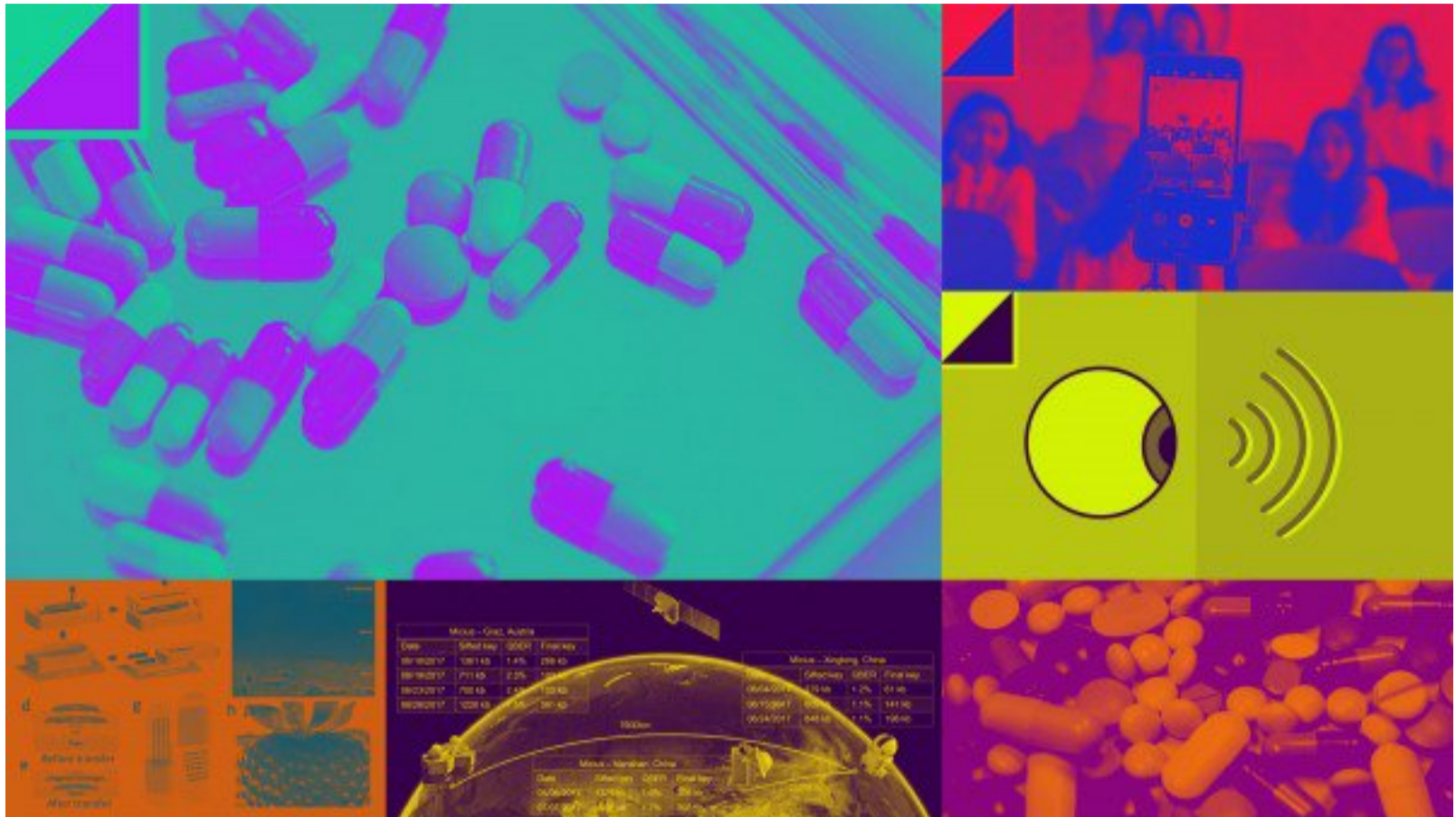


MIT Technology Review



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Business Impact

The 10 most intriguing inventions of 2018

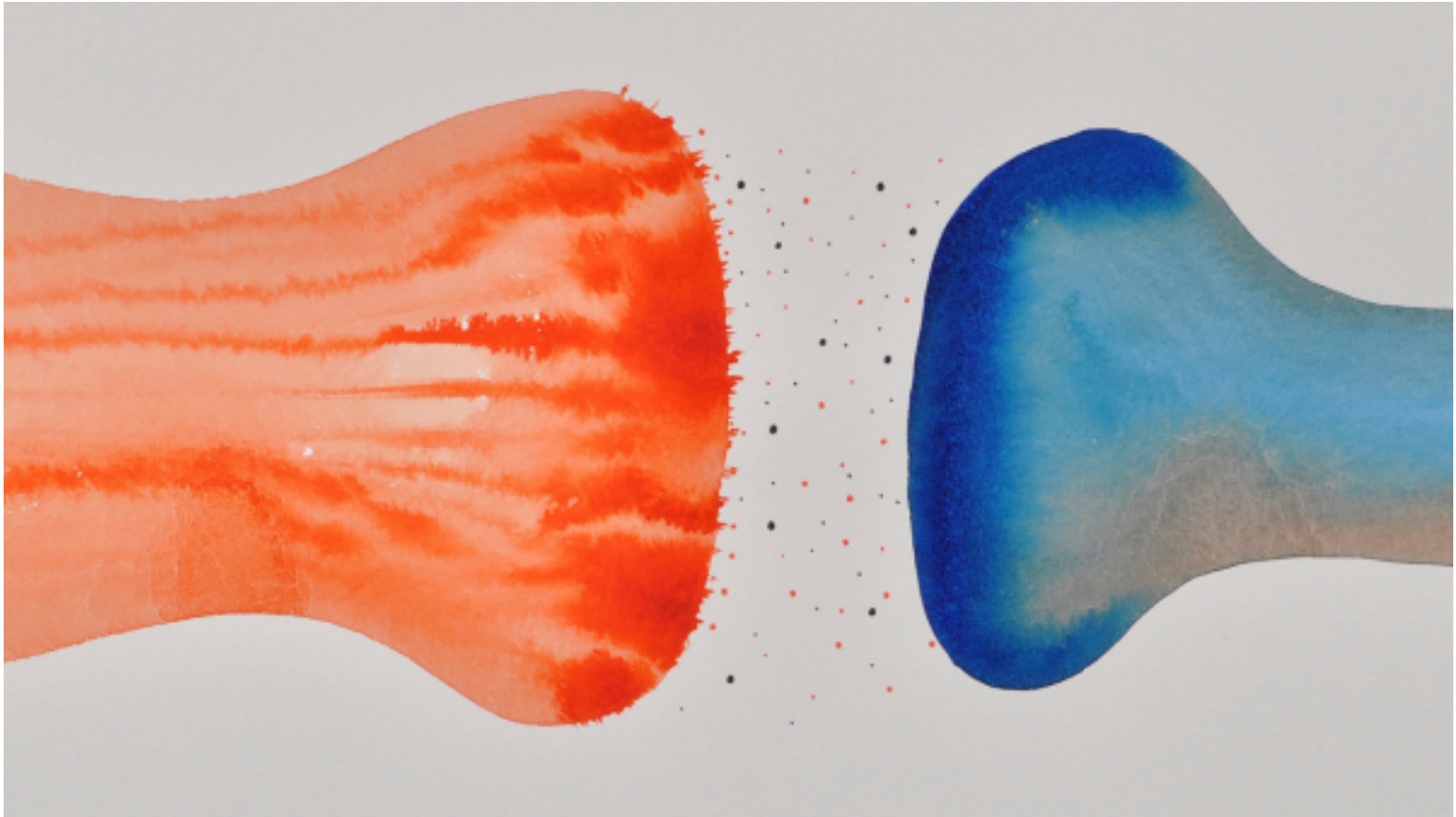
From programmable pills to power-generating boots, here are some of the most unusual technological innovations we covered this year.

by TR Staff December 28, 2018

We are all about emerging technologies here at Tech Review—including those that might never make it past the “emerging” stage. Here are some of the more recondite inventions we have covered this year, many of them plucked from the arXiv, the pre-publication academic paper database.

Advertisement

Artificial synapses



An **electronic synapse** that fires millions of times faster than the ones in your brain could be used to build artificial neural networks.

Anti-aging medicines



A clinical trial of drugs called **mTOR inhibitors** found that they boosted elderly people's immune systems, potentially extending their life spans. Another trial in progress is testing **senolytics**, drugs that eliminate the senescent cells that make aging bodies break down.

