Best of Last Week: Weird laws of nature, quantum logic gates and brain-inspired computing

May 4 2020, by Bob Yirka



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It was a good week for physics as a team at the University of New South Wales found hints that one of the cosmological constants is not so constant after all—suggesting that <u>the laws of nature are "downright</u> <u>weird," and not as constant as previously thought</u>. Also, a team of U.S. Army researchers working with a team at MIT reported on <u>a possible</u> <u>path to quantum computing at room temperature</u>—and demonstrated the feasibility of quantum logic gates made using photonic circuits and optical crystals.

In technology news, Apple Inc. filed <u>a patent for an artificial intelligence</u> system that would enable future motorists to enjoy windows that continuously change characteristics as they drive. The patent included details describing how the system would control reflection, light and heat conduction. Also, a combined team with members from the Air Force Research Laboratory Information Directorate and the University of Massachusetts unveiled <u>a 3-D memristor-based circuit for brain-inspired</u> <u>computing</u>. They say it can map and implement complex machine learning algorithms such as convolutional neural networks. And a team at the Cockrell School of Engineering at the University of Texas at Austin claimed that <u>next-generation batteries are ready to take a major step</u> toward commercial viability. Also, a team at Carnegie Mellon University announced that they had <u>developed a device that simulates the feel of</u> walls and solid objects for users in a virtual reality world.

In other news, a team of researchers in Canada announced that they had cracked the COVID-19 genome signature—a milestone that will allow other researchers to quickly and easily classify a deadly virus like COVID-19 in just minutes. Also, a team at Paris University hospital trust found that the arthritis drug tocilizumab showed "significant" promise as a treatment for patients with severe COVID-19 infections. And two groups of researchers studying data from Hubble found that it had captured the breakup of comet ATLAS—dashing the hopes of those who had been expecting a dramatic show from the comet.

And finally, if you are like millions of others around the world looking

for a way to minimize the severity of a COVID-19 infection should the virus make its way into your body, you might want to check out the results of a team at USC—they found that the timing of an immune response to COVID-19 may contribute to disease severity—which suggests you may want to get tested as soon as possible if you suspect you might be infected.

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