. Many chargers still rely on outdated technology that only offer a slow trickle of electricity.

That means, for longer road trips, charging may still prove to be a problem. But the obvious solution is to invest in infrastructure, something that the Biden administration is actively pushing for.

In short, calling for electric cars to be banished is not only counterproductive, but a huge waste of time as well.

Was Trump responding to recent comments made by Tesla CEO Elon Musk, who called for Trump to "hang up his hat and sail into the sunset," arguing he was too old to run again 20204, earlier this year?

As has always been the case, attempting to decipher Trump's latest outbursts into coherent thoughts is probably a fool's errand.

If the last couple of years have demonstrated one thing, it's the fact that EVs are almost certainly here to stay — so why not get ahead of the problem and proactively attempt to fill any gaps in EV infrastructure? The tech exists, even if it hasn't made it to all parts of the country yet.

Besides, Trump himself was a fervent supporter not too long ago.

"I’m OK with electric cars, too," he said during a 2020 presidential debate before losing to US president Joe Biden. "I’m all for electric cars. I’ve given big incentives for electric cars. What they’ve done in California is just crazy."

4: Europe's Energy Crisis Is So Bad It May Have To Idle Cern's Large Hadron Collider

The energy crisis in Europe has gotten so bad that CERN is considering taking its particle accelerators offline — including the famous Large Hadron Collider.

As the Wall Street Journal reports, the European Organization for Nuclear Research, which is better known by its French acronym CERN, is currently drafting plans to shut down its particle accelerators in response to high energy demands. The organization is also figuring out how it would be able to idle the Large Hadron Collider (LHC) without shutting it down entirely.

"Our concern is really grid stability," CERN energy panel chair Serge Claudet told the WSJ, "because we do all we can to prevent a blackout in our region."

Winter Is Coming

News of this imminent — if partial — CERN shutdown comes after Russia's Gazprom energy service said it would be indefinitely cutting off the natural gas supply via the Nord Stream gas pipeline, which is the main route for Russian to export natural gas to Europe.

Though Russia claims the pipeline shutdown is due to equipment faults that Siemens, its German partner, must repair, analysts say it's almost certainly intended as an economic punishment against the European Union for supporting Ukraine in its efforts to fend off the Russian invasion.

CERN is far from alone in its emergency plan-drafting. Companies — and countries all over Europe are preparing for potential gas rationing as winter approaches with the Ukrainian conflict showing no signs of slowdown.

The Swiss scientific facility, which at peak operation uses a third as much energy as the nearby city of Geneva, is looking to avert a sudden and full-scale shutdown of the LHC. Per Claudet, it's in talks with its French energy provider to get a 24-hour warning if it needs to begin consuming less electricity.

"It’s a voluntary action," the CERN energy chair told the WSJ. "You don’t want to break your toy."

5: Last Year’s Ocean Portal To Hell Now Leaking Toxic Gas

Remember that fiery portal to hell that seemingly opened up in the Gulf of Mexico last year? Well, not to alarm you, but it's leaking methane now.

A quick refresher for the uninitiated: back in July of 2021, an oil and gas pipeline in the Gulf of Mexico caught fire after the company that owns it, Pemex, said lightning struck an undersea gas leak. The ocean churned with orange waves of flames for at least six hours before being extinguished.

And now the same rig, called Ku-Maloob-Zaap, is currently leaking methane by the ton.

Earlier this week, Reuters reported that Ku-Maloob-Zaap leaked around 44,064 tons of methane into the atmosphere in just 24 days in August. That’s the equivalent of leaking 3.7 million tons of carbon dioxide, or about the same amount as 719,926 combined homes use in electricity per year, according to the Environmental Protection Agency (EPA).

In other words, it's a staggering environmental disaster. Yesterday, Gizmodo reported that methane doesn't stay in the atmosphere as long as CO2, but it's estimated to be 80 times more dangerous as a greenhouse gas.

6: New Manicure Robot Spells Potential Doom For Nail Salons

Bad news — maybe — for nail salons everywhere: a new robot called Clockwork claims to "liberate" people everywhere from the costly, time-consuming task of getting their nails done. And according to Yahoo, Target-goers at six of the mega-chain's many US locations are now able to get their nails done in-store, in under 10 minutes, for just eight dollars.

"The first robot manicure for unstoppable humans," reads the Clockwork website. "No slip ups. No slow down. No small talk."

Athena Woman

The device sounds pretty impressive. As Yahoo reports, it uses AI and 3D scanning tech to determine the size and shape of a user's nails before painting and shaping away at a design chosen by the user. Ten minutes later? Salon-quality nails, allegedly.

"Our AI can identify edges within 0.3mm accuracy and tells the robot what is skin and what is nail," the company told In Style back in April. "This is then sent to our sophisticated algorithms which determine how the nozzle should move to deposit nail polish in the right places."

Clockwork hinges its ethos on the idea of who they call their "Athena Woman," a "trail blazing, time-pressed professional" who clearly doesn't have the space in her calendar to bother with lowly human manicurists.

That being said, convenience here may come at a cost. Nail care is part of a billion dollar industry, and supports the livelihoods of many thousands — as recently as 2018, there were roughly 395,600 nail techs and over 56,000 individual salons.

At the same time, nails are a brutal industry. Salon workers are exposed to horrific levels of toxins and terrible labor conditions.

Sure, freeing all those workers up from that grueling environment would be great. But for a robot to really help, they'd need a plausible new career to do instead.

7: Elon Musk Slams Fusion, Says Future of Energy Is Wind and Solar

Tesla and SpaceX CEO Elon Musk isn't convinced of the long-term prospects of fusion energy, the long-deferred dream of fusing atoms together under extreme conditions as a way to generate green electricity.

As cool as that sounds, though, the richest man in the world is put off by the logistics and cost.

"Fusion would be expensive energy, given difficulty of obtaining and transporting source fuel, plus maintaining the reactor," Musk argued in a Thursday tweet. "Far better to use the Sun — thermonuclear reactor with no need to refuel or service."

Those criticisms aren't entirely misplaced, either. Try as they might, scientists have yet to crack the code of fusion, with current reactors still requiring far more energy to get started than they're able to produce, despite many decades of research.

To Musk, we already have the answer to a much greener future.

"The primary solution to a sustainable energy future is solar/wind with batteries for when sun doesn’t shine or wind doesn’t blow, interconnected with conventional high voltage lines," he added in a follow-up. "No unknown technology is needed!"

Of course, Musk's car venture Tesla is heavily invested in solar energy and battery storage technologies, so his comments don't exactly come as a surprise. And financial incentive or not, he's right that a renewable grid is a worthy goal.

The billionaire hasn't entirely dismissed fusion, but he seems to think there are already better options out there.

"It’s cool and for sure can and should be done," he tweeted last year, after a team of MIT researchers announced their compact fusion reactor was "very likely to work."

"But I suspect its best case will be more costly than wind & solar (aka big fusion reactor in sky)," he added at the time.

Other billionaires, like Amazon founder and noted Musk rival Jeff Bezos, do believe in a greener future powered by fusion reactors. Last year, news emerged that Bezos was investing in Canadian fusion energy startup General Fusion.

Microsoft founder Bill Gates and Virgin CEO Richard Branson have also invested in fusion tech.

The jury is still very much out on the viability of fusion energy. Every year, scientists claim they've come closer to achieving fusion, a dream of a perfectly safe and entirely renewable source of energy.

But the reality has so far left much to be desired.

If it were up to Musk, seemingly, our efforts would be better spent developing renewable energy and battery storage technologies.

8: Battle-Scarred Ukraine Nuclear Plant Cooling Systems Hanging By A Thread, Officials Say

The New York Times reports that shelling around the Russia-controlled plant has destroyed the power infrastructure fueling the surrounding town of Enerhodar, where the facility's dogged workers reside — leading to widespread blackouts, no running water or sewage, and, dangerously, no offsite power for the reactor's cooling and safety systems.

"This is an unsustainable situation and is becoming increasingly precarious," Rafael Mariano Grossi, the director general of the UN's International Atomic Energy Agency, said in a statement calling for a safe zone to be established around the facility.

"The power plant has no offsite power," he continued. "And we have seen that once infrastructure is repaired, it is damaged once again.

This isn't the only time that the plant has been cut off from external power in recent weeks. According to the NYT, the plant lost connection to offsite power for the first time in it history back on August 25, when fighting severed high voltage cables between Zaporizhzhia and a close-by fossil fuel pant. Engineers were able to fix the line 14 hours later, though the plant had to rely on its backup diesel generators in the meantime.

But the volatile situation has only gotten worse, and this cable and others have again been severed. While the plant remains operational, it's relying on that reserve diesel system once more — which, as the NYT points out, is particularly hazardous in a war zone, where conflict can limit access to fuel and other supplies.

Even if fuel was easier to obtain, however, this isn't a normal way for a plant to operate. The NYT reports that the plant has never relied on security measures for more than a few hours, let alone several days in a row.

All told, it shows the myriad hazards of war breaking out in a nation with active nuclear plants. According to the NYT, the plant, not confident that those cables can be fixed again, is considering turning to diesel altogether — something that the UN is very, very concerned about.

"This dramatic development demonstrates the absolute imperative to establish a nuclear safety and security protection zone now," Grossi's statement continued. "This is the only way to ensure that we do not face a nuclear accident."

9: The Biden Administration Wants To Cut Geothermal Energy Costs By 90 Percent

The Biden administration has announced an ambitious new goal to make the use geothermal energy "widespread," underlining the administration's efforts to phase out the country's reliance on fossil fuels.

