FEMALE_1: New research at the UC Davis Center for Mind and Brain is taking a leap forward in understanding how the brain navigates us through the world.

Jack Lin: We don't have a good model for recording directly from the area of hip campus as people move and try to navigate. That's where this device is filling the gap. We can try to stream the data out of the brain in real life, as they engage in cognitive tasks.

FEMALE_1: Professor Jack Lin is the study's principal investigator. He works with patients like Travis Rouse. Rouse has epilepsy, and an RNS system implanted in his brain senses when a seizure is coming and sends electrical signals to interrupt it.

Jack Lin: This is the patient's brain MRI, and you can see that he has an electrode directly going into his laptop campus. This is the area of the brain that is critical for navigation and understanding location and space.

Travis Rouse: Those were right after I got the RNS device installed. Then that was when I finally took the bandages off. I got the RNS device implanted about 2023. It is a device that both tracks my brain activity and also sends a small zap of electricity to spots in my brain where the leads run to.

FEMALE_1: The research team designed a navigation activity at the center to collect detailed data on brain activity from Rouse's R&S system.

Travis Rouse: I walked around a little hallway, and he had fruits on one side and tools on the other. Had me look at them, took the pictures down. I would look at the laptop, and then he would have me walk to the spot that I thought the fruit or tool was at.

Jack Lin: A lot of neurodegenerative diseases such as Alzheimer's disease or any brain dysfunction, one of the first thing we lose is that people get lost. In the future, if we know that there are certain aspect of the brain that specific codes for location or decision making, then we can treat these with neuro stimulation. NIH is really critical in funding us the NIH support. We're not going to be able to deliver the next generation of therapy that we want to