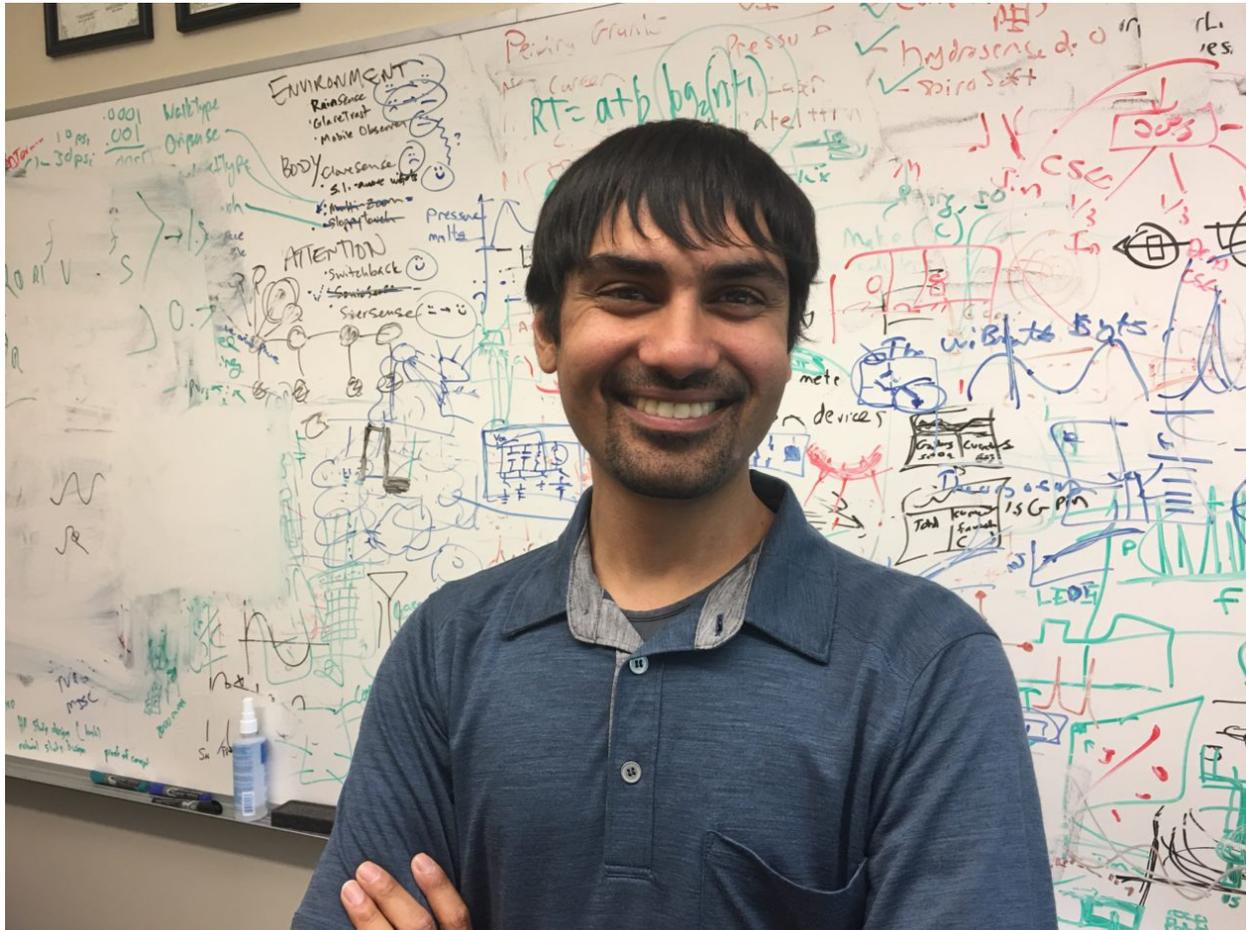


The art of 'naive innovation': Tips from a tech genius on creative problem-solving

BY CLARE MCGRANE on June 25, 2017



Shwetak Patel is a certified genius. The University of Washington computer science and electrical engineering professor won a 2011 MacArthur Fellowship, joining the ranks of the MacArthur “geniuses,” as the fellows are informally known.

And when you learn about his work, it’s clear why.

A serial entrepreneur who has sold startups to companies including Sears and Belkin, Patel has made a career out of finding ingeniously creative solutions to pressing problems. His specialty is using the sensors that exist all around us in unique ways.

For example, he figured out how to turn the electrical wiring in a house into an antenna that can help detect water leaks, and now he’s using some creative physics to turn your average smartphone into an advanced medical device.

Patel said he likes to approach problems through what he calls “naive innovation,” tackling a challenge that’s outside a person’s area of expertise. Patel and his fellow computer scientists working on health problems is a great example of this.

“If you get an expert in a particular domain working on [a problem], they’re gonna solve it how they would’ve solved it typically in their own profession,” he said. “They use their own learnings and findings in applying those concepts instead of taking a different approach.

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For example, one of the medical apps he’s working on detects osteoporosis, a condition where bones lose density and become fragile. Normally doctors would use a bone density scan to diagnose the disease, but those scans are expensive and need highly specialized equipment. Patel and his team wanted to design a smartphone app that people could use in their own home.

Here’s how the app works: a person holds a phone in their hand with the app running and taps their elbow against a hard surface. The vibrations in their arm bones are picked up by the phone’s accelerometer and translated into a density measurement, telling the person if they’ve lost density in their bones.

That’s something a health expert would probably never think to do, but someone like Patel, well-versed in computer science and physics, can put the same puzzle pieces together in a creative way.

“By taking a step back and treating this as a physics problem, then we were able to look at it from a different angle,” Patel said. “You might not know exactly how this works. You’re not an expert in it, but just try it out. Let’s see what happens if you give it a stab.”