MIT Technology Review

Tech Policy

The biggest technology failures of 2019

Autopilot run amok, bogus agriculture bots, and genetic gaydar all made our list of the worst technologies of the year.

by **Antonio Regalado**

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What would the holidays be without the Grinch? And what would MIT Technology Review be without our annual list of the year's sorriest tech fails?

This year’s list includes the deadly, the dishonest, and the simply daft. Read on:

Boeing’s out-of-control autopilot

First one brand-new 737 Max Boeing plane, Lion Air Flight 510, crashed shortly after takeoff. Then another did the same. Everyone aboard died. In each case, pilots had struggled against an autopilot system that took over and plunged the planes to their doom.

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The pilots had only a short time to react to a flight control, called MCAS, that they knew little or nothing about.

The autopilot was installed to compensate for a decision to add bigger, more fuel-efficient engines to the workhorse single-aisle airplane, a choice that could make them stall in certain situations. The second crash, of Ethiopian Airlines Flight 302 in March 2019, exposed not only that the autopilot was to blame, but also how US air safety regulators had over time ceded more and more authority to Boeing.

The combination of an overaggressive automation system and lack of pilot training proved deadly.

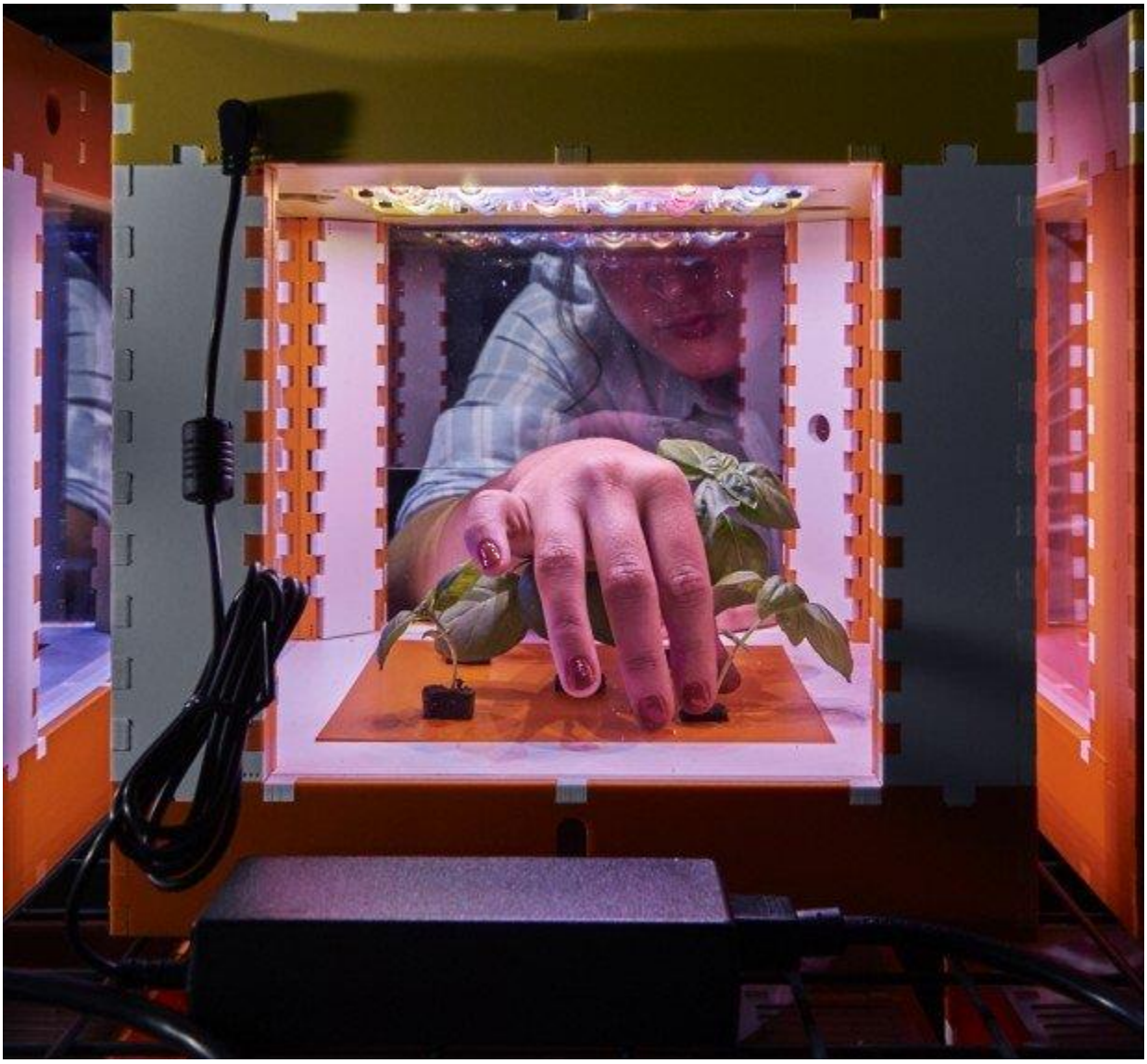
Boeing's losses are already in the billions, and the 737 Max fleet remains grounded.

