

More than meets the eye

Calgary researcher tries to make robots more approachable

November 15, 2007

CANADIAN PRESS

CALGARY

Wile E. Coyote never utters a word in his relentless pursuit of the Road Runner, but audiences around the world easily understand his frustration as his prey slips away.

A University of Calgary researcher is studying such cartoons, looking for ways to help people accept robots into their lives.

James Young, a PhD student, is working with robotic vacuum cleaners called Roombas, analyzing how giving them cartoon-like expressions changes people's reactions to the machines.

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PhD student James Young works with a robot named 'Geeves,' ...

"If you look at a comic book or a cartoon, with very few lines they can show motion, they can show anger, they can show basically almost as much as what a human can show," says Young, who presented some initial research at the second Human-Robot Interaction Conference in Washington last spring.

Young uses a hand-held computer to track a Roomba's movements in a University of Calgary lab and display a cartoonish image of the vacuum cleaner. When the Roomba gets stuck, beads of sweat pop along its brow in the image, and its eyes screw tightly up as it tries to push its way out.

While the Roomba's "emotions" appear only on a computer right now, Young says eventually such robots could have LCD screens or a series of lights that would be used to create a cartoonish expression.

Young and other robotics researchers weren't surprised by a recent study by Georgia Tech's College of Computing that found some people become deeply attached to their Roombas, naming them and even treating them like members of the family. More than two million of the gadgets have been sold since they were introduced in 2002, he says.

"We can take advantage of this anthropomorphic nature of the relationship that kind of builds between a person and their vacuum cleaner," Young says. "Which is kind of bizarre, but it's there and that's kind of where we're coming from with this research."

Julie Carpenter, who is studying human attachment to robots as part of her educational psychology PhD at the University of Washington, says the field is changing "at an unprecedented pace."

"There are already humanoid robots working as receptionists, wait staff, medical help (in-home and institutional), elder care and space exploration," she said in an e-mail interview.

To fit into society, robots need to pick up on the language, body positions and tones that make up so much of communication between humans. A start is to make them resemble humans on some level, "having a face and eyes, social behaviours and communication," Carpenter says.

Young hopes his cartoons can help robots appeal to humans without spooking us out. While we get Wile E. Coyote's basic emotions, it's still easy to giggle when that anvil drops on his head.

"With cartoon artwork, we can increase the complexity of the robot or make it communicate using language that we understand without making it similar to humans," he says.

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