



The system's job isn't finished, however, once the parameters are set and the scheduling is done; it still needs to work on its communication skills. Communication is a two-way street. Not only does Yeoh want to develop [smart home systems](#) that a user can tell what to do, he also thinks that the system should be able to explain itself to the user.

Provided by Washington University in St. Louis

"The system needs to be able to explain to the user 'why,'" Yeoh said. "The field has been working on getting good answers from AI. Now it's time to get good explanations."

Say a homeowner rarely goes in the basement, but heads down one night to get something out of storage. All of a sudden, the lights go out. Without being able to ask the system why, the user may be wondering, "Is there a power outage? Is someone here? Is my house out to get me?"

If the system could simply be asked what happened however, the homeowner would realize that in an attempt to save energy, the system has been turning off the lights in the basement each day after a certain time, because (via sensors, perhaps) it knows that the user rarely goes downstairs in the evening.

Yeoh's project is developing the tools to give users the ability to ask those questions, vocally or by turning to a visual interface designed to give users access to a host of information, from details about specific devices to a broader view of energy consumption.

Having access to that information will allow the user to more narrowly tailor settings, working with the system instead of simply having to accept its settings. After all, there are lots of variables for a smart-home AI system to take into account if it's monitoring the temperature, locking the doors, charging a vehicle, preheating the oven, and monitoring a security system—all while trying to conserve [energy usage](#).

"Energy prices, weather, the status of the devices," Yeoh said of all the changing conditions that AI will need to monitor. "And humans, the most fickle variable of all."

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