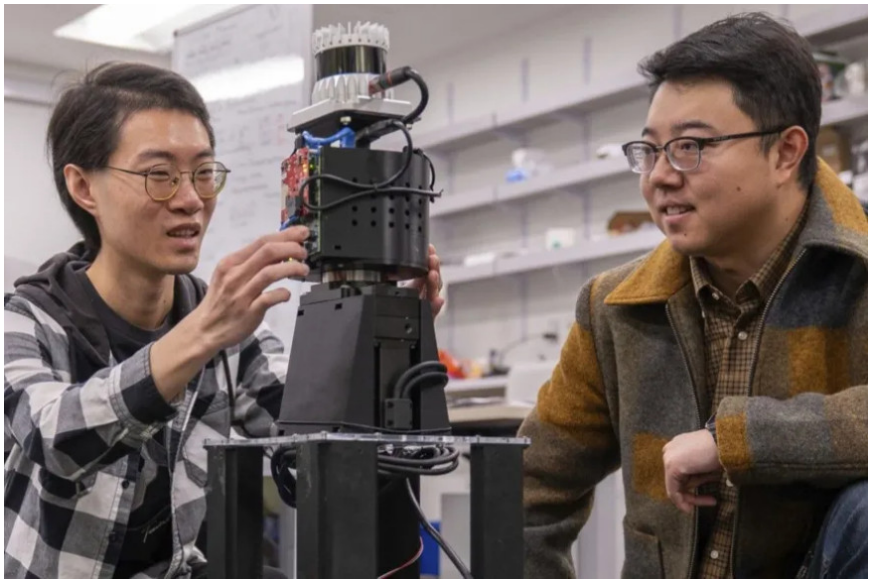
Scientists work on 'superhuman' vision systems for robots



If you want to find out whether your robot can see through smoke, well, you're going to need some smoke. But a University of Pennsylvania student got a shock when they began setting up a late night experiment to test such a robot

Scientists work on 'superhuman' vision systems for robots,,Sylvia Zhang Prof Mingmin Zhao and a student look at the robotSylvia ZhangProf Mingmin Zhao (right) has been working on a radio vision system for robotsIf you want to find out whether your robot can see through smoke, well, you're going to need some smoke.

But a University of Pennsylvania student got a shock when they began setting up a late night experiment to test such a robot.Shortly after flicking the switch on the smoke machine, a loud fire alarm went off.The whole building got triggered," says Mingmin Zhao of the University of Pennsylvania, smiling. "My student called me. He was very surprised."The incident was a minor setback for the team developing a robot equipped with a innovative radio-based sensing system.

Radio waves could allow robots or autonomous vehicles to see through thick smoke, intense rain – or even around corners. Such waves can even detect concealed weapons.But simulating visual imagery based on radio waves is an unusual approach for robots and autonomous vehicles. Much more established in those fields are regular optical cameras, light detection and ranging (Lidar), and other sensors.However, Prof Zhao and his students have developed a potentially powerful way for robots to see using radio waves.Of course radar, which uses radio waves, has been used for decades to track aircraft, ships and the weather