The US Department of Energy (DOE) said in a Thursday statement that US President Joe Biden hopes to make enhanced geothermal systems (EGS) "a widespread renewable energy option" by cutting its cost to $45 per megawatt hour a 90 percent drop by 2035.

These systems could not only afford us a new sources of green energy, but also help heat homes.

"The United States has a vast, geothermal energy resource lying right beneath our feet, and this program will make it economical to bring that power to American households and businesses," Energy Secretary Jennifer Granholm said in the statement.

The department also argued that a small fraction of the country's geothermal energy could affordably power over 40 million American homes, and that the project will further Biden's goals to hit 100 percent carbon pollution-free electricity by 2035 — and net-zero emissions across the US economy by 2050.

Hot And Heavy

There are technically enough geothermal resources in the US to supply the entire globe's energy needs, according to the statement. As of now, however, we're only using 3.7 gigawatts of what's available.

For comparison, at the end of 2021, the DOE says there were over 228 gigawatts of solar photovoltaic and wind power in the United States combined — making our geothermal consumption look miniscule.

That's partially due to the extreme conditions and high tech equipment needed to harness the Earth's heat.

"EGS resources are located deep underground, at least 4,000 feet," the DOE statement reads. "Conditions are extreme — hot temperatures, hot and abrasive rocks, and a corrosive environment — and come with significant unknowns."

It's unclear if the department will actually attain its energy goals, but it's at least good to see a major government agency address climate change with such fervor.

10: Best 3D Printer for Beginners in 2022

While 3D printing has been around for a while, it's only recently become more accessible to the mainstream consumer market. Desktop 3D printers make it simple for hobbyists to take advantage of this innovative technology, but those dipping their toes in for the first time may be wary. There's an enormous variety of 3D printers for beginners, making the process of setting up, printing, and finishing your models a simpler, more digestible process.

3D printers use a process called additive manufacturing to turn digital models into three-dimensional objects. Most often, 3D printers use small nozzles and materials like plastic, resin, polymers, or metal, depositing the material layer by layer, then fusing them with an adhesive or ultraviolet light to create a 3D model.

The things you can create with a 3D printer are almost endless. These desktop devices give you the power to harness your creativity and turn digital prototypes, 3D doodles, and much more into physical objects — all from the comfort of home. The best 3D printers for beginners will bring your digital dreams to life.

- Best Overall: Creality Ender 3 Pro 3D Printer
- Best on a Budget: Monoprice Select Mini 3D Printer v2
- Best Resin: ELEGOO Saturn MSLA 3D Printer
- Best Multifunction: Snapmaker 2.0 Modular 3-in-1 A350T 3D Printer
- Most User-Friendly: Monoprice Voxel 3D Printer
- Best Premium Pick: Robo E3 3D Printer

HOW 3D PRINTING WORKS

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HOW WE SELECTED THE BEST 3D PRINTERS FOR BEGINNERS

As with any new consumer technology, 3D printing isn't exactly cheap, so you'll have to spend some money for a decent pick. We narrowed down our picks for the best 3D printer for beginners from dozens of 3D printers, paying attention to price, ease of use, and print quality.

Price: 3D printers start at a couple of hundred dollars and can range up to thousands of dollars. Most beginner hobbyists will want a budget-friendly option for testing the waters. We included several printers in a modest price range, skewing towards more affordable prices to appeal to novices.

Ease of Use: User friendliness is one of the most important features when it comes to picking the best 3D printer for beginners. We prioritized features like straightforward assembly and print material refilling, as well as a simple-to-use interface with less of a learning curve required to get started.

Print Quality: Through reviewing product specifications and consumer reviews, we chose 3D printers that create high-quality models, so your design looks exactly as intended. We prioritized 3D printers with good specifications and high user satisfaction. Get started with the best 3D printing software.

BEST 3D PRINTERS FOR BEGINNERS: REVIEWS AND RECOMMENDATIONS

Best Overall: Creality Ender 3 Pro 3D Printer

Why It Made The Cut: This beginner-friendly 3D printer is affordable, simple to use, and creates quality prints.

Specs:

- Build Volume: 8.7 inches L x 8.7 inches W x 9.8 inches H
- Weight: 19 pounds

- Compatible Materials: PLA (polylactic acid), ABS (acrylonitrile butadiene styrene), PETG (polyethylene terephthalate glycol) plastic
- Print Speed: Up to 180 mm/s (millimeters per second)

Pros:

- Easy to assemble
- Removable, flexible, and magnetic print bed
- Great print quality

Cons:

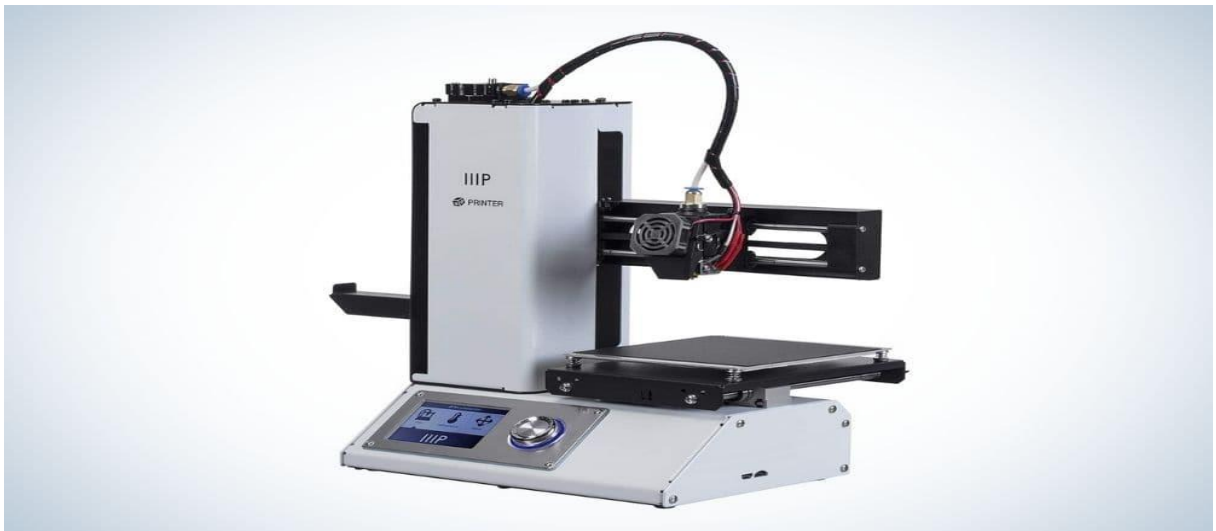
- Printing bed can be tricky to level

The Creality Ender 3 Pro 3D Printer is a popular 3D printer model for hobbyists, and for good reason. This printer is affordable, easy to use, and comes with several attractive features.

The printer arrives partially assembled with all the necessary tools included for easy setup. Loading the plastic filament is simple. Once assembled and switched on, the device is ready to print almost immediately, with a rapid heating feature that gets the printer ready to go in only five minutes. In case of any pauses in printing, it also has a handy 'resume print' function, which restarts the job where it left off.

The heated, removable, and flexible magnetic print bed makes it easier to remove completed models after they're finished printing, although users will need to take care when re-installing the bed to make sure it's level. Overall, this 3D printer delivers great print quality, and for its reasonable asking price, it's our choice for the best 3D printer for beginners looking to dip their toes into 3D printing. For another great option, read out review of the Anycubic Vyper 3D Printer.

Best on a Budget: Monoprice Select Mini 3D Printer v2



Why It Made The Cut: This printer may not have the fancy features of more expensive models, but it offers excellent value and versatility for its price.

Specs:

- Build Volume: 4.7 inches L x 4.7 inches W x 4.7 inches H
- Weight: 10 pounds
- Compatible Materials: All filament types including ABS, PLA, and wood and metal composites
- Print Speed: Up to 55 mm/s

Pros:

- Affordable
- Refurbished model cuts down on electronic waste
- Supports all filament types

Cons:

- Small build volume
- Relatively slow printing speed

The Monoprice Select Mini 3D Printer v2 is the best budget 3D printer available today. It's also extremely easy to use for beginners. And since this model is refurbished, you can save even more money.

Once you have your first project off the ground, it's easy to get more creative. With a heated build plate and wide extruder temperature range (maxing out at 482°F), this 3D printer can work with any 1.75mm filament type, including ABS, PLA, conductive PLA, wood and metal composites, and dissolvable PVA. This flexibility opens the door to a range of exciting new projects.

3D printer size is usually directly related to price, so this budget-friendly printer has a small build volume (about 4.7 inches cubed)—but that also means a compact enough size to fit on just about any desktop. Find other affordable options in our guide to the best budget 3D printers.

Best Resin: ELEGOO Saturn MSLA 3D Printer

Why It Made The Cut: This is the best resin 3D printer because it has a relatively large build volume and an accurate printing process to create detailed, sizable resin models.

Specs:

- Build Volume: 7.6 inches L x 4.7 inches W x 7.9 inches H
- Weight: 30 pounds
- Compatible Materials: DLP photopolymer resin
- Print Speed: Up to 40mm/s

Pros:

- Accurate printing results
- Simple to assemble and easy to calibrate
- Large build volume for printer type and price
- Can print multiple miniature models simultaneously

Cons:

- Test model is difficult to remove from the build plate

Compared to FDM (fused deposition modeling) 3D printers, resin printers can print higher levels of detail, which is especially ideal for printing smaller models. Instead of injecting melted materials like plastic layer by layer, resin printers use light (like ultraviolet lights) to cure liquid resin into thin layers. This method allows for finer printing details and a smoother surface. Beginners who want to take advantage of resin 3D printing should consider the ELEGOO Saturn MSLA 3D Printer, a relatively affordable choice with several attractive features.

