Invention IDs Computer Users By Typing Patterns

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Thirteen years ago Dr. Marcus Brown, associate professor of computer science at The University of Alabama, and one of his now former graduate students were awarded a patent for their novel invention which identifies a person by how they type their name.

The graduate student, Joey Rogers, built his master's thesis around the invention, and Brown got the satisfaction and excitement that go along with being the first person to discover something. The pair had, however, gotten little else.

"This patent had earned me two free lunches," Brown quipped recently while sitting in his Houser Hall office within UA's College of Engineering. "And it probably helped me with tenure."

The payoff just got a bit more tangible.

Brown and Rogers each recently received checks for approximately $15,700, as their share of the proceeds from the sale of the patent. "The idea that it was something that would pay us was very much unexpected," Brown said.

Dr. Keith McDowell, vice president for research at UA, said one of the research office's goals is to raise such faculty expectations, enabling campus researchers to see that intellectual property (new knowledge with commercial applications) created can have multiple payoffs, including financial ones. "Through our technology transfer office (started in

October 2004 and directed by Dr. Dan Daly), we are aggressively marketing intellectual property developed by our faculty," McDowell said. "This can serve as an additional motivator to faculty and, more importantly, it enables The University of Alabama to better fulfill the 'service to society' component of its mission."

A variety of components, including Brown's childhood readings about a famous inventor, factored into developing the concept leading to the patent.

"I remembered, as a kid, reading about Thomas Edison – who among other things, was a telegraph operator – and that good telegraph operators could tell who was on the other side of the wire based on his exact patterns of dots and dashes," Brown recalled.

That early lesson in Morse code, in combination with some research Brown was exposed to while in graduate school at Texas A&M University, and others' comments about recognizing individual typists based on their keyboard's sounds, sparked the idea.

"All of these were sort of grist for the mill," Brown said.

The invention enables any typical computer workstation, using a standard keyboard, to distinguish a computer user by the way they type their name.

"If you typed my name at a computer running my invention, the computer would be able to determine that you are not me," Brown said. An obvious application for the technology is to improve information security.

"Rather than replace passwords, this technology would probably best be used to add another layer of authentication," Brown said. "It could

reduce the need for measures such as changing your password every six weeks."

Most information security is "brittle," Brown said, and companies are looking for ways to protect themselves and their clients from unauthorized access to sensitive information.

Under traditional brittle approaches, "If you get my password, there is not much else I can do," Brown said. Systems using the UA invention would have an added security layer.

Brown and Rogers trained a neural network, a type of computer program which "learns" by example, using the precise time that each key is pressed and released by its user. Measured precisely enough, each person's typing pattern is a "fingerprint" of sorts, unique to them.

Brown said he's unsure if this uniqueness is related to the exact physical structure of individuals' hands, or the way individuals break up words, mentally, when they type them, or, perhaps, some combination of the two along with other unknown factors.

Regardless, Brown said it's gratifying to see the invention have the opportunity to benefit others. "It's something brand new, and it's really an exciting thing to see new ideas open up that can make a difference in someone's life."

Source: University of Alabama