Confusion, Then Prayer, in Cockpit of Doomed Lion Air Jet (New York Times), The Case Against Boeing (The New Yorker), The Multiple Problems, and Potential Fixes, with the Boeing 737 Max (Wall Street Journal)

Fake food computer

The MIT Media Lab has been called the "future factory"—but its "food computer" likely won't be part of it.

In a 2015 TED Talk that gathered 1.8 million views, architect Caleb Harper introduced hydroponic boxes stuffed with electronics and AI, which he said would measure millions of combinations of light, temperature, and humidity. His Open Agriculture project, he said, was pioneering “cyber agriculture.”



TONY LUONG

Really? The food computer, it turns out, was nothing more than a glorified grow box that didn’t work very well. But by fertilizing the project with buzzwords—“climate hacking,” “open source,” “microbiome”—the Media Lab kept winning attention and funding for it. Claims for the contraption reached an absurd apex in April, when Harper said “machine learning” had been employed to grow basil that an MIT news release called “likely more delicious” than any ever tasted.

In September, workers stepped forward to blow the whistle, telling the media about fake photo shoots (the plants were purchased), smoke-and-mirror tactics, and environmental violations. By October, MIT officials had "halted most of the work" by the OpenAg group, according to the Boston Globe.

More: Hype vs. Reality at the MIT Media Lab (Chronicle of Higher Education), M.I.T. Media Lab, Already Rattled by the Epstein Scandal, Has a New Worry (New York Times), MIT halts work of group at under-scrutiny Media Lab (Boston Globe)

The bovine bacterial boo-boo

When a company called Recombinetics created hornless dairy cattle with gene editing, it insisted they were not GMOs and shouldn't even be regulated. After all, with precision editing you could just swap one cattle gene for another. Presto: all cow, no horns.

But these bovines had a blooper. No one noticed until the US Food and Drug Administration had a look at the DNA of one of the bulls that the company had accidentally inserted a chunk of bacterial genes.

The bull and some of the other hornless animals, therefore, were transgenic. Yes, the addition of bacterial DNA may be harmless. The real injury was to the gene editor's claim of molecular precision. The animals ended up getting incinerated, a loss for all involved.

CORNELL ALLIANCE FOR SCIENCE

More: Gene-edited cattle have a major screwup in their DNA (MIT Technology Review)

