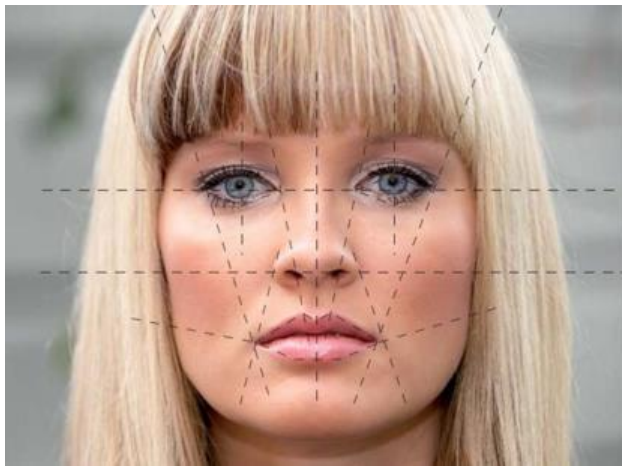


GLIMPSES OF THE FUTURE

A monthly digest of technologies, developments and trends that may shape our lives. (If you would prefer not to receive these digests, flip back 'NO THANKS' and you will be removed from the list). For daily glimpses follow me on Twitter: @hammondfuturist

Apple Thought To Be Launching Face-Pattern Recognition

The next iPhone (the iPhone 7S, iPhone 8?), which is due to be released in September, might replace the TouchID fingerprint sensor with whole-face 3D scanning.



According to [Bloomberg](#), which is usually quite reliable when it comes to Apple rumours, [the face-scanning tech](#) will allow iPhone users to log in, authenticate payments, and unlock secure apps. This will be powered by a new 3D sensor.

Apple is also testing eye scanning tech, which would provide additional security and redundancy alongside the face scanner. The tech might be ready for the next iPhone, or it might not be, according to people familiar with the product.

The same source said the new 3D face-scanning chip is incredibly fast and accurate: it can scan and authenticate the user's face within "a few hundred milliseconds." It apparently doesn't require a close-up of your face, either, which is good news: holding an iPhone up to your face is hardly more ergonomic or convenient than a

A Rollercoaster With Added Virtual Reality

SeaWorld Orlando is the latest in a string of theme parks [to turn to virtual reality \(VR\)](#) to recycle rollercoasters of days past.

In the case of a ride called Kraken, the rider wears a headset that takes him or her on an underwater journey which matches the coaster's movements, dodging prehistoric sea creatures such as pliosaurus, careering down into an underwater canyon, and straining to escape the clutches of the terrible, tentacled monster after which the ride is named.



Building a new ride is pricey, even for a big attraction like SeaWorld. For small theme parks, with low budgets, it can be an existential bet. VR, though, has given parks an opportunity to breathe new life into old rides, saving money as they do so.

Adding VR to a rollercoaster does, however, present challenges beyond those involved when the headset wearer is either stationary or using his or her own muscles to move around. Matching what is seen with the sensation of movement is crucial. Get it wrong and the result is nausea. Yet, when executed properly, the pairing of rollercoasters and VR, two things that can both, by themselves, be nauseating experiences, actually helps reduce the risk of

fingerprint scanner.

Airbus Building Black Boxes Which Eject From Aircraft

Airbus is designing [black-box recorders which are ejected](#) from aircraft in danger of crashing.

On large planes that frequently fly over water or remote areas, the European aircraft manufacturer will install a second, redundant black box near the rear of the fuselage, with a mechanical ejection system.



If the plane crashes into the ocean, the recorder will pop out to safety, floating and pinging away with an emergency locator transmitter, to help rescue teams find it and its valuable testimony about what went wrong.

The ejection function is just one feature of Airbus' new black boxes (which are actually fluorescent orange), which are smaller and more capable than the current generation, able to record 25 hours of cockpit voice and data, up from the current two hours.

The recorder will only eject in the event of “major structural deformation” or submersion in six feet of water, which should reassure airlines that it won’t accidentally deploy in heavy turbulence or on hard landings. And the spring loaded mechanical system will be more palatable than earlier proposals for an explosive ejection system.

sickness.

DARPA Invests \$65 Million In Developing Gene Editing Technologies

DARPA’s new [Safe Genes program](#) is set to invest US\$65 million over four years in seven teams that will investigate ways to make gene editing technologies safer, more targeted and potentially even reversible.



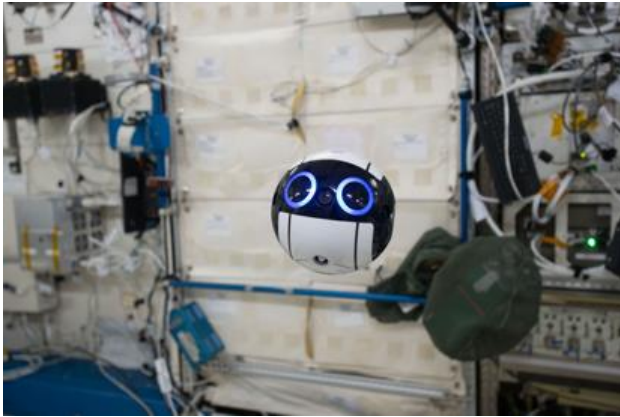
The program has three main technical objectives: to develop processes that allow greater control of genome editing in living systems, to develop counter-measures that protect genome integrity in populations, and to investigate a way to remove engineered genes from living systems.