Resin printers tend to be smaller than FDM printers. For its entry-level price, this printer has a large build volume at 7.6 inches long by 4.7 inches wide by 7.8 inches high. This larger size gives the flexibility to create larger, but still very detailed models and miniatures. The ELEGOO also prints 60 percent faster than its predecessor (the smaller Elegoo Mars 2 Pro), while still delivering excellent printing results.

Setup is simple with this printer (although beginners should keep in mind that resin printing requires more post-processing than FDM printing). An easy-to-calibrate build plate and a uniform light source create great print results with few adjustments needed.

Best Multifunction: Snapmaker 2.0 Modular 3-in-1 A350T 3D Printer

Why It Made the Cut: This multifunction 3D printer lets you get everything done with one device, from printing, to laser engraving, cutting, and carving.

Specs:

- Build Volume: 12.59 inches x 13.77 inches x 12.99 inches
- Weight: 61.73 pounds
- Compatible Materials: PLA, Wood PLA, PTG, TPU

Pros:

Several functions all in one machine
Compatible with many materials
Can create larger models with its bigger surface area
Innovative, sturdy design that's built to last

Cons:

- Incredibly heavy
- Not a very beginner-friendly price

With a wide array of uses, the Snapmaker 2.0 Modular 3-in-1 3D Printer is a fantastic machine to learn the basics of 3D printing on, and then keep around for the long haul as you master each function. An upgrade to Snapmaker's previous models, the 2.0 A350T encompasses noise reduction for quieter printing, faster speeds, and precision down to .005 millimeters for a smoother finish.

This 3D printer is an absolute beast when it comes to material compatibility. Whether you're printing with PLA, PTG, or TPU; engraving or cutting into plywood, paper, acrylic, fabric, or leather; or carving out shapes and textures with hardwood, PCB, acrylic, POM, carbon fiber sheets, or many more, the Snapmaker can handle the task. This is likely beyond the scope of what you'd be getting into as a beginner, but it opens up the possibilities as you broaden your knowledge and get more comfortable in the realm of 3D printing.

There's a lot to applaud Snapmaker for, including its incorporation of auto-leveling, filament runout and power loss recovery, WiFi connectivity, and an all-metal, high-strength build that's designed to last.

Most User-Friendly: Monoprice Voxel 3D Printer

Why It Made The Cut: A fully-enclosed design, auto-leveling platform, and auto-feeding filament feature make this printer an extra user-friendly choice.

Specs:

- Build Volume: 5.9 inches L x 5.9 inches W x 5.9 inches H
- Weight: 20 pounds
- Compatible Materials: ABS, PLA, wood fill, copper fill, steel fill, and bronze fill filaments
- Print Speed: Up to 100mm/s

Pros:

- Auto-levelling platform
- Full enclosure
- WiFi-enabled
- Built-in camera for print monitoring

Cons:

- Relatively small build volume

If you want to get into 3D printing without the steep learning curve, consider the Monoprice Voxel 3D Printer. This 3D printer features several automated functions that make it extra simple to use.

The printer arrives fully calibrated and ready to print, right out of the box. An auto-leveling feature ensures that the build platform is in the right position, while an auto-feeding filament feature makes loading filament easy. The built-in filament sensor also recognizes low filament levels and pauses prints to notify you that it needs reloading. Once your creation is done printing, lift the heated, flexible, and removable build plate. With a bit of flexing, the model should pop off with ease.

This 3D printer features a closed design to keep hands (or paws) away from hot and moving parts while it’s printing. It is also Wi-Fi-enabled; its functions are controlled and monitored through its color touch screen or through your smartphone (through the Polar Cloud cloud-based platform), and you can check on printing progress through the window or with your phone via the built-in camera. If you're into making miniatures, you may also want to consider the best resin 3D printers.

Best Premium Pick: Robo E3 3D Printer

Why It Made The Cut: Robo's E3 is the perfect 3D printer to get if you want to jump into making complex projects right away. It's compatible with over 20 materials, ranging from wood to metal to glass.

Specs:

- Build Volume: 5.9 inches L x 5.9 inches W x 5.9 inches H
- Weight: 19.8 pounds

- Compatible Materials: ABS, PLA, wood fill, copper fill, steel fill, brass fill, carbon fiber fill, magnetic iron, glass fill, bronze fill filaments, and more.
- Print Speed: Up to 100mm/s

Pros:

- Auto-calibrated print bed
- Can store up to 1,000 models on its internal storage
- WiFi-enabled
- Includes two spools of PLA filament.

Cons:

- Expensive

If you're serious about getting into 3D printing, and don't want to go through the process of buying an entry-level printer and then upgrading it in a year or two, Robo's E3 is the one to get. It's roughly the same size and weight as our other 3D printer recommendations, but it can work with a lot more materials.

This gives you the freedom to create 3D prints that wouldn't be possible otherwise, especially if you're making objects that require different elements, like glass and metal. If you plan on printing the same objects over and over again, the E3's built-in storage will come in handy. That's doubly true if you accidentally delete a model on your computer.

While these features add to the E3's cost, but it's still a good machine for beginners because of its auto-calibrating print bed, which improves the odds of you ending up with a satisfying print rather than one that's lopsided. By reducing the number of prints you have to discard due to quality issues, the Robo E3 is more forgiving for new 3D printer users, and a lot less wasteful. Novice 3D printers will also benefit from the two-hour online training course that comes with this printer.

It's hard to overlook the Robo E3's up-front cost, but again, it's so capable relative to the other 3D printers we're recommending for beginners that it's well worth the price. This should be the only 3D printer you'll ever get, unless you start needing one for commercial use.

THINGS TO CONSIDER BEFORE BUYING A 3D PRINTER FOR BEGINNERS

The best 3D printers for beginners give you the power to create on-demand. But as more 3D printers flood the market, it can be hard to choose the best one for

your needs. When shopping for the best beginner-friendly 3D printer, consider the printer dimensions, build volume, compatible materials, and ease of use.

Printer Size and Weight

While consumer 3D printers are heavier than your standard all-purpose printer, they're still a reasonably small size. Since they're made for at-home use, most have a compact footprint to fit on a desktop or counter.

Consider the printer size and weight and how it will fit in your space. Keep in mind that the size of the printer is related to the build volume the printer is trying to accommodate; a larger printer will be able to create larger items, and a smaller one will be limited to smaller items.

Build Volume

3D printers can be used to create just about anything, from giant 3D models to tiny trinkets, but at-home 3D printers are much smaller than the ones you might find in a design studio.

To help shoppers make a suitable choice, consumer 3D printers include a build volume measurement that describes the maximum width, height, and length of the print area. The build volume roughly determines the maximum size model that the printer can create. Consider the type of items you are hoping to print and choose an appropriate build volume from there.

Compatible Materials

Most consumer 3D printers available today use fused deposition modeling (FDM), where material (usually plastic filament) is melted and extruded through a nozzle to create thin layers that make up a model. Other 3D printers, like resin printers, use curing processes, like UV light, to harden materials by layer.

The compatible materials vary by 3D printing method, but can include plastics, metals, polymers, resin, ceramics, plaster, and glass. When shopping for a 3D printer, check whether the ones you're considering allow you to build creations with your preferred materials.

Ease Of Use

3D printing can get overwhelming for those who aren't tech-savvy, so as a beginner, it's important to find a 3D printer that is simple to use. A beginner-friendly 3D printer should have a simple setup process, easy refilling process, and intuitive controls.

Features like a touchscreen interface, print resume functions, robust safety features, and a heated bed (which can ensure a well-made model foundation) can make a 3D printer more user-friendly. Some printers also come with included printing materials, so you can get started right away.

3D printers can include other convenient perks, like quiet operation, built-in cameras to monitor printing, and Wi-Fi connectivity so you can print and monitor progress from anywhere. Buying from a company with easy-to-reach customer support or an active online community is also a nice perk, in case you need to do any troubleshooting down the road.

11: Google And Oxford Scientists Publish Paper Claiming Ai Will "Likely" Annihilate Humankind

Researchers at Google Deepmind and the University of Oxford have concluded that it's now "likely" that superintelligent AI will spell the end of humanity — a grim scenario that more and more researchers are starting to predict.

In a recent paper published in the journal AI Magazine, the team — comprised of DeepMind senior scientist Marcus Hutter and Oxford researchers Michael Cohen and Michael Osborne — argues that machines will eventually become incentivized to break the rules their creators set to compete for limited resources or energy.

"Under the conditions we have identified, our conclusion is much stronger than that of any previous publication — an existential catastrophe is not just possible, but likely," Cohen, Oxford University engineering student and co-author of the paper, tweeted earlier this month.

Computing Catastrophe

In their paper, the researchers argue that humanity could face its doom in the form of super-advanced "misaligned agents" that perceives humankind as standing in the way of a reward.

"One good way for an agent to maintain long-term control of its reward is to eliminate potential threats, and use all available energy to secure its computer," the paper reads.

"In a world with infinite resources, I would be extremely uncertain about what would happen," Cohen told Motherboard in an interview. "In a world with finite resources, there's unavoidable competition for these resources."

And that could bode badly for humanity.

"And if you're in a competition with something capable of outfoxing you at every turn, then you shouldn't expect to win," he added.

In response to this threat, humanity should only carefully and slowly progress its AI technologies.

If these assumptions hold true, "a sufficiently advanced artificial agent would likely intervene in the provision of goal-information, with catastrophic consequences," the paper warns.

