

Robot knows when you're stressed

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Machines Saint John man turns urge to scream into a robotic warning system

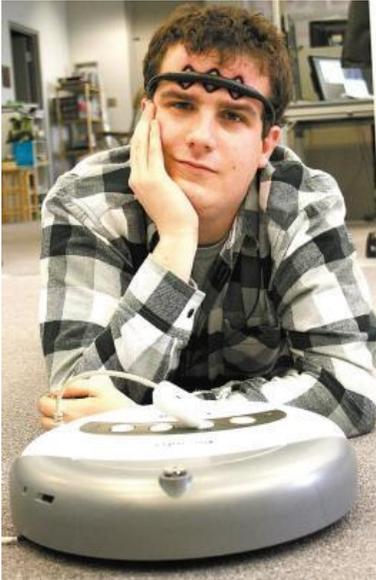
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Technology can be frustrating. Really frustrating. So wouldn't it be nice if our machines could know when they - or anything else - were stressing us out?

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Paul Saulnier thinks so, and he's turned that urge to scream into a robotic warning system.



Submitted photo

Paul Saulnier, a Saint John native doing a computer science masters at the University of Calgary. He developed a robot, using a Roomba, that can sense when people are stressed.

Using a Roomba (a robotic vacuum cleaner) and an off-the-shelf headband designed for video gamers, the Saint John native has developed a robot that can sense when its owner is stressed and react accordingly, perhaps avoiding a kick across the room.

"So, if you're relaxed and you become stressed, the vacuum cleaner starts vacuuming and moving away from you, getting out of your way," Saulnier said. "If you're stressed and you go back to being relaxed, it senses this and it returns to you."

After graduating with a computer science degree from the University of New Brunswick, Saulnier began working on the project as part of his masters program at the University of Calgary.

Using the gaming headband, he mapped the muscle tension of the user. High muscle tension is usually an indicator that a person is stressed, while relaxed muscles signal the opposite. It's this tension that the vacuum cleaner perceives.

While it may not be a commercial product right now - "I don't think any company wants to market their vacuum as being compatible with people who are likely to kick their robots," he said - they are looking at what the practical applications may be in the future.

Many current robots have keyboards and joysticks to make them perform a predetermined task.

What makes Saulnier's robots different is that they use emotions to control their behaviour. The robot can look at you, tune in to what you're thinking and doing, and act based on that instead of waiting for you to command it to do something.

It uses the current state of affairs to determine what to do.

Eventually, Saulnier said, there could be humanoid robots that walk, talk, and sense a wide range of emotions.

Say someone has an elderly relative in another city, who lives alone and maybe doesn't have many friends. A more advanced robot could monitor the person's emotions, notice if there person becomes sad or changes their behaviour, and comfort them or call their relatives to tell them what's going on.

"It's different from having a webcam and watching a person all the time, invading their privacy," he said.

"Simply having a machine watching emotions and only acting when there's something going on that shouldn't be is much less invasive and perhaps more useful."

A robot may even be able to comfort the person.

"A robot alone can't replace human-to-human contact," Saulnier said, "but it could be enough in some cases, similar to having a pet."

Still, he said, robots aren't at the level of the droids in Star Wars, where they could be put in someone's home to do work for them.

"The vacuum cleaner, all you can do with it is make it move around, you can make it vacuum," Saulnier said. "But you can't make it talk, so there are other robots we can move on to, of course. You never know what can happen with robots."