

EVERY DAY IS 'TECH DAY' IN THE FREE PRESS

# TechToday

Contact us by e-mail at: [tech@freepress.com](mailto:tech@freepress.com)

## LOCAL TECHNOLOGY

[WWW.FREEP.COM](http://WWW.FREEP.COM)

### MIKE WENDLAND

## *Possibilities limitless for MSU's thinking robots*

This summer's hit "Matrix Reloaded" continues a frequent movie theme about computerized machines that are so advanced they actually think and end up taking over the world.

The idea isn't as fanciful as it seems. Researchers at Michigan State University are working on artificially intelligent robots that are able to think, or at least learn from experiences, much as human children do.

But could machines actually turn against their human creators, like in the movies?

"I'm positive that it is technically possible that an" artificially intelligent "system has the computing power to do that in the far

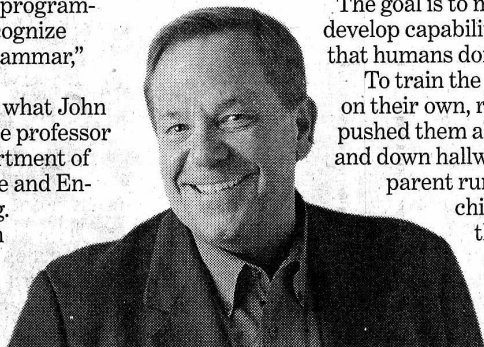
future," says Arthur Tang, one of the computer researchers working in the university's Media Interface and Network Design (M.I.N.D.) lab.

Artificial intelligence is one of the hottest areas under investigation by computer scientists, who, instead of creating an AI machine, are trying to somehow raise one.

"Instead of programming a computer how to solve some problem, we can take another approach by bring up an AI machine like a baby — teaching it how to read instead of programming it how to recognize characters and grammar," he says.

That is exactly what John Weng, an associate professor in the MSU Department of Computer Science and Engineering, is doing.

He's already on his second prototype, a robot called Dav that



looks like the robot in the old "Lost in Space" TV series.

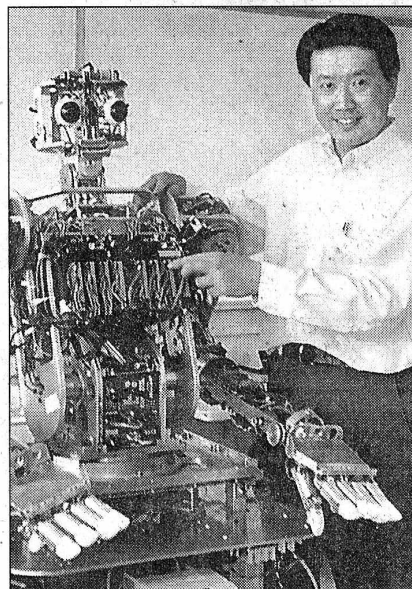
A pair of circular, parallel-mounted cameras serve as Dav's eyes. A microphone and audio processor are its ears. Motion detecting and thermal sensors roughly approximate human senses.

Weng refers to Dav as an autonomous mental development, or AMD, machine. "Conventional machines perform after they are built," he says. "An AMD machine must perform while it builds itself mentally."

The goal is to make robots that develop capabilities and skills that humans don't have.

To train the robots to move on their own, researchers pushed them around corners and down hallways, much like a parent runs behind a

child, holding on to the back of a bicycle until the kid gets the hang of it.



Michigan State University photo

**MSU professor John Weng is proud of Dav, who could develop skills humans don't have. Dav has cameras for eyes, audio processors for ears and motion and thermal detectors for senses.**

With a programmer walking behind, operating the sensors and inputting instructions, it took 10 supervised trips for the robot to figure out how to turn a corner and not bump into walls. It got the hang of the straightaways after one trip. From then on, it could do it flawlessly on its own.

Where will it end? Weng stresses that we're just starting to make true AI progress, but says the potential is huge.

"In the human species, our brain size and functions are limited. We're already encoded," he explains. "But with machines, brain size has no limit."

Weng doesn't think the human race will ever be subjugated by robots, because, he says, "we will always be the programmers."

Probably.

Contact **MIKE WENDLAND** at 313-222-8861 or [mwendland@freepress.com](mailto:mwendland@freepress.com).

**TECH BLOG:** Follow Mike Wendland's posts at [www.pcmike.com](http://www.pcmike.com)