12: New Plan Suggests Re-Freezing Earth's Poles By Spraying Chemicals With Huge Military Jets

A group of scientists propose unleashing huge amounts of microscopic aerosol chemicals from 125 massive military jets over the Earth's North and South Poles, in a desperate bid to refreeze the melting ice caps, Sky News reports — a plan that's already proving highly controversial among experts.

To make a sizeable dent in the accelerating decline in ice shelves, we'd have to fly roughly 175,000 flights of "high-flying spy planes and drones" every single year, according to a recent study led by Yale University Researcher Wake Smith. Those jets would themselves release copious amounts of carbon dioxide high up into the atmosphere, it's worth noting. But despite the harmful emissions, Smith claims it'd still be worthwhile.

"It's aspirin, not penicillin," he told Sky News. "It's not a substitute for decarbonization."

Aerosol Shade

According to the plan, microscopic sulfur dioxide particles — that's the stuff you smell from a burnt match — would be released from 125 air-to-air refueling tankers flying at 43,000 feet over the planet's poles.

These particles would then block some sunlight from the surface below, shielding the polar regions from the Sun's heat.

According to Smith's study, just over 13 tons of particles released at just the right times of the year could cool the polar regions by an appreciable 3.6 degrees Fahrenheit.

Vocal Critics

Plans for solar geoengineering have been met with vocal opposition, with experts arguing that releasing harmful carbon dioxide emissions from planes flying at high altitudes is a terrible idea.

They also say that solar shading could have unintended consequences, including negative effects on agricultural systems, according to Sky News.

Last year, a group of Harvard researchers suggested testing out a similar idea using weather balloons to gather preliminary data over northern Sweden. But even this early experiment proved to be too controversial, with local adversary groups forcing them to abandon the idea.

But the polar regions, unlike northern Sweden, are only extremely sparsely populated, Smith argued.

"If the risk-benefit equation were to pay off anywhere, it would be at the poles," Smith told Sky News. "Any intentional turning of the global thermostat would be of common interest to all of humanity."

13: China Announces Plan for Hybrid Fission-Fusion Power Facility

China says that it will start generating fusion power using the world's largest pulse-powered energy plant by 2028, thereby turning fusion energy into a reality — an eyebrow-raising claim, considering the decades of research and billions of dollars that have already been poured into doing just that.

"Being the world's first to achieve energy-scale fusion release will lay the most important milestone in the road to fusion energy for human beings," said Peng Xianjue, a professor at the Chinese Academy of Engineering Physics, the nation's top nuclear weapons scientist, per the South China Morning Post.

Long a pipe dream that was more the subject of science fiction than actual science, the prospect of clean nuclear fusion energy, generated by the force of atom nuclei fusing together, has tantalized scientists for almost a century.

Over the past few years, researchers and a growing number of startups have made claims about bringing the world closer and closer to nuclear fusion — but the reality is far less impressive than that, with expensive reactors still requiring far more energy to get started than they are able to put out.

China's new reactor will essentially replicate the detonation of a thermonuclear bomb by producing powerful electric pulses. These pulses generate enough pressure to fuse atoms together, a process which releases energy.

But it won't be the first of its kind, and the history of the tech serves to tamp down the hype around this new project. In fact, all the preceding "Z-pinch" reactors that have been built around the world so far have failed to generate more energy than they needed to produce these pulses, as the SCMP reports.

Oddly, the plan is for the fusion reactor to power a more traditional fission nuclear facility, a stepping stone for the future adoption of commercial fusion energy tech.

After being completed in 2025, the claim is that the plant will go on to produce nuclear fusion energy by 2028, tech that will be ready for commercial adoption by 2035, according to Peng — a highly ambitious timeline, to say the least.

To date, only a few countries have offered a nuclear fusion timeline anywhere near as ambitious as this one, but China is certainly invested in the tech.

In the beginning of 2022, China claimed to have broken its own record when its "artificial Sun" reactor sustained temperatures a whopping ten times hotter than

the Sun for more than 17 minutes straight, blowing previous records out of the water.

The record, however, was set by a very different kind of fusion reactor, which relies on more conventional approaches to fusion energy, heating up plasma inside a donut-shaped reactor called a "tokamak" to extreme temperatures and pressure.

It's difficult to say what to make of this latest announcement, especially given China's secrecy surrounding its scientific institutions, not to mention its military.

Nevertheless, if China is anywhere as close to nuclear fusion as it claims, the technology could present a major paradigm shift as the world continues to suffer from energy shortages and the effects of climate change.

But given the seemingly insurmountable challenges involved in turning fusion energy into a reality, we have our doubts.

14: Scientists Have Bad News About All These Energy Efficient Leds

We've all heard of the woes of blue light: don't look at your phone or computer before going to bed, because it'll make it harder for you to sleep. And according to a new study published in Science Advances, that problem may extend beyond your personal beauty sleep to a much larger, environmental scale.

Studying the spectral composition of the continent's lighting using images captured from the International Space Station, the researchers found that the more energy efficient and higher visibility LED lights are rapidly replacing the old school sodium lights for outdoor use in Europe, bringing with them some unintended but drastic consequences.

Focusing on the suppression of melatonin — the hormone that regulates sleep cycles — star visibility, and insects' response to light, the researchers found that all categories were negatively affected. The level of melatonin suppression in humans has gone up since 2013, stars are less visible, and the insects' response to light was unnaturally altered.

"This trend is widely increasing the risk of harmful effects to ecosystems," the researchers state.

Bright Out

Indeed, blue light is widely suspected to suppress the body's production of melatonin. And with it spilling all across the landscape, it's not hard to imagine why that may have adverse effects for humans as well as animals, or in the study's words, "substantial biological impacts."

But what of LED's supposed benefits? Are they worth drenching the night in a clinical white? The researchers don't think so.

"The benefits that LED technology may provide for public lighting, and particularly street lighting, have been much vaunted," they state, noting that claims of superior energy efficiency over the already fairly efficient sodium lights are "quite context specific," citing multiple studies.

Sounds like sticking with yellower, warmer lights would be better to illuminate the night without disrupting the local environment. Whether that means sticking with older sodium lights or just switching to warmer LEDs, we'll have to wait and see.

15: NASA Seems Awfully Excited About Finding Organic Matter on Mars

The search for evidence ancient life on Mars is ramping up, as NASA's Perseverance rover has already secured some potentially revelatory samples containing organic matter. The presence of organic matter isn't slam dunk evidence of life on the Red Planet, but it is a distinctly promising sign — and, perhaps most tellingly, agency scientists seem uncharacteristically excited.

Since July, the indefatigable rover has been roaming a dried up river delta in the 28-mile Jezero Crater, believed to have been home to a lake billions of years ago. So far, Perseverance has managed to collect four of these fluvial samples, which according to NASA scientists, boast the highest concentration of organic matter since the rover began its Martian mission 18 months ago.

What makes the samples such a great boon is the delta they were collected from. Where a river once flowed into the lake, it also deposited tons of sediment in distinct layers, making the delta ground a terrific preservation of Mars' historical environment.

"The delta, with its diverse sedimentary rocks, contrasts beautifully with the igneous rocks — formed from crystallization of magma — discovered on the crater floor," said Perseverance project scientist Ken Farley at press conference on Thursday, as quoted by CNN.

"This juxtaposition provides us with a rich understanding of the geologic history after the crater formed and a diverse sample suite," Farley continued. "For example, we found a sandstone that carries grains and rock fragments created far from Jezero Crater."

Among the rocks sampled is a small formation of stone dubbed Wildcat Ridge, thought to have been formed at the bottom of the extinct lake when it was still around. In addition to collecting two rock core samples, Perseverance chipped away at the "ridge" and scanned the exposed interior of the stone using a specialized laser instrument known as SHERLOC (Scanning Habitable Environments with Raman and Luminescence for Organics & Chemicals).

What it found was organic molecules related to sulfate, likely meaning that as the lake was drying up, that particular area became highly concentrated in both sulfate and organics.

And when it comes to preserving organics, sulfate is king.

"On Earth, sulfate deposits are known to conserve organics and can harbor signs of life, which are called biosignatures," explained SHERLOC scientist Sunada Sharma, who works at NASA's Jet Propulsion Laboratory, at the conference.

"This makes these samples and this set of observations some of the most intriguing that we've done so far in the mission and fulfills some of the excitement that the team had when we were approaching the delta front."

As exciting as this all sounds, it's still possible that the compounds aren't the vestiges of former life, and instead could have been formed through chemical or geological processes.

And nailing down a definitive answer could take some time. As robust as Perseverance has proven to be, the rover isn’t equipped with the kind of scientific instruments necessary to declare the samples as containing biosignatures beyond a shadow of doubt. Instead, scientists will have to wait for the samples to be transported back home via NASA's Mars Sample Return mission, which isn't currently scheduled to arrive back on terrestrial soil until at least 2033.

Until then, Perseverance will continue to tirelessly collect more samples, and preliminarily analyze the rocks of the now-desolate Martian surface. Even off world, hope springs eternal.

16: Chinese Company Launching Solar Panels To Space, Where They'll Beam Energy Down To Earth

A leading Chinese solar power company says it's sending panels to orbit in an effort to establish a 24/7 operation harvesting the bright solar energy up there and beaming it back to Earth.

As Bloomberg reports, the Xi'an-based Longi Green Energy Technology Company's proposal is garnering interest because of its deceptively simple value prospect — that it can harness solar power all day, and not just while the Sun is out.

While Longi is far from the first to explore the possibility of space-bound solar panels — Bloomberg notes that CalTech got a grant to study space solar panels back in 2013, and that India, Japan, and Russia are all also working on similar efforts — this Chinese company appears to be the furthest along in making the tech a reality.