Electric planes with no moving parts

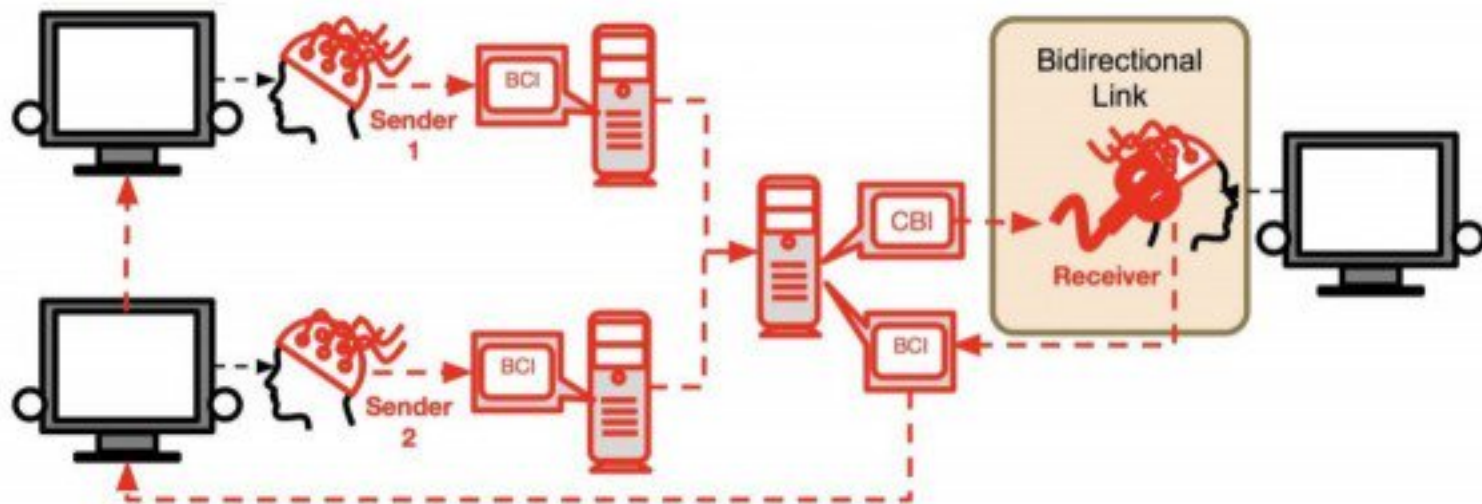
Instead of propellers, this aircraft uses **electroaerodynamic propulsion**. A high-voltage electric field generates ions and accelerates them, creating an "ionic wind" that pushes the plane forward.