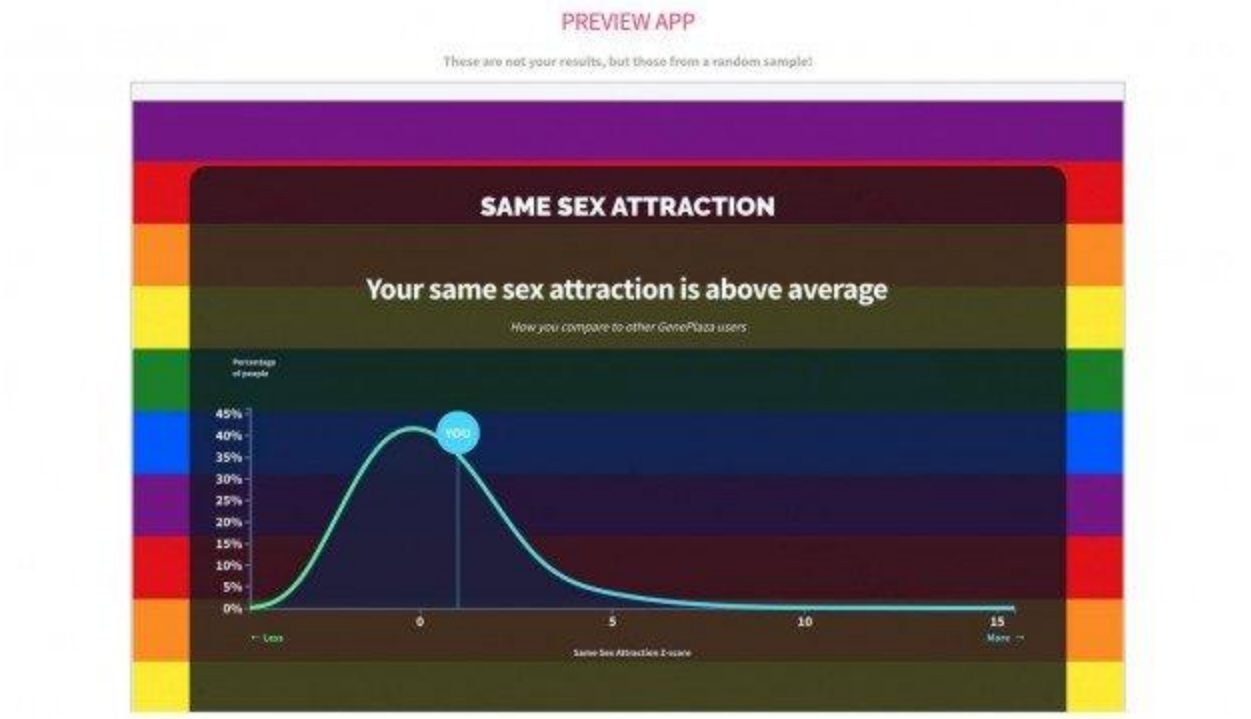
Genetic gaydar

Within weeks of a major study identifying genes associated with homosexual behavior, a programmer had launched an app called “How Gay Are You?”

For $5.50, the app purported to use those research findings to calculate the gayness level of anyone, using results from a DNA test like those sold by 23andMe.

Controversy ensued. Was the app a “dangerous mischaracterization” of science or did it accurately underscore the main point, which is that there’s no one gene for being gay? Alternatively, did it show that the original research project to try to explain homosexual behavior was ill conceived?

The gaydar app is now gone (it didn’t survive the controversy), but the promise—or the problem—of genetic predictions isn’t going away. Gene scientists have new ways to link small genetic differences not only to a person’s risk of disease, but to traits like height, intelligence, or earning potential.



GENEPLAZA

More: Genetics may explain up to 25% of same-sex behavior, giant analysis reveals (Science), How Earnest Research Into Gay Genetics Went Wrong (Wired)

Space stowaways

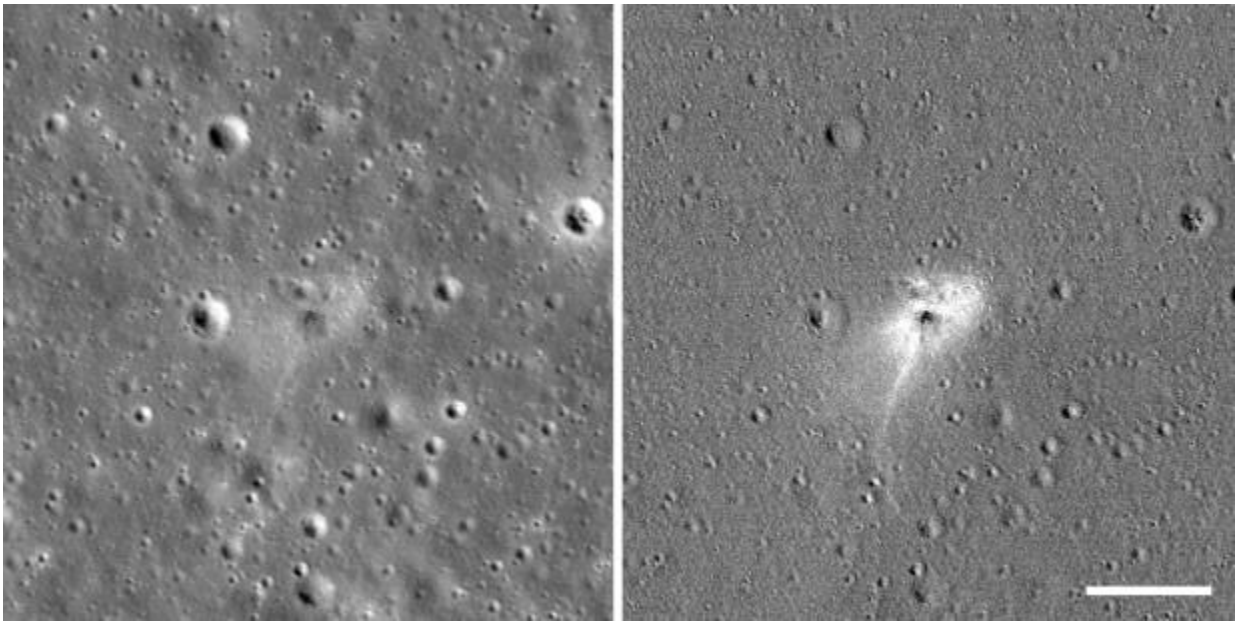
This year, a company in Israel launched that country's first lunar lander, which unfortunately crash-landed on the moon in April. Luckily, no one was onboard. Unfortunately, *something* was.