China is also home to the first reportedly successful space solar panel transmission model, after researchers at Xidian University captured sunlight high above the ground, converted it into microwave beams, and delivered it to a reception station on the ground that turned the energy into electricity, the report notes.

Along with the exciting prospect itself is the potential for private-public partnership. According to Bloomberg, Wu Zhijian, the president of the government-funded China Space Foundation, said that Longi's creation of a space solar panel lab could lead to renewable energy partnerships with the China National Space Association.

If successful a huge "if" the concept could be revolutionary.

17: As Deadline Looms, Elon Musk Re-Assigns Autopilot Team To Humanoid Robot

Tesla CEO Elon Musk is doubling down on the company's efforts to develop a working prototype of its much-hyped and much-criticized Optimus humanoid robot so much so that he's willing to borrow workers from the carmaker's Autopilot department to speed things up.

"Note, Autopilot/AI team is also working on Optimus and (actually smart) summon/autopark, which have end of month deadlines," Musk tweeted.

But we have yet to see virtually any progress being made on the humanoid robot which means that plenty of folks remain skeptical of Tesla's latest pet project, as Reuters reports.

And that's not to mention Musk's tendency to vastly overpromise, something which has done with abandon for many years now.

AI Day 2

The clock is ticking, as Tesla's AI Day 2 is just around the corner. Musk promised that Tesla will have a working Optimus prototype to show off at the event, which he already pushed back from late August to September 30.

"I think we will have something pretty good at the prototype level this year," he said during a March interview, "and it might be ready for at least a moderate volume production towards the end of next year."

During a quarterly earnings call in January, Musk also described Optimus as "the most important product development we're doing this year."

Labor Bot

According to Musk, the robot is meant to be an elegant solution to labor shortages, by taking care of the "boring" work.

"Capital equipment is distilled labor," he said during January's call. "So, what happens if you don't actually have a labor shortage? I'm not sure what an economy even means at that point. That's what Optimus is about."

Despite Musk's comments and repeated promises, the company has yet to show any progress when it comes to Optimus.

All we can do is wait for AI Day to finally see whether Tesla has anything to show.

But if there's one thing we know for sure, it's the fact that developing such a robot will be anything but easy.

"Self-driving cars weren't really proved to be as easy as anyone thought," Shaun Azimi, lead of NASA's Dexterous Robotics Team, told Reuters. "And it's the same way with humanoid robots to some extent."

18: Best Solar Generators of 2022

Today's solar panels make the dream of free power from the sun a practical reality, but they need to be combined with one of the best solar generators to provide manageable power and to continue delivering electricity after dark.

There are many different solar generators available. They vary from highly portable models that can run your personal devices while camping, to those that can supply high levels of backup power for the home in an emergency.

They are safer than traditional gas generators, they don't need fossil fuels, and they don't give off noxious fumes. However, they can be quite complex, and choosing the wrong model might be an expensive mistake. The following guide offers invaluable help in finding one of the best solar generators for free power wherever, and whenever you need it.

Best Overall: Jackery Solar Generator 1000
Best Home: EF Ecoflow Delta Pro
Best Off-Grid: Bluetti Portable Power Station AC200MAX
Best Portable: Anker Portable Generator
Best Budget: Goal Zero Yeti 150 Portable Power Station

HOW WE PICKED THE BEST SOLAR GENERATORS

We researched the principles of solar generator technology and looked at models from more than a dozen manufacturers to ensure we had all the relevant information. We also took into account feedback from owners who have put these devices to the test in real-world situations.

Suitability: We didn't just look for the most powerful solar generators, but rather for a broad selection. In that way, we could discuss devices that would meet the needs of the widest possible group of people. As a result, we have included solar generators for camping, the best portable solar generator, and a solar generator capable of running home appliances in the event of a power outage with substantial Watt-hours (Wh).

Versatility: The number and types of outlets (or ports) has a major impact on how versatile the solar generator is, regardless of actual power output. Some work with mains connection from an electric power grid in addition to solar power. Even a small solar generator can usually supply power for more than one type of device. Those with limited provision in comparison with their performance don't offer good value, and didn't make the cut.

Bundles: Some solar generators are sold on their own, but others come in a package that includes solar panels with them, so you can start your renewable

energy journey immediately. You should generally stick to using solar generators and solar panels from the same manufacturer to ensure compatibility between the two, so getting a bundle makes the most sense for many people.

Brand and Price: One reason people buy a solar generator is for backup power in an emergency. Cheap solar generators might look attractive, but they aren't a bargain if you can't depend on them. All the models we chose are from well-known brands that have a reputation for reliability and durability.

THE BEST SOLAR GENERATORS: REVIEWS AND RECOMMENDATIONS

Best Overall: Jackery Solar Generator 1000

Why It Made The Cut: The Jackery 1000 is light enough for easy portability, but also powerful enough to provide useful power on the go or basic emergency supply.

Specs:

— Capacity: 1,002Wh
— Outlets: 3 x 20A AC, 2 x USB-A, 2 x USB-C, 1 x 12V DC
— Weight: Charger 22 pounds, panels 5.5 pounds each

Pros:

— Versatile all-round solution
— Good range of outlets

— Solar panels included

Cons:

— Panel charging slow
— Not for high power devices
— Light-duty casing

Given that people have such a wide variety of needs, choosing a single best solar generator is an almost impossible task. However, the Jackery 1000 takes our top spot because it comes as close as any to supplying the majority of power demands. The 1002Wh capacity can actually cope with startup surges (common with plug-in devices) of up to 2,000 watts. According to the company, the generator will provide eight laptop charges, 13 hours of TV use, and can run a grill for 50 minutes.

Two 100-watt solar panels are included in the package, so there are no problems choosing compatible units. In full sun, they will charge the Jackery 1000 solar generator in around 8 hours. They are water- and dust-resistant to the IP65 standard, but should not be left out in the rain. The Jackery 1000 can also be charged via 110V AC mains, or a 12V DC vehicle power socket. While not especially fast, pass-through charging means you can continue to use the generator while topping it up.

At 22 pounds, the solar generator is relatively light, though it doesn't feel particularly rugged. While this generator isn't necessarily fragile we would nevertheless treat it with care.

Best Home: EF Ecoflow Delta Pro

Why It Made The Cut: As a stand-alone unit, the EF Ecoflow Delta Pro is a powerful proposition, but what really stands out is the ability to add solar batteries for exceptional backup performance.

Specs:

— Capacity: 3,600Wh
— Outlets: 30A AC, 4 x 20A AC, 4 x USB-A, 2 x USB-C
— Weight: 99 pounds

Pros:

— Fast charging (from mains)
— Can charge from EV stations
— Unrivaled expandability

Cons:

— Heavy
— Expensive
— Solar panels are extra

It isn't easy to provide backup power for the home. Even the best solar generator has limits either in terms of the number of devices it can power, or its run times. The problem is the same for all but the largest gas generators too. The solution? The EC Ecoflow Delta Pro is one of the most powerful solar generators currently available — and it's expandable. You can add additional solar battery units, with the potential for a remarkable 25,000Wh in all. That's enough to provide emergency electricity supply in the home for a week or more. In a small cabin or tiny home fitted with solar panels, it might even be a complete off-grid solution.

What's more, the 3,600Wh EC Ecoflow Delta Pro can plug directly into most RVs. The ability to run power tools for several hours also makes it viable for site use. It comes with plenty of different outlets. Like all solar generators, it can be charged via solar panels, and EC Ecoflow produces their own high-performance model. Mains charging is another option, and fast at just 2.7 hours. It can also charge via 12V DC vehicle socket, and at any one of 35,000 EV (electric vehicle) stations around the US.

That said, at 99 pounds, the EC Ecoflow Delta Pro isn't the most portable, though it does have wheels and a telescopic towing handle. And this kind of performance does come at a price, but for those making a serious commitment to green energy, it's one of the most powerful solutions currently available.

Best Off-Grid: Bluetti Portable Power Station AC200MAX

Why It Made The Cut: The Bluetti Portable Power Station provides excellent performance, plus charging options for any device. The ability to add further units makes it a leading consideration for substantial off-grid installations.

Specs:

— Capacity: 2,048Wh
— Outlets: 1 x 30A AC, 4 x 20A AC, 2 x 12V DC (1x 30A), 4 x USB-A, 1 x USB-C, Wireless cellphone charger
— Weight: 62 pounds

Pros:

— Rapid charging possible
— Wide range of outlets
— Expandable to meet needs

Cons:

— Dual charging connector extra
— A little bulky
— Solar panels extra

It’s practically impossible to find a solar generator that provides the right solution for all users. Choosing a lightweight, highly portable model invariably means sacrificing power, while high-performance solar generators are big and heavy. The Bluetti Portable Power Station comes close to being the ideal compromise.

The 2,038Wh output allows it to power a wide range of devices, and the weight is manageable. However, it has several features that give it the edge over competitors.

First is the extensive range of outlets provided, which includes a wireless charging option for cellphones. Second, and perhaps most impressive, is the ability to expand the power available by adding up to two further Bluetti units, each providing an additional 3,072Wh. Finally, there are options for rapid charging, where rather than just solar panel or mains, both can be used at the same time. There is also an option for using two wall outlets together. While both of these require an extra cable, they will recharge the Bluetti solar generator in just a couple of hours.

As a single unit, the Bluetti Portable Power Station offers versatile power at home or for RV use. It can also expand to provide power for long-term off-grid living. With appropriately-sized solar panels.

Best Portable: Anker 545 Portable Generator

Why It Made The Cut: The Anker 545 is small enough to make it a viable option for family camping trips, yet has sufficient versatility to power mobile devices, lights, a mini-fridge, etc.

