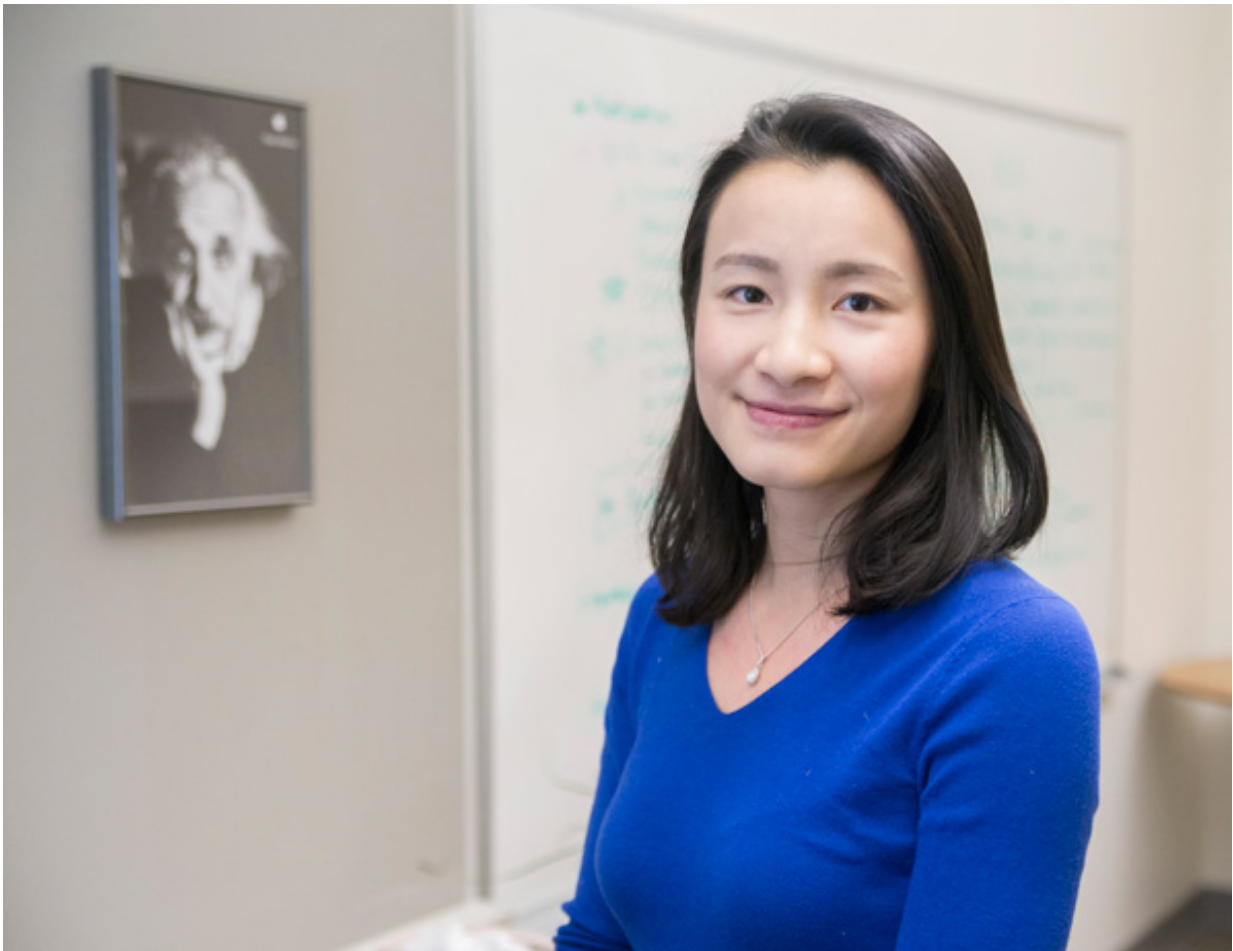


Team uses smart light to track human behavior

June 15 2016



Xia Zhou, an assistant professor of computer science at Dartmouth College, and her colleagues have significantly improved their innovative light-sensing system that tracks a person's behavior continuously and unobtrusively in real time.

Credit: Dartmouth College

Using the power of the light around us, Dartmouth College researchers have significantly improved their innovative light-sensing system that tracks a person's behavior continuously and unobtrusively in real time.

The new [StarLight](#) system has a wide range of practical applications, including virtual reality without on-body controllers and non-invasive real-time health monitoring. The new system advances the researchers' prior [LiSense](#) design by dramatically reducing the number of intrusive sensors, overcoming furniture blockage and supporting user mobility.

The results will be presented June 27 at the [ACM MobiSys 2016](#), the 14th ACM International Conference on Mobile Systems, Applications, and Services.

The researchers studied the use of purely ubiquitous [light](#) around us to track users' behavior, without any cameras, on-body devices or electromagnetic interference. They were able to reconstruct a user 3D skeleton by leveraging the light emitted from LED panels on the ceiling and only 20 [light sensors](#) on the floor. The system can track the user's skeleton as he or she moves around in a room with furniture and other objects.

"We're turning light into a ubiquitous sensing medium that tracks what we do and senses how we behave," says senior author Xia Zhou, an assistant professor of computer science and co-director of the DartNets (Dartmouth Networking and Ubiquitous Systems) Lab. "Our new work demonstrates a new unobtrusive sensing paradigm exploiting the light around us. It addresses several key practical issues of light-based sensing, including the furniture blockage, reliance on a large number of light sensors and user mobility. It pushes the vision of light sensing closer to practice.

"Light is everywhere and we're making it very smart," Zhou says.

"Imagine a future where light knows and responds to what we do. We can naturally interact with surrounding smart objects, such as drones and smart appliances and play games, using purely the light around us. It can also enable a new, passive health and behavioral monitoring paradigm to foster healthy lifestyles or identify early symptoms of certain diseases. The possibilities are unlimited."

Provided by Dartmouth College

Citation: Team uses smart light to track human behavior (2016, June 15) retrieved 5 May 2024 from <https://phys.org/news/2016-06-team-smart-track-human-behavior.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.