As a department primarily associated with national security it is easy to understand where DARPA is coming from with this program. It's hoped the research will develop ways that could provide protection from biological technologies that are unleashed with no regard for consequences. The DARPA announcement does point out that the program is related to both intentional and accidental misuse of gene editing technologies.

Much of the research will look at ways to inhibit gene drive systems. Gene drives are gene-editing techniques that promote the inheritance of a specific genetic modification through a population. It's often discussed in relation to [genetically modifying mosquitoes](#), to either limit their populations or their ability to transmit diseases.

Cute Japanese Drone Floats Around the International Space Station

[Japan's space agency](#) has for the first time released photos and videos taken on the International Space Station by its resident robot drone, which can be remote-controlled from Earth.



The Japan Aerospace Exploration Agency (JAXA) says footage taken by the [Internal Ball Camera \(or Int-Ball\)](#) can be checked in real time by flight controllers and researchers on the ground and then fed back to the on-board crew.

The Int-Ball was manufactured entirely by 3D printing, and it uses existing drone technology. It's essentially a floating ball with luminous blue eyes that looks like something straight from Pixar. The drone can be controlled from Earth by the JAXA Tsukuba Space Center.

JAXA says the robot drone can move anywhere at any time through autonomous flight and can record images from any angle. The Int-Ball weighs 1kg (2.2lbs), has a diameter of 15cm, and has 12 propellers.

First Rehab Centre For Teenage Hackers Opens In UK

Teenagers caught carrying out hacking and cyber-attacks could [soon be attending a rehab camp](#) in the UK that aims to divert them away from a life of crime.

Has Your Roomba Robot Vacuum Become A Domestic Spy?

The Roomba is generally regarded as a cute little robot friend that no one [but dogs](#) would consider to be a potential menace. But for the last couple of years, the robovac has been [quietly mapping homes](#) to maximize efficiency. Now, the device's makers plan to sell that data to smart home device manufacturers, turning the friendly robot into a creeping, creepy little spy



While it may seem like the information that a Roomba could gather is minimal, there's a lot to be gleaned from the maps it's constantly updating. It knows the floor plan of your home, the basic shape of everything on your floor, what areas require the most maintenance, and how often you require cleaning cycles, along with many other data points.

If a company like Amazon, for example, wanted to improve its Echo smart speaker, the Roomba's mapping info could certainly be of help. Spatial mapping could improve audio performance by taking advantage of the room's acoustics.

Do you have a large room that's practically empty? Targeted furniture ads might be quite effective. The laser and camera sensors would paint a nice portrait for lighting needs that would factor into smart lights that adjust in real time. Smart AC units could better control airflow. And additional sensors added in the future would gather even more data from this live-in double agent.

The first weekend camp for offenders was held in Bristol this month as part of the National Crime Agency's (NCA) work with young computer criminals.



Attendees learned about responsible use of cyber-skills and got advice about careers in computer security.

If the trial proves successful, it will be rolled out across the UK.

The people picked to attend the residential weekend were known to police because they had been caught carrying out one or more computer crimes, said Ethan Thomas, an operations officer in the NCA's Prevent team, which engages with young cyber-offenders.

New Ceramic Material May Enable Hypersonic Flight

A team of scientists from Britain and China have developed [a new ceramic material](#) that could one day make [hypersonic air travel](#) a reality. The ceramic carbide coating can withstand the high temperatures of flying at over five times the speed of sound without the degradation experienced by similar materials.



Engineering isn't simply a matter of coming up with a good idea and slapping the bits together before flipping the "on" switch. In many cases, it's a long, frustrating search to find the materials needed to build the device. Look, for example, at a smartphone with all its compact intricacy and try to imagine making one without any of the sophisticated plastics used in its design. If you could build one at all, it would be the size of a suitcase and scarcely portable.

The same is true in aerospace engineering. The idea of hypersonic flight has been around for a long time, but building an aircraft or missile that could make velocities of at or above Mach 5 (3,800 mph, 6,125 km/h) – think two hours from New York to London – requires materials that are still in the experimental stage. This is because the impact of the air at such speeds generates temperatures of as high as 3,000° C (5,400° F).

Even if this doesn't melt or warp wing edges, nose tips, turbine blades and other components, it will certainly cause them to degrade in short order due to oxidation and ablation. This causes the surface layers of metals to evaporate in part,

making them weaker and more prone to scouring and pitting.

The team from the University of Manchester and Central South University in China is working on a new class of ultra-high temperature ceramics (UHTCs) that are less susceptible to oxidation and ablation, giving them more resilience and longer life. The key is a new carbide coating that the scientists claim is 12 times better than current UHTCs, like zirconium carbide (ZrC).