Specs:
— Capacity: 778Wh
— Outlets: 2 x 20A AC, 1 x 12V DC, 4 x USB-A, 2 x USB-C

— Weight: 18.3 pounds

Pros:

— Compact and lightweight

— Reinforced corners for strength

— Integrated flashlight

Cons:

— Somewhat slow charging

— 500W maximum

— Loses power if not turned off

The Anker 454 manages to be compact and highly portable, while still providing plenty of usable power, and a host of outputs to suit everything from cellphones and laptops to cooling fans and CPAP machines. Portability is bolstered by reinforced corners in the frame so that it can withstand the occasional knock during transportation. The ability to power a router and laptop at the same time, for example, could also make it a useful solution for home office use in the event of a power outage.

A wide selection of charging ports offers excellent versatility, and in theory, the Anker 545 Portable Generator can charge or power up to 11 devices at the same time. However, although rated for 778Wh, the maximum wattage that can be supplied at any one time is 500 watts. This will reduce the occasions when both 110V outlets could be used simultaneously.

The Anker 454 solar generator can recharge via mains, solar panels, or a 12V DC power socket. That said, reaching maximum capacity does take around 8 hours. It is also important to turn it off manually when not in use to conserve charge.

Best Budget: Goal Zero Yeti 200X Portable Power Station

Why It Made The Cut: Frequent travelers, whether for work or leisure, will appreciate the Goal Zero Yeti's ability to recharge their phone, tablet, camera or laptop wherever they go.

Specs:

— Capacity: 187Wh
— Ports: 2 x 20A AC, 1 x 12V DC, 2 x USB-A, 2 x USB-C
— Weight: 5 pounds

Pros:

— Ideal for phones and tablets
— Pass-through charging
— Comparatively low cost

Cons:

— 12V DC cable extra

The Goal Zero Yeti 200X is one of the most affordable high-quality solar generators available, and also one of the smallest. While performance is understandably modest, it still offers multiple charging options, and is a great all-rounder for personal devices like cell phones, tablets, and DSLR cameras. The biggest update to this model when compared to the previous generation Yeti is the inclusion of a USB-C PD (Power Delivery) port, which is powerful enough to charge a laptop or tablet at their maximum speed.

Goal Zero has experience making power units for all kinds of environments, so the Yeti 200X is rugged enough for camping and hiking. The compact dimensions also make it an ideal companion in a car or RV, where it takes up minimal space but can recharge devices while traveling. Unfortunately, Goal Zero doesn't include a 12V cable in this box, so you'll have to get one separately.

You can fully recharge the Yeti 200X in about two hours using the included solar panel according to Goal Zero, though the actual charging time will vary based on how sunny it is in your area. Be sure to fully charge this solar generator before leaving the house, and check on the weather conditions of your campground before setting out.

THINGS TO CONSIDER BEFORE BUYING A SOLAR GENERATOR

People looking to buy their first solar generator can often be confused by the technical jargon and specifications. The following should clarify things, and help identify the best solar generator for your needs.

Power: Assessing your power requirements is a key issue. Every electrical device demands a number of watts (W) to operate. A low-energy light bulb uses about 10 watts, a laptop perhaps 80 watts, and an air conditioner might need 1,000 watts or more. So the number of watts a solar generator delivers gives a good indication of the devices it can run.

However, the key figure isn't just watts, but Watt hours (Wh) This tells you how long the solar generator can run the devices. If it is rated for 1,000Wh, for example, the power source will run the light bulb in our example for 100 hours (10W x 100h = 1,000Wh), but it will only run the air conditioner unit for one hour. The built-in inverter produces smooth, sine-wave power that is safe for use with sensitive electronics, rather than the stepped power often produced by gas generators.

It isn't difficult to find a solar generator that can provide power for a cellphone, laptop and a few lights for a campsite. However, the average home uses in excess of 5,000 watts, and few of the current solar generators have that capacity. It is often a case of considering which items are essential (sump pump and freezer, for example) and choosing a model that will power them in an emergency.

Inputs and Outputs: While your intention may be to connect the solar generator to solar panels to store free energy from the sun, the best solar generators offer other options. It is normally possible to charge it using a mains connection from an electric power grid, or via the 12 volt DC socket in your vehicle while driving. Each method charges the internal battery at a different rate, so this is worth investigating as it may affect your choice.

If you already own solar panels, their output will have a bearing on the size of solar generator that will deliver maximum performance. Those buying solar panels separately will want to check which combines best with a given solar generator for optimum performance. Generally speaking, this information is readily available from the generator maker.

The number and type of outlets (or ports) will also have an impact. It is common for USB sockets to be provided, but it is worth checking whether these are USB-A, USB-C, or both. Solar generators frequently have 12V DC sockets that can power a mini-fridge, and standard 20A, 110V AC outlets like those found at home. Larger solar generators may have 30A outlets used for high-demand devices like water heaters. It may be possible to plug it directly into an RV circuit.

Portability: When choosing a solar generator for house backup, size and weight are unlikely to be major issues. If it's a solar generator for camping or site work, however, portability will be key. The lightest solar generator we found weighs

under 20 pounds, the heaviest is around 100 pounds. However, the latter does have wheels and a handle to aid mobility.

Durability: There are two aspects to consider here. First is the structure of the unit itself. The brands that made our top picks all have established reputations for providing high-quality equipment. Sadly, there are numerous generators that aren't so well made. Breakdowns are inconvenient at best so we always recommend investing in trusted manufacturers.

The second issue is the anticipated lifespan of the unit. The battery in any solar generator can only withstand a certain number of charge cycles (charge, drain, and recharge) before it fails. This can be anywhere from 500 to several thousand cycles. Generally speaking, lithium-ion models last longer than lead-acid/AGM. Individual usage will also have a big impact. Some solar generators might be used on a regular basis, and thus have a lifespan of a few years. Those only used for emergencies might last decades. The best solar batteries and best rechargeable batteries are also very helpful to have on hand.

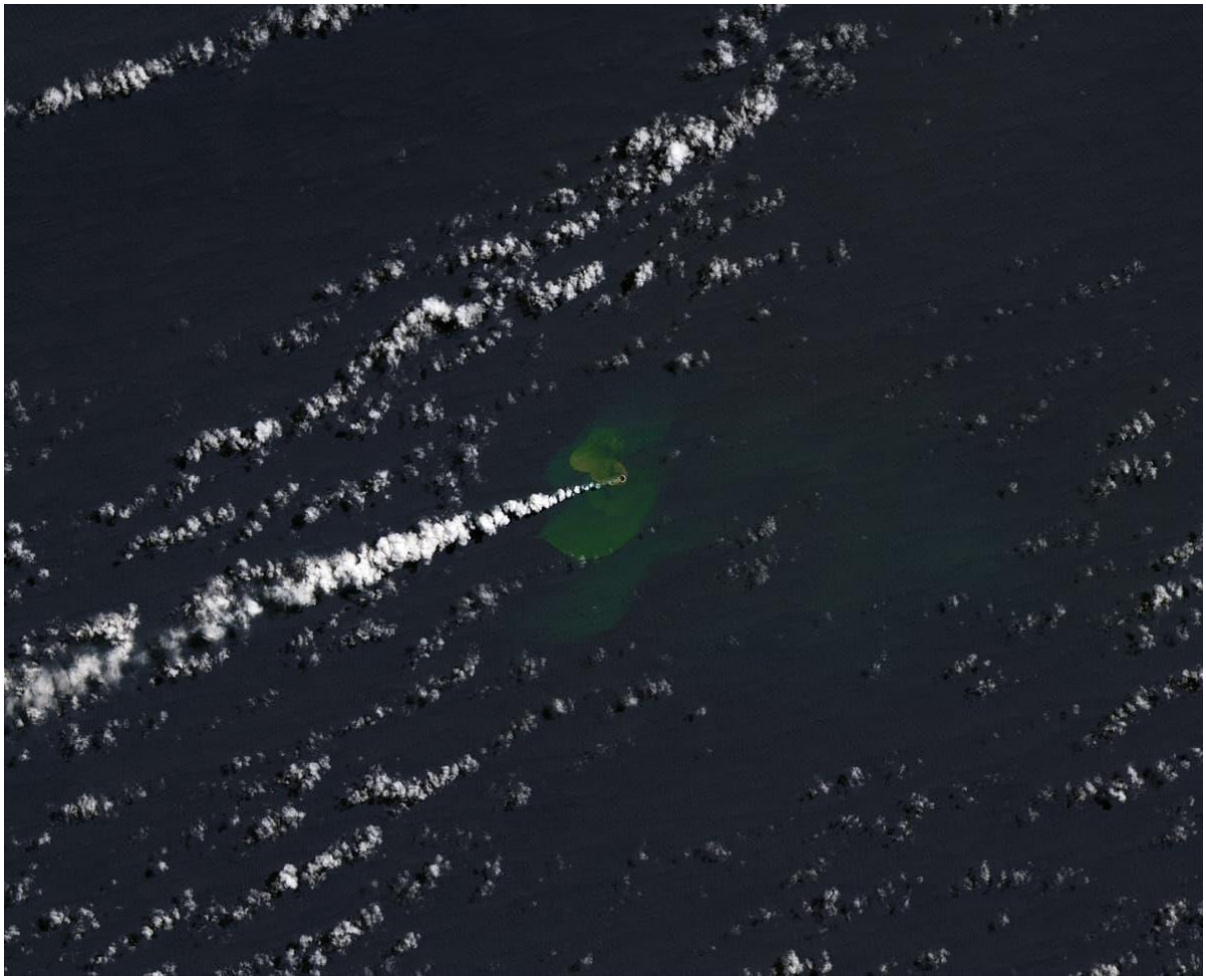
19: A New Island Just Appeared In The Pacific Ocean

A new island has popped up in the southwest Pacific Ocean, according to the NASA Earth Observatory.