DNA computing for programmable pills



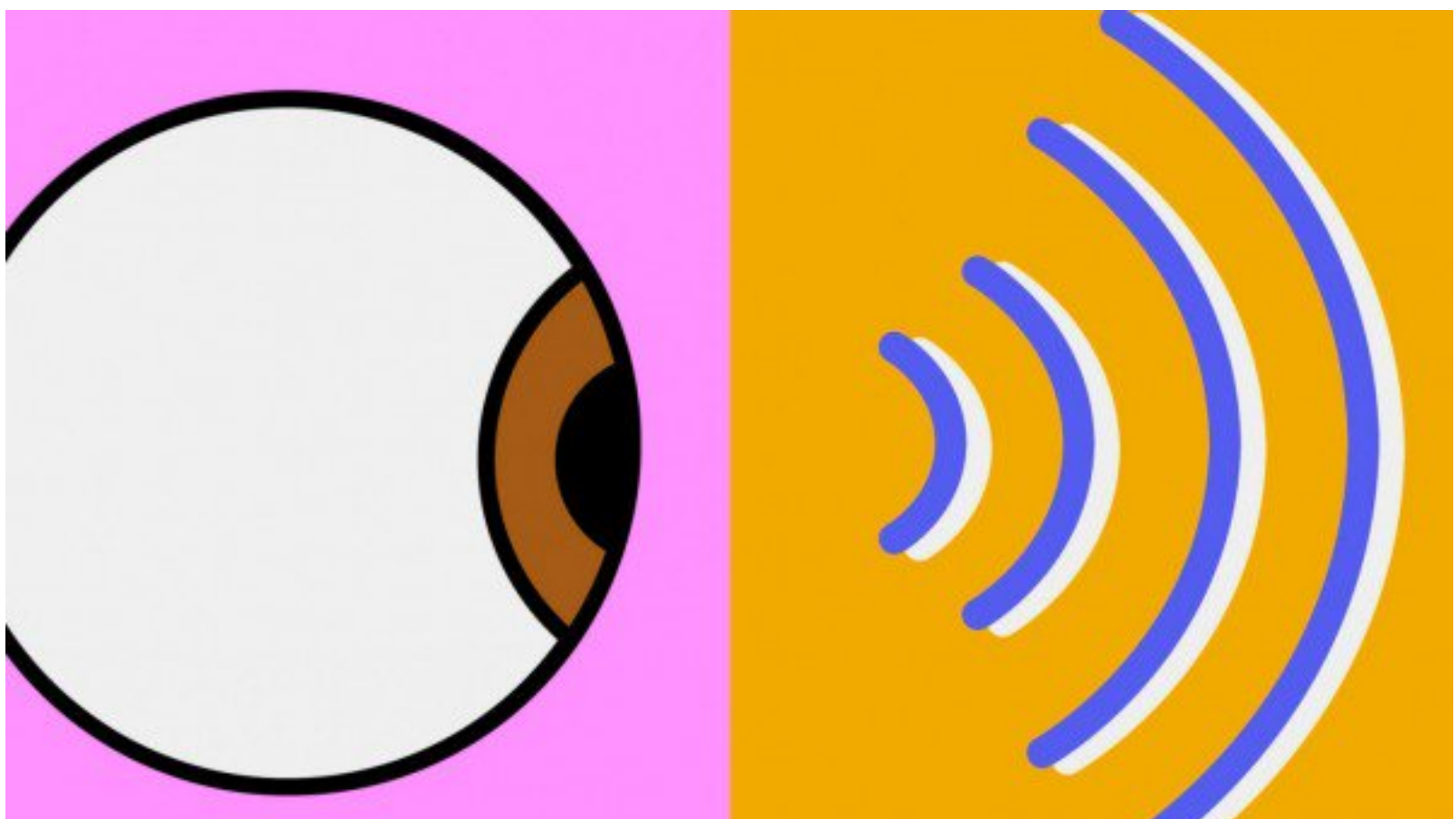
A new kind of **DNA circuitry** can decode the complex chemical pulses cells use to signal that, for example, they're damaged or under attack. Building it into pills could allow them to release their pharmaceutical payload only when they detect the right signal, allowing them to target infections.

Group brain-to-brain communication



A team that built a brain-to-brain communication device in 2015 has now expanded it to three people, paving the way for larger groups to **transmit thoughts directly** to one another.