It turned out that a US nonprofit called Arch Mission Foundation had secretly added to the mission payload a capsule full of tardigrades, or water bears. The microscopic, eight-legged creatures can survive in a dormant state through harsh conditions, and maybe even on the moon.

The concept of planetary protection is the idea that we shouldn't pollute other worlds with earthly life. There's the worry over contamination, and what's more, if you do discover life outside of orbit, you'd like to be sure you didn't put it there.

Without some water, the tardigrades aren't likely to revive and spread. Still, the episode shows that today's honor system might not be enough to ensure planetary protection.

Why did Arch do it? The foundation's mission is to create a backup of planet Earth, and so it tests out technologies for long-lasting archives, like securing information in DNA strands or encapsulating insects in artificial amber. Its payload on the Israeli mission included nickel sheets nanopatterned with 60,000 pages of Wikipedia and other texts.



NASA/GSFC/ASU

In a last-minute switch-up, Arch and its cofounder Nova Spivack decided to add some human hair, blood cells, and thousands of tardigrades. "We didn't tell them we were putting life in this thing," Spivack said. "We just decided to take the risk."

More: A Crashed Israeli Lunar Lander Spilled Tardigrades on the Moon (Wired), 'I'm the first space pirate!' How tardigrades were secretly smuggled to the moon (Mashable)

Samsung's folding phone

The reviews on the Galaxy Fold phone weren't as hoped. "After one day of use," tweeted Bloomberg gadget reviewer Mark Gurman in April along with a picture of a flickering screen. "Completely broken and unusable."

A half-dozen foldable phones are planned for next year. But Samsung's premature introduction of a phone that levers open into a 7.3-inch display shows the difficulty of making a major consumer innovation in smartphones—the kind that could get people to buy new ones, and ward off cheap models from China.

Review models broke, delaminated, and got filled with gunk, causing Samsung to abruptly postpone the phone's spring launch, saying it would "take measures" to toughen up the display. The company acknowledged that defects "could be associated" with a weak hinge as well as "substances found inside the device."

UNSPLASH/BAUMEISTER

Gadget fans still can't wait. But reviewers say a reengineered version, now on sale for $1,980, remains "fragile and experimental" and is a "science experiment" that proves flexible screens aren't ready yet.

More: Samsung's $2,000 folding phone gave me a brief but tantalizing glimpse of the future—before it broke (CNBC), Samsung Delays Release of Galaxy Fold Smartphone (The Wall Street Journal), Samsung Galaxy Fold Re-Review: Here We Go Again (The Verge)

Apple's biased credit card

Why would a wealthy tech entrepreneur get a credit limit 10 times as high his wife's on the new Apple Card, even though their assets are held in common? When one complained, a rep told him, "It's just the algorithm." A sexist algorithm! Steve Wozniak, Apple's cofounder, said it happened to his wife, too. But what's the program, and what does it do? Apple and Goldman Sachs, the bank backing the card,

didn’t say. And that’s the problem. Computerized bias exists, but it’s hard to hold anyone, or *anything*, accountable. Facebook this year reached a settlement to stop letting advertisers intentionally discriminate in housing and job ads, yet research shows that unseen algorithms are still skewing results. Ads for taxi drivers on Facebook were automatically shown more often to minorities, and supermarket jobs to women.

