



ROBOTICS

DISCOVERY

The notion of autonomous machines dates back to ancient Greece. Throughout history, scientists and engineers have built robots that exhibit increasingly lifelike behaviour. Today, robotics is a fast-changing field that will continue to see tremendous advances as our technology becomes more sophisticated.

[RoboThespian](#) is a life-sized humanoid robot that interacts with people. It is on the cutting edge of robotics technology, exhibiting lifelike behaviours, simulated emotions, and artificial intelligence.

INNOVATION

By interacting with RoboThespian, we can better understand ourselves. RoboThespian exhibits many traits that closely mimic our own bodies:

Sight: RoboThespian's head is equipped with a high-resolution, RGB camera that observes its surroundings. In its chest, a second RGB camera coupled with an infrared sensor allows for depth perception, shape recognition, and temperature estimation. These innovations allow RoboThespian to recognize faces and estimate age, gender, and mood.

Motion: Instead of crude gears and pulleys, RoboThespian has unique simulated muscles for smooth movement that does not seem "robotic." These artificial muscles contract when air is pumped into them, making for fluid movement with impressive strength.

Speech: Although RoboThespian's speech is programmed into its computers, it has other means of communication. Its LCD eyes simulate emotion through blinking and squinting. Hand motions add emphasis, just like in human speech. RoboThespian can even blush – changing colour to convey mood and emotion.

IMAGINATION

Though still obviously a machine, RoboThespian represents another step toward the creation of lifelike robots. Research is getting tantalizingly close to the creation of androids – robots that are virtually indistinguishable from humans. Can you imagine a world in which androids emerge from science fiction to become science fact? What would you like the next big advance in robotics to be?