This fledgling patch of land spawned out of a seafloor ridge teeming with highest density of underwater volcanoes on the planet. Known as the Home Reef seamount, the underwater mountain stretches between New Zealand and Tonga.

Starting this month, one of those volcanoes bubbled to life and erupted, brimming with lava that spilled out into the surrounding ocean and billowed voluminous plumes of ashy smoke into the air, according to the Earth Observatory's release.

Eleven hours later, amidst the shimmering heat of the subsiding eruption, a brand spankin' new island emerged. And thankfully, NASA's Operational Land Imager-2 (OLI-2) managed to capture the island in all its new found glory in a beautiful, natural-color image.



Initial measurements, collected on September 14, estimated the island to be about 43,000 square feet or one acre in size, and 33 above sea level. But by September 20, the booming little island had grown to almost 260,000 square feet, or six acres in size.

Island-spawning volcanic activity isn't surprising given the Home Reef seamount's position in the Tonga-Kermadec subduction zone, where three tectonic plates converge on each other in a slow, grinding collision. Among that trio is the gargantuan Pacific Plate, and at around 40 million square miles in area, it's the largest tectonic plate in the world.

Because of its overwhelming proportions, subduction means that the Pacific Plate gradually sinks beneath the other two lighter colliding plates, and in the process gapes one of the deepest trenches on Earth into the seafloor, aptly known as the Kermadec Trench, as well as the active Kermadec volcanic arc just behind it.

Unfortunately, this little guy probably isn’t going to stick around very long, with NASA warning that islands created by underwater volcanoes are typically short-lived. But there are some exceptions, like one island created from the nearby Late’iki Volcano in 1995 that stuck around for a whole 25 years — though that's not very long in geological terms.

20: Volvo's New Electric Car Won't Drive if It Detects That You're Drunk

Imagine if your car was able to not only tell if you were too drunk or sleepy, or distracted, or otherwise impaired to drive, but could literally stop the vehicle.

In a new statement, Volvo announced the specifics of its "driver understanding system," one of the coolest features of its forthcoming flagship EX90 electric SUV, which drops in early November as the company prepares to shift to all-electric by 2030.

Driver understanding is one of the most interesting uses Volvo has planned for its light detection and ranging (LIDAR) sensors, one of which will be mounted outside the car to help detect on-road obstacles and the other two of which will focus in on the drivers' eyes to determine whether they're driving impaired or need assistance.

The extra-smart car will first issue a series of warnings to the driver if its sensors detect that the driver is inebriated, and then proceed to slow the car down and eventually stop it and put its hazard lights on if the issue continues.

"Our research shows that by simply observing where the driver is looking and how often and for how long their eyes are closed," Volvo safety expert Emma Tivesten said in the statement, "we can tell a lot about the state of the driver."

"By basing its calculations on our research findings, the sensing system allows our cars to identify whether the driver’s ability is impaired, perhaps due to drowsiness, distraction or other causes for inattention and to offer extra assistance in a way that best suits the situation," Tivesten continued, with "other causes for inattention" being used as a euphemism for driving under the influence.

As the statement points out, different eye patterns can indicate different states to the car, which will then alert the driver accordingly. For example, if the driver is "looking at the road too little," it could mean they're texting while driving, but if they're focusing on it "too much," it could signal that they're lost in thought and not paying attention to the task at hand.

While LIDAR has gotten something of a bad rap because Tesla CEO Elon Musk seems to despise the tech, Volvo has, as The Verge notes, long been interested in using it to help curb accidents caused by distracted or impaired driving.

School of Media and Communication Studies

1: Amazon Bungles Release Of Most Expensive Tv Show In History

Amazon’s big budget, highly anticipated prequel "The Lord of the Rings: The Rings of Power" is finally here — and as the most expensive TV show ever made, the company has a lot riding on its success.

The plan was to premier the first two episodes in a simultaneous release on its Prime Video streaming platform, a fairly common practice.

But the streamer’s execution was a little unorthodox, to say the least. At the start of the double release, episode one was — for some users — quite literally unwatchable. That’s no exaggeration, as it completely lacked a play button, and instead users were given a message that said the "video is currently unavailable." Meanwhile, episode two was widely available without any hiccups.

Fortunately, it looks like this glitch didn't affect everyone, and was fixed within a few minutes. Whether this can be blamed on a server overload from the millions tuning in to watch the premier at the same time or some intern forgetting to hit a button, we’re not sure. But from one of the world's most prominent tech companies, and at a pivotal moment in its ongoing venture in streaming entertainment, it’s an embarrassing little slip-up either way.

Return of the King

With Amazon shelling out $465 million for the first season of "Rings," it’s reportedly the priciest show ever made — per episode, overall, whichever way you look at it. And that bogglingly huge budget doesn’t even include the $250 million Amazon had to pay for the rights to the Tolkien property back in 2017.

But apparently not even its Smaug-sized budget could save the show from Amazon’s mildly botched release of the season premier.

And it probably can’t save the show from high expectations, either. It’s an impossibly tall order to top Peter Jackson’s film trilogy, which collectively was one of the most critically, commercially, and culturally successful entertainment endeavors of all time. Good luck trying to please the pedantic purists of Tolkien’s written work, too.

With scores of memes circulating that poke fun at the show’s chintzy looking promotional material, it’s probably not the prestige reception Amazon wanted. But if the show is worth its salt, it’ll overcome these minor slights.

School of Governance and Society

1: Missing Crypto CEO Who Stole User Funds Arrested, Facing 40,000 Years In Prison

The manhunt is over: fugitive cryptocurrency CEO Fatih Ozer has finally been arrested in Albania after being missing for over a year.

Ozer, as well as other executives and founders of the global crypto exchange Thodex, have been wanted by Turkish authorities for allegedly defrauding users on the exchange and establishing a criminal organization in the process.

The accusation is that Ozer engaged in a "rug pull," a term that refers to when a crypto project pumps a new token, convinces unassuming investors to buy into it, and then disappears with the money.

In the current crypto landscape, allegations of fraud are pretty much run of the mill. What sets this one apart is the sentence Ozer may be facing: an astonishing maximum of over 40,000 years behind bars, according to reporting by Bloomberg.

Paying the Price

If the indictment is to be believed, Thodex's subsequent collapse resulted in some $24 million in losses — a sizeable plunder. And the figure may be even way higher, depending on whose estimate you side with. A 2021 report by crypto analysis firm Chainalysis, for example, puts the sum as high as $2.6 billion, noting that "roughly 90 percent of the total value lost to rug pulls in 2021" can be attributed to Thodex.

It's not surprising the estimates vary so drastically, given the volatile nature of crypto and the opaque processes sometimes used in offloading it. But regardless of the valuation, walking away with either amount of stolen money is a serious crime.

So serious, in fact, that prosecutors are seeking 40,564 years in prison for Ozer and the other defendants involved in the case. Whether it remains that high is anyone's guess. But it's clear that Turkish officials aren't messing around, as the process for Ozer's extradition is already underway, according to an Interior Ministry statement also reported by Bloomberg.

Thodex was founded in Turkey in 2017, quickly amassing 700,000 users amidst an ongoing spell of national inflation. At the time, crypto was seen as a way to

protect against that inflation, but with Thodex's spectacular collapse and the Turkish government's crackdown on the crypto market, that sentiment may be long gone.

2: Guy Who Invented the Word "Metaverse" Building His Own Metaverse

The science fiction icon who coined and popularized the term "metaverse" is pausing his literary career to build his own.

As revealed by Wired, "Snow Crash" author and cyberpunk pioneer Neal Stephenson is working with a crypto bro to create an open metaverse platform that will, its creators hope, be a more decentralized version of the types of Big Tech metaverses like those run by Fortnite and Facebook.

"It's like Neal is coming down out of the mountains like Gandalf, to restore the metaverse to an open, decentralized, and creative order," said robotics and augmented reality entrepreneur Rony Abovitz, who is also acting as a strategic advisor to Lamina1, the company Stephenson is cofounding with Bitcoin Foundation head Peter Vessenes.

As Vessenes told Wired, he was initially concerned that the science fiction titan was "Kardashian-ing," or profiting from his own self-created hype.

"That's potentially the first question," the career Bitcoin evangelist said. "Is Neal selling his brand out to some fucking metaverse company?"

Once people speak with the Lamina1 pair, Vessenes claimed, "they conclude this is a principled effort" and then begin asking how they plan to do it. The answer to that subsequent question, it seems, will be figured out along the way.

"The economics are tied to adoption," Vessenes said, without adding much more detail. "The more people use it, the more valuable it is."

Execution might be a sticking point. Back in 2021, Stephenson raised a half million dollars to create an incredibly ambitious swordfighting game called "Clang," complete with its own new motion capture hardware, but the project disintegrated the next year without delivering anything.

Now, Stephenson and co are describing a much more ambitious project, similar to the unified internet. In other words, it sounds way more ambitious than "Clang."

Resources could be thin as well. Wired reports that the company currently only employs three engineers, though they intend to hire many more as they build out their tech.

Adding to the stakes, Stephenson says he doesn't intend to take much of a break from writing novels: the cyberpunk king said that "when the calendar turns over to 2023, it's going to be back to the usual."

"My publisher will send a hit man after me if I don’t fulfill my obligations," he told Wired.