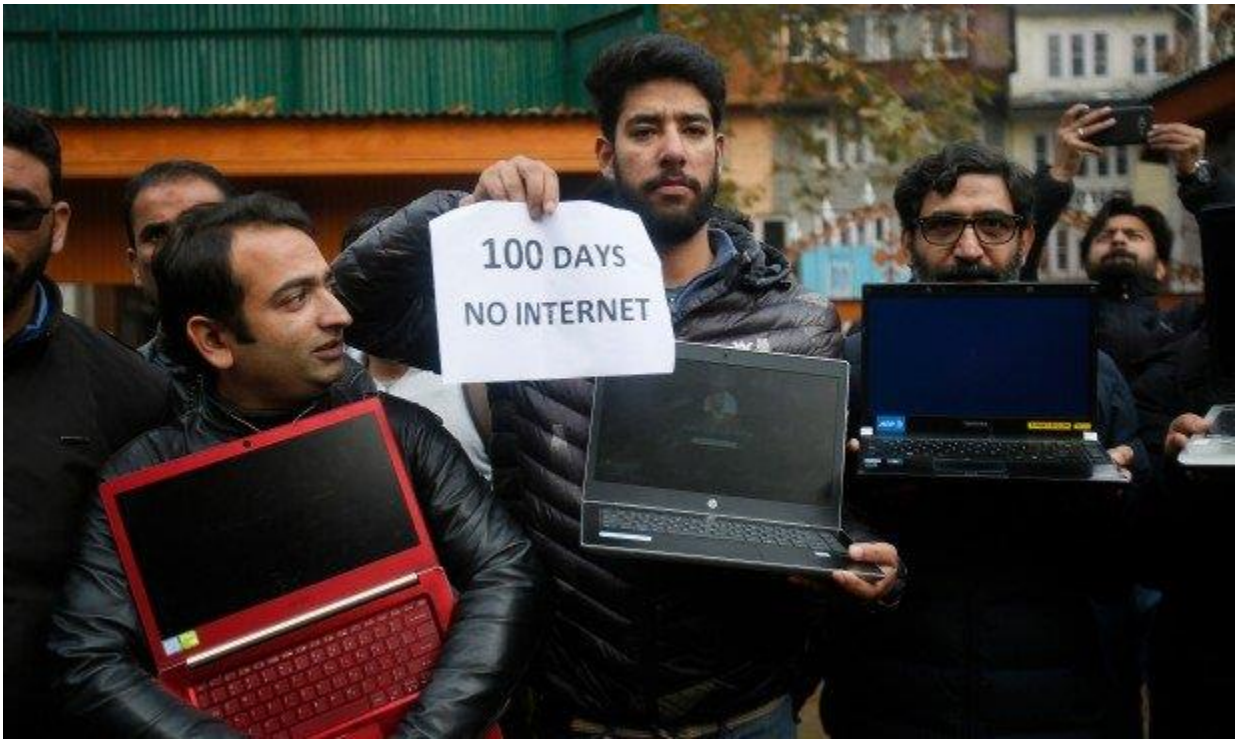
APPLE

More: The @AppleCard is such a f---- sexist program (Twitter thread by David Heinemeier Hansson), Is Apple Card sexist? Goldman Sachs offers to review gender-bias claims (CBS News), Facebook’s ad-serving algorithm discriminates by gender and race (MIT Technology Review)

Internet off switch

It’s the world’s largest democracy, but India isn’t so democratic when it comes to internet service. Instead, the nation’s federal and local governments have found that when trouble brews, the most convenient response is to cut off access to Facebook, WhatsApp, and the rest of the internet.

In December, India shut off the internet for 60 million people, according to InternetShutdown. During the full year, it cut off connectivity more than 90 times in all. While India is world champion in throttling the internet, similar shutoffs are happening in Pakistan, Turkey, Iran, Sudan, and Benin, where governments have learned that flipping the switch can cool dissent, avoid trouble, and stop news of protests from reaching the world.



AP IMAGES

The big India shutdown in December came after people in the north of the country started protesting a citizenship law unfavorable to Muslims. In the restive Kashmir region service has been off since August. Some people have to travel miles just to check email.

More: India has once again shut down the internet to control protesters (MIT Technology Review), India Adopts the Tactic of Authoritarians: Shutting Down the Internet (New York Times)

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