Scientists Develop Robots To Be Scientists
By Dan Vergano
April 6, 2009 7:12AM

These robots don't look like R2-D2 and C-3PO from Star Wars. They look like van-size computers, but with robotic arms to do tasks that would otherwise be done by human assistants. Experts say robot scientists could increase the rate of scientific progress dramatically, and in the process, revolutionize the practice of science.

The era of the robot scientist may soon be upon us. Two teams of human scientists Thursday unveiled their work with robots that not only perform experiments, but also come up with new ones. The prototypes tackled physics and biology problems that require simple, repetitive experiments, proceeding by trial and error to uncover knowledge, according to studies published in the journal Science.

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"The prospect of using automated systems as assistants holds vast promise," David Waltz of Columbia University and Bruce Buchanan of the University of Pittsburgh say in a journal commentary. Robot scientists could "increase the rate of scientific progress dramatically, (and) in the process, revolutionize the practice of science," they write.

"Scientists should be using their brains rather than their hands," says computational biologist Ross King of the United Kingdom's Aberystwyth University, who led one robot effort. Adam, the team's $1 million prototype robot scientist, reports new findings about yeast genes in one of the studies. The robot can start more than 1,000 biology experiments a day over a five-day period.

King's team manually confirmed the biochemistry results that explained the genetic workings of yeasts, which have eluded researchers for decades. "There is a lot of work to do, even in creatures we think are well-understood," King says.

Adam may next systematically tackle how bits of "RNA" genetic material affects roundworms in a similar bid to map the genetic workings of the common lab creature.

The other robotic scientist, reported on by Cornell...
University's Hod Lipson and Michael Schmidt, tests pendulums and springs to figure out the physics laws that govern their movements. "A lot of science today, especially cosmology and genomics, is generating massive amounts of data that scientists have to wade through," Lipson says. "We need a way like this one to make it easier."

Simply by experimenting, the robot deduced the equations governing motion and the physical laws behind them for these simple machines.

On the yeast study, King sought more credit for the robot: "We wanted to make Adam a co-author on the report, but they wouldn't go for that."

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