

# Augmented reality combines worlds to make the real world safer

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by David Mascareñas

Remember Pokémon Go, that location-based game that took off a couple summers ago? The one that was praised for promoting physical activity but condemned by some governments as a security threat? Approximately 800 million people have downloaded the app, which uses a phone's GPS ability to locate, capture, battle, and train animated creatures (Pokémon) that appear on the screen as if they occupied the same real-world location as the user.

Pokémon Go is widely credited with popularizing augmented reality technology, which enhances reality when a device such as a phone or a headset overlays digital information (in the form of holograms) onto the real world. Augmented reality is different from virtual reality and different from everyday reality. In virtual reality, a person is completely immersed in a computer-generated world. In everyday reality, a person is completely in the real world. Augmented reality blends computer-generated images into the real world.

Although the Pokémon Go craze is waning, the popularity and more serious applications of augmented reality continue to spread. Los Alamos National Laboratory is investigating the technology's applications and writing software in support of the Laboratory's national security mission, such as tracking inventories or giving workers instructions for using equipment on the job and in real time. Other new uses of augmented reality technology being developed at Los Alamos may save time, money, and even lives by improving procedures for structural-health monitoring.

Structural-health monitoring determines the physical integrity of structures such as bridges, buildings, and dams. Current techniques are largely visual. Inspectors look for cracks or corrosion and measure their extent. The inspectors record those observations, compare them to previous years' observations, and then deem the structures safe (or not).

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