The future is here: Augmented reality apps to use on your iPhone or iPad

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With the release of an updated mobile operating system earlier this month, Apple's new augmented reality platform is ready for take-off.

The first generation of AR apps is available in Apple's App Store, allowing millions of iPhone and iPad users to view three-dimensional computer-generated graphics on top of a user's real-world view.

With iOS 11, anyone with an iPhone 6 or more current device or an iPad Pro first generation can play around with augmented reality. Apple's new platform ARKit, combined with machine learning, can provide useful, real-time information without looking out of place, and its tracking technology can create graphics that stay in place even as the user moves around the room.

AR on smartphones and tablets may revolutionize mobile computing with Apple at the driver's seat, according to market analysts. Google introduced its own AR development platform called ARCore after Apple announced ARKit would bring similar apps to the Android marketplace.

"This is the start of a great platform," said Gartner analyst Brian Blau. "I think there's a lot to ARKit that app developers are going to use which will impact entertainment, social media, and enterprise. It's going to help people learn as well."

Most ARKit apps work smoothly. The experience is even better on an iPad, thanks to its larger screen, which makes it easier to zoom in or

move the three-dimensional model.

Here's a look at some of the best ways to experiment with augmented reality on your iPhone or iPad.

- Check the fit for new furniture: Of the many ways to use AR, one of the most popular types is to measure furniture models inside a living room or a bedroom.

Furniture stores from Ikea and Wayfair launched their own AR apps, and the online interior and exterior design company Houzz updated its own AR feature to fit with ARKit. The car research company Edmunds built an AR app to check if a car can fit inside a garage.

The apps all work similarly. First, the user measures the room with the camera. With the app now familiar with its surroundings, it allows the user to overlay models anywhere on the floor to better see how they will fit.

The technology can work outdoors as well. Using these furniture-based AR apps, people have published videos of furniture models overlaid in the middle of a street or a New York subway platform.

"We are taking the next step in our evolution," said Michael Vaalsgard, who led Ikea's development of its AR app, Place, in an interview. "We get people who postpone buying new furniture because they don't feel confident in how it fits. AR that is so easy and accessible is going to change how you shop."

Some apps, like Ikea Place, required 70 engineers working around the clock to refine the technology. But others, like Housecraft, were an indie project with a more lighthearted spin. Unlike in other apps, Housecraft uses generic, common furniture models which can be tossed around

without rhyme or reason.

If you ever wanted to build a mountain of chairs in your kitchen, Housecraft allows you to do that. Oh, and you can summon a tornado to wash away the chairs at the end.

- Measure any object with pinpoint accuracy: Beyond just checking furniture dimensions, ARKit can work as your virtual measuring tape, too.

One app called MeasureKit can measure any object of your choosing. After the user picks a starting point with a screen tap, a straight line will measure the length until a second tap marks the end.

Beyond measuring lengths of objects, MeasureKit can also calculate trajectory distances of moving objects, angle degrees, the square footage of a three-dimensional cube and a person's height.

- Relive your mountain bike ride: While some ARKit apps were built with utility in mind, one indie app wanted to re-create old memories in the great outdoors.

Fitness AR visualizes past bicycle rides, hikes and walks collected on the fitness tracking app Strava in a three-dimensional topographical map. So if you go on a mountain bicycle ride on the Marin Headlands, Fitness AR will animate a slice of the regional park on top of your coffee table while highlighting your ride.

For those who do not have Strava, Fitness AR has maps of some of the most famous routes in the world, including Lake Tahoe and Yosemite National Park.

Co-founder Eric Florenzano described Fitness AR as a "walk down

memory lane" for any outdoor enthusiasts who want to relive their adventures.

The idea came about after co-founder Adam Debreczeni mapped his own bicycle ride in the Marin Headlands days after ARKit was made public back in June. The video with the three-dimensional map went viral and sparked the genesis of Fitness AR.

Learn about the stars and the body: ARKit has huge educational potential, and already developers have built apps to capitalize on that.

Through ARKit, the iPhone and iPad can become portals to examine celestial constellations or the human body, thanks to Night Sky and Complete Anatomy '18 apps, respectively.

Both apps work similarly in concept. Night Sky can either identify constellations when the user points their device to the night sky or overlay the entire celestial body inside a room.

Complete Anatomy '18 allows body part models - like a human leg - to be placed on top of a table for further examination. Information boxes accompany the body part model to add context to the visual.

- Play games - and wreck existing ones: Since "Pokemon Go" came out of nowhere last summer to seize the mobile gaming world, augmented reality has been considered the next frontier for gaming.

The range of ARKit games available is already impressive and it goes beyond walking around outdoors catching fictional monsters. From puzzle games like Stack AR to sci-fi war games like "Warhammer 40000: Freeblade," users now have a wide swath of games they can play.

As an interesting twist, there is an app which seeks to undo a

longstanding, popular game: "sudoku." "Magic Sudoku" costs 99 cents and can instantly solve any unfilled "sudoku" puzzle on a newspaper or magazine once the camera is pointed at the puzzle.

"Too many AR apps don't have a compelling reason to use the technology," wrote "Magic Sudoku" co-founder Brad Dwyer in a blog post. "My idea was to combine computer vision with augmented reality to create a simple, streamlined UI that wouldn't be possible without it ... By using computer vision plus augmented reality we transform the world rather than "adding" to it as so many current-generation AR apps do."

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