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Visiting professor at BSU talks ethics of robots

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By: [Anne Williams](#), Bemidji Pioneer

To those unfamiliar with artificial intelligence, the video footage shown in class Wednesday appeared a little creepy.

A series of recorded images of robots taken from the various sources on the Internet were displayed in a philosophy class at Bemidji State University Wednesday. One image showed a robot with four legs and a horse-like body, trotting across rough terrain. A different image showed a robot standing on stage playing the violin. Another image was a Tyrannosaurus Rex robot walking and roaring as it swayed its head.

For weeks students in Scott Borchers' class at BSU have been studying the subject of human nature. So when Friday's guest speaker came in to talk about robots, some felt a little out of their comfort zone.

Keith Miller, a professor at the University of Illinois Springfield, has traveled around the United States and the world to learn more about the latest developments in artificial intelligence. What he has learned has him both excited and nervous at the same time.

Miller is a mathematician and computer programmer. He is the editor of IEEE Technology & Society magazine. He is also a Schewe professor, which means he receives funding for his research.

Miller spoke at two classes at BSU Friday and made a presentation to the public later that evening. His message was not only to get people excited about robots, it was also to tell people to think about the potential consequences robots could bring to society.

"Technology is developing at an extremely rapid rate," Miller told a class of BSU students. "We're not thinking enough about what that means for us humans."

At BSU, Miller asked students more questions than gave statements. This is purposely done, he later said, because he wants to keep people questioning robots.

"This is coming at us in a big hurry," he said in an interview. "And we have to think about it."

During an interview, Miller talked about his concern with unmanned vehicles used by the United State military. He said the military originally built unmanned aerial drones for spying, but has since redesigned them for killing terrorists.

"Tanks, submarines, they are all drones, remotely controlled or given a cruise missile and given a path. They are killing robots," he said. "In the U.S., there was never a public debate about it."

Miller said he feels it is a shame people do not pre-judge what robots are used for.

"We never publicly debated it. It just happened," he said of the unmanned military drones. "I hope when I talk about this kind of thing that people will think about it."

During his public presentation Miller talked about robots that have been built for humans to have sex with. In an earlier interview Miller said this particular topic has caused controversy among people who hear of it.

"You can go out on the web-site, and you can put in an order for one of these creepy things," he said. "Is that a good thing? Where do you see this debate? I don't see it. I think we should talk about that."

Since he began talking to audiences about the ethics of robots, Miller said he has seen a variety of reactions from people. Some people are fans of robots, while others become upset.

"Often (those that become angry) are reflecting a fear of the unknown," he said. "It is kind of scary stuff and it is kind of creepy."

Miller said he wants people to have doubts because much of robot technology is speculative.

"We don't know exactly what is going to happen," he said. "I try never to be pedantic with people. I try to reveal different insights they might not have thought of."

As a robotics guru, Miller said it was not until recent years that he owned his own robot. He has an iRobot Roomba, which has been dubbed as the most popular robot in the world. The Roomba is a small robot designed to vacuum floors without a person operating it. It detects when there are stairways, corners and objects in the way and avoids those areas on its own.

"The Roomba is a great example of a true, general-purpose robot," he said.

Recently Miller said he purchased two robots to be used for his lectures at the University of Illinois Springfield.

"It's going to be a little theatrical, but we're going to have these two robots correct me if I do overstatements and stuff like that," he said. "They are not very big, but we're going to put a camera on them and make them look big."

The design and efficiency of robots has made great strides in recent decades, but to make robots appear and act like humans is still a concept of the future, Miller said.

"It has proven more difficult than we thought," he said of the evolution of robots. "We generally underestimate how hard it is going to be to replicate things that humans find easy."

Miller said computers can easily solve a variety of complicated math problems, which humans often find difficult. On the other hand, a human can identify a family member in a room full of people, whereas a computer would find this a very difficult task.

"You walk into a restaurant and note the bread smells great," Miller said. "That is viciously difficult for a computer to do."

Miller embraces technology. He makes a living off it and enjoys it. But he admitted there are aspects of technology that make him nervous.

Electronic voting is one piece of technology Miller is wary of. As a computer software tester, Miller said he knows how easy it is to get software wrong and how difficult it is to get it right. He said he feels a cardboard box with two people watching it is more accurate than the electronic voting software.

"We were just pushing these things out into the field," he said. "It was a perfect example of where people thought technology could solve a problem and they didn't think it through."

He is also nervous about robots that are built to mimic human beings. Miller said researchers are getting better at giving androids fine motor skills.

"You can make a very sensitive hand now where you can tickle people and pick up strawberries. These hands are really good," he said.

He worries what place humans will have in the world once robots are built to do the jobs of humans, such as taking care of the elderly, teaching students and cleaning homes.

"If truly, when I go into a classroom and I look around and I can't be sure if there are androids there, that's a different experience," Miller said. "That challenges who we are. Will it be impolite to ask what species you are?"

Miller said he is also very concerned how robots will be funded in the future. He predicts large corporations will fund these machines.

"They'll be doing it for the bottom line and replacing humans," he said. "Unemployment will go through the roof. Once you have one good robot made, you could make 10,000."

Despite his concerns of the future of robots, Miller is fascinated by the technology, and said humans still have more to learn about themselves than robots.

By experimenting with increasingly sophisticated robots, Miller said, humans can learn new information about their own selves. He added that as humans learn more about the human brain, humans can use that to program more sophisticated robots.

"The hard part is not what the robots are," he said to BSU students. "But right now our biggest problem is the human side. We don't know what brains are, we don't know what minds are, we don't know who we are. We know more about physics, medicine than we do about the most fundamental things about human nature."

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