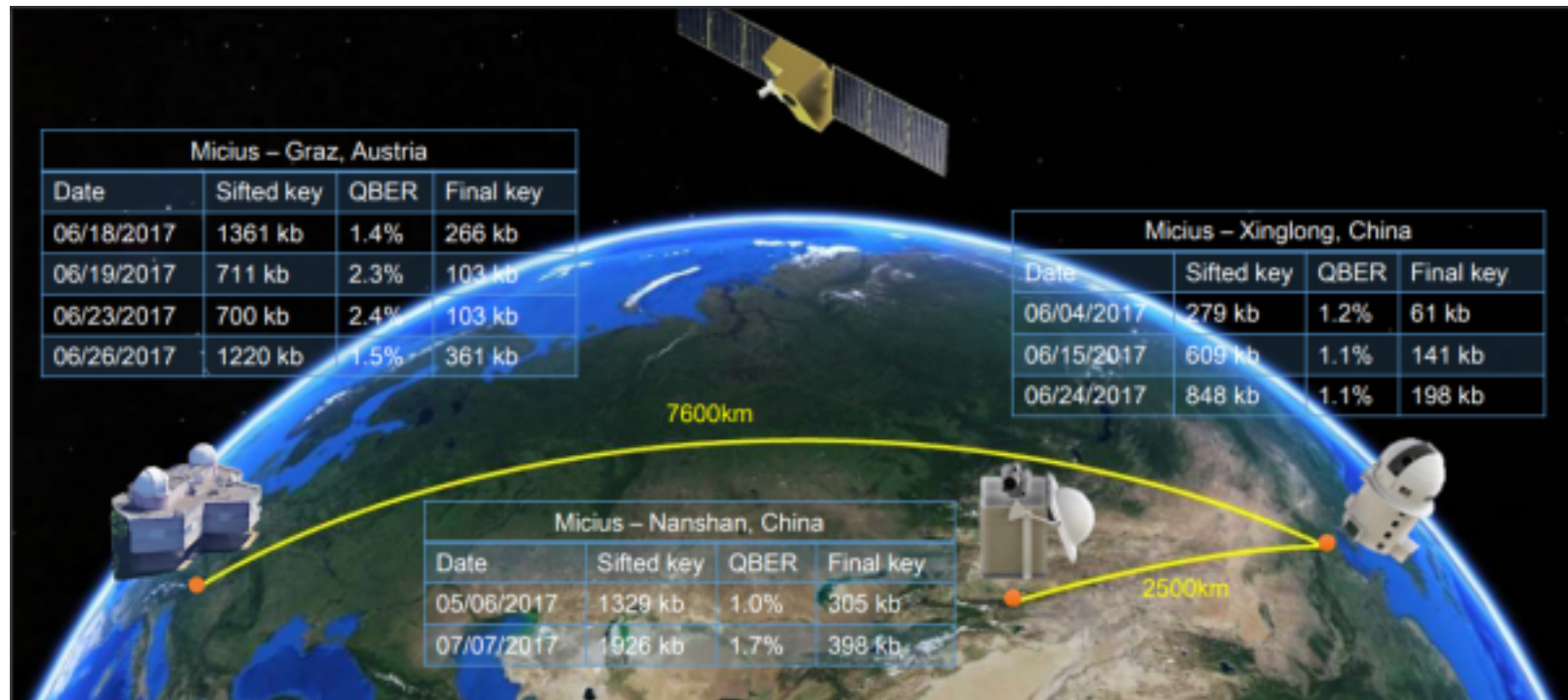
Seeing through walls using Wi-Fi



An ordinary smartphone can be used to track people on the other side of a solid

wall by detecting how their **movements distort the signals** from any Wi-Fi transmitters in the area.

Secure quantum communications via satellite



Unbreakable **quantum cryptography** was used to encrypt a videoconference between China and Austria. It's one of the ways in which China is **leading a global race** to develop quantum communication techniques.

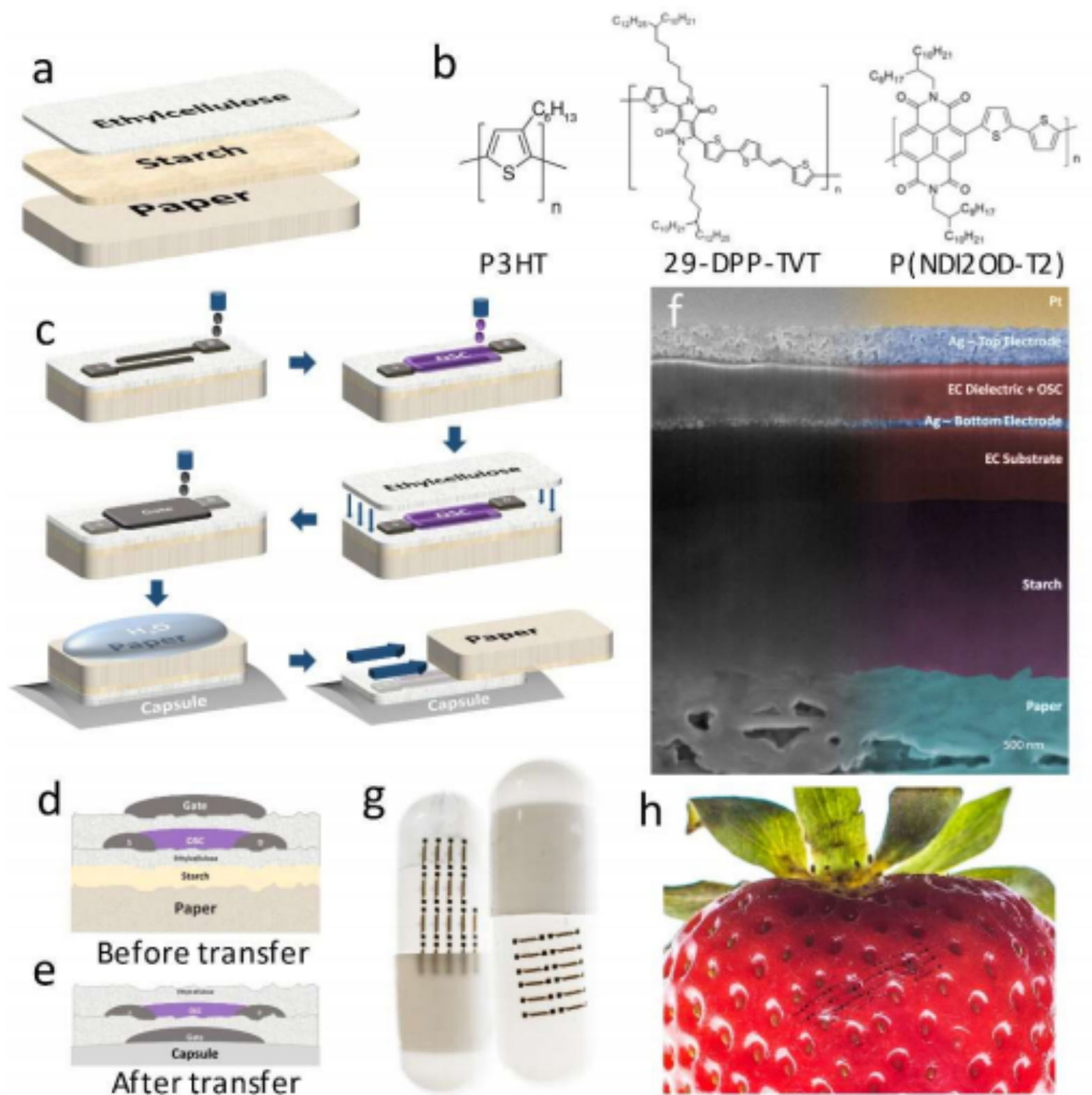
Phones that shoot a million frames per second