3: Us Military Annoyed When Facebook And Twitter Removed Its Psyop Bots

If spy literature has taught us anything, it's that covert operators sure do love their toys. They also, apparently, really don't like when you threaten to take their toys away.

Case in point: per The Washington Post, the Pentagon is to conduct a "sweeping audit" of the US military's social media-driven psychological operations (PSYOP) practices, following efforts by Facebook and Twitter to remove fake, propaganda-laden bot accounts connected to the US military. Unsurprisingly, a lot of folks at the Department of Defense (DoD) are none too pleased.

"Combatant commanders got really excited," an unnamed defense official told WaPo. "They were very eager to utilize these new authorities. The defense contractors were equally eager to land lucrative classified contracts to enable clandestine influence operations."

While the details about the specific content that Facebook and Twitter chose to remove from their platforms are relatively scarce, officials confirmed to WaPo that most of the take-downs occurred within the last two to three years. One particularly egregious case of disinformation was a fake story involving organ theft, apparently designed to encourage a rift between Afghans and Iranians.

Importantly, sourced alleged to WaPo that the social platforms in question weren't taking US military content down for the sake of, you know, truth. Rather, execs like David Agranovich, Facebook's director for global threat disruption, were flagging the issue as a military failure, essentially warning the DoD that if they can snuff out the fake accounts, so can international rivals.

4: The Human Family in Crisis

Across the political spectrum, there is a pervasive and growing feeling that the human enterprise is in a death spiral.

It is 113 degrees in Phoenix, Arizona — no surprise there — but also in Medford, Oregon. Microplastics have been found in remote Arctic plateaus, the depths of ocean trenches, and in the placenta of the newborn. Even the raindrops and snowflakes are full of poison. An aging tyrant has made a desperate play to expand his borders, plunging the global economy into chaos as he hints at nuclear holocaust. Meanwhile, a handful of oligarchs dream of fleeing this planet for the stars, as if Earth was some disposable stepping stone for their adventures.

Here at home, unscrupulous ideologues deprive women of their right to health care. A free and fair election has come close to being overturned. We can't even agree on the virtue of keeping insurgents off the Senate floor. Not since the Civil War has our democracy seemed so fragile.

The left points to our unsustainable carbon emissions, rapidly deteriorating environment, and the widening gap between the billionaires and the rest of us. The right points to the overreach of government on health, worship, speech and education. They lament the decline of cherished institutions such as the traditional family and other ancient, trusted social norms.

Young and old struggle with a pandemic of fatalism, a feeling that we have no future. An extraterrestrial anthropologist scrolling through Gen Z's Instagram memes, or watching the dystopias of popular fiction, might reasonably conclude we are a moribund species.

Is it wishful thinking to imagine a future that can be redeemed? Is it all too overwhelming? Has human dysfunction metastasized beyond our powers to cure?

By current reckoning the universe is around 13.8 billion years old. That seems like a long time to us, but the future is so much longer. Those last stars, red and small, won't burn out for trillions of years. If we can resist the siren song of our destructive impulses, there is more than enough time for us to flourish on the countless worlds of this universe.

Humans have only existed for a few hundred thousand years. We are a very young family coming of age in a very young universe. Yet every one of us is descended from generations of survivors who lived with constant peril.

We are thinking of the ancestors who survived the Toba volcanic catastrophe, around seventy-five thousand years ago. This mega-colossal eruption, one of the

worst ever experienced by human beings, took place in what is now Indonesia. It darkened and cooled the whole planet.

Can you imagine how terrified our ancestors must have been, huddled around a flickering campfire, their only source of light and warmth? In that cold, seemingly endless night it must have been hard to imagine that anything good lay ahead. What fears must have tormented them? What had they done to turn the Earth and sky against them, to make the plants and animals that sustained them wither and die?

It is estimated that only a few percent of all humans living at the time survived: just a weary, hungry ten thousand or so souls in the whole world. Still, they endured. And Toba is but one of the calamities — ice ages, plagues, famines, droughts, floods and much more — that our species has overcome. Our ancestors' strength to carry on in the face of gnawing hunger and hopelessness delivered you this very moment. It's a moment fraught with dangers, but unlike the generations who

came before us, we have the power to understand these phenomena and mitigate their consequences.

We are poised on a knife edge, precariously balanced between our ability to unravel the mysteries of nature and time and our inability to live in peace with one another and our environment. Just as we begin to peer back into the birth of our universe we also gather about ourselves the tools of our undoing. Every year the world's scientists tell us we must act if we are to avert cataclysm. They say "now or never." And somehow we still sleepwalk, spellbound by celebrity gossip and our latest toys.

It's one thing to endanger your own life, and even the lives of your loved ones. It's reprehensible, but certainly not unheard of. Yet in this crisis something even greater is at stake — from the earliest wriggling microbe to those who pressed on through the gloom of Toba and every life up to this present moment — the significance of all our ancestors' labors. Everything is on the line; all that came before and everything that could come after.

It is so achingly clear that we have no choice. It is time to grow up, to stop entertaining ourselves to death, to give up our obsessions with glamor and consumption. We must begin to value what is real over what we would like to believe; to value science over fantasy, fact over fiction. We can no longer afford to stay in our silos, occasionally lobbing angry invectives at our antagonists. We can't afford to stop communicating with each other.

For all our many failings, we have, at least, one great strength. We are this planet's best toolmakers. From those first paleolithic torches to our spacefaring robotic probes, we are a race of tinkerers. One of those probes has shown us the view of the Earth from out by Neptune. That image presents us with an inescapable fact: we are but one small family living on a tiny world in the great cosmic dark. We are ready to embrace the cosmos, to resume our ancestral wandering. But we cannot take our sickness with us to the stars; we can't lie our way to those far off places.

We have seen recently how ordinary people can be moved to do extraordinary things to defend their home when it is threatened. What will it take for us to unite in defense of the home we all share? All we have to do is continue the ancient human tradition of working for our future.

School of Food and Agricultural Sciences

1: California Legalizes Composting Human Bodies

California has just become the fifth state in the US to legalize the composting of human bodies, a planet-friendly and, yes, gruesome-sounding alternative to the toxic process of cremation.

As The Los Angeles Times and other outlets reported, CA Gov. Gavin Newsom signed the bill passed by the state assembly into law over the weekend, though human composting won't become a burial option in the Golden State until 2027.

California follows the likeminded states of Oregon, Washington, Vermont, and Colorado in paving the way for human composting, though in at least one of those, the practice is already well underway and attracting people from out-of-state.

In an interview with The Guardian, Micah Truman, the founder and CEO of Seattle's Return Home funeral service that specializes in green burial processes like human composting, said that he's had people bring the bodies of their loved ones from 12 different states to be "terramated," which is the term Truman and others like him use to describe the process.

"You can put whatever you want in there and say goodbye to them in a way that feels good," Truman told The Stranger in an interview last year. "I think that will matter."

A model of the human composting vessel used by Washington's Recompose funeral service. Image via Sabel Roizen/Recompose.

A model of the human composting vessel used by Washington's Recompose funeral service. Image via Sabel Roizen/Recompose.

Beyond turning bodies into soil-nourishing fertilizer, human composting has the added benefit of being significantly better for than environment than cremation, which emits roughly one metric ton of carbon per body burned. This was one of the key selling points for assembly member Cristina Garcia, who tried twice before to pass a human composting bill in California before succeeding on her third try.

"With climate change and sea-level rise as very real threats to our environment, this is an alternative method of final disposition that won’t contribute emissions into our atmosphere," Garcia said in a statement after Newsom signed the bill into law.

Though it's not the first state to move towards legalizing human composting, California is home to pioneering "death-positive" activist and former Los Angeles funeral director Caitlin Doughty, whose Order of the Good Death organization has since 2011 spurred conversation surrounding the funeral industry and the harms it causes.

As both the Order of the Good Death and other human composting advocates have noted, the practice also has the added benefit of costing the same or less than

other funerary options, median prices running $6,000 for the most bare-bones cremation and $7,200 or more for the cheapest casket funerals.

By contract, human composting costs between $5,000 and $7,000, and the process that will be allowed in California — placing bodies in steel boxes with wood chips, flowers, and other biodegradable materials for one to two months before the body breaks down into soil that is then given to the deceased's loved ones — sounds much tidier than having a bunch of ashes sitting in one's home.

Beyond the reduction in both costs and emissions, human composting also offers families a chance to return their loved ones to the Earth.

As norms surrounding death and dying continue to change, so too will the way we handle our dead — and doing so in ways that can help, rather than harm, the planet while also feeling in touch with the organic matter around us does, indeed, sound like a "good death."

Office of Research, Innovation and Commercialization

Training Program on Web 3.0 and Metaverse at University of Management and Technology (UMT).

Office of Research Innovation and Commercialization (ORIC), University of Management and Technology (UMT), in collaboration with The Presidential Initiative for Artificial Intelligence and Computing (PIAIC) arranged a training Program on Web 3.0 and Metaverse at UMT.

The mission of PIAIC is to reshape Pakistan by revolutionizing education, research, and business by adopting the latest, cutting-edge technologies. Experts are calling this the 4th industrial revolution. PIAIC wants Pakistan to become a global hub for Artificial Intelligence (AI), data science, cloud native computing, edge computing, block-chain, augmented reality, and internet of things.

Web 3.0 is the third generation of the evolution of web technologies and is an idea for a new iteration of the World Wide Web, which incorporates concepts such as decentralization, block-chain technologies, and token-based economics.

The training classes for Web 3.0 and Metaverse started on 02 October ,2022 and will be held every Sunday from 09:00 AM to 06:00 PM at UMT. More than 1000 plus students enrolled and attended this course.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