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A team of researchers at CSAIL (the MIT Computer Science and Artificial Intelligent Laboratory) develops Chronos-- a means to accurately locate users within "tens of centimetres" through the power of wifi signals.



While similar systems already exist, these need multiple access points for wifi triangulation, and in any case tend to not play nice with big objects in the environment. On the other hand Chronos needs only one AP and uses an algorithm to eliminate errors caused by obstacles.

Chronos locates users by calculating "time-of-flight"-- the time data requires to travel from a user to an access point. According to MIT the system is x20 more accurate than existing systems, with calculations (done by multiplying time-of-flight by the speed of light) having an average time-of-flight error of 0.47 nanoseconds.

The result, the researchers say, is a system able to accurately locate 4 occupants in a 2-bedroom apartment 94% of the time. The system was even more accurate in a cafe, where it was 97% accurate at telling between in-store customers from out-of-store intruders.

MIT suggests Chronos can be used by business owners or locations wanting to automatically provide legitimate customers with wifi access without need for credentials. It can also find use in smart homes (to locate people in the house and adjust cooling or heating accordingly) also can even be installed on drones as a means for the avoidance of human obstacles.

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