A nifty way to process data from a phone's camera extracts multiple frames from

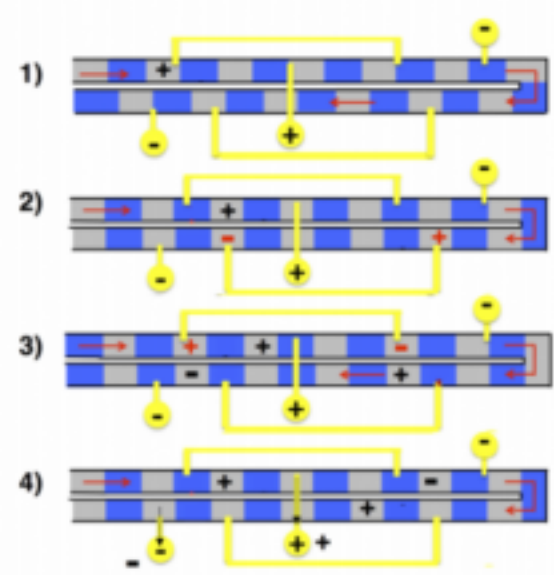
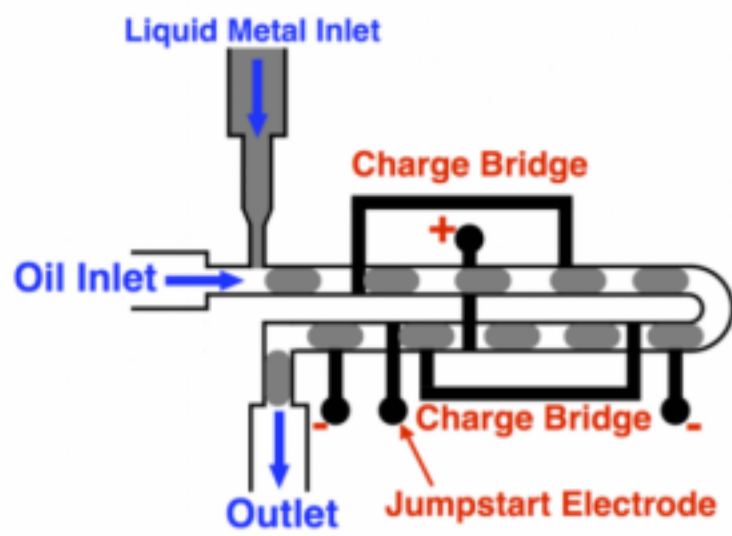
a single exposure, and ups the effective frame rate to **as fast as 1 megahertz**—albeit only in black and white.

Edible electronics



Disposable electronic circuits printed on soluble transfer paper—like temporary tattoos—might one day be **added to food or drugs** to help track their effects on your health.

Electricity-generating boots



Each step in these boots **squeezes streams of mercury** back and forth through a device embedded in the heel and generates an electrical current, perhaps enough to power small communication devices.