



IEEE

ATTRACTING FEMALE ENGINEERS p. 14

The **Institute**

<http://www.ieee.org/theinstitute>

March 2007 VOL. 31, NO. 1



Getting Automation Some Respect

BY TRUDY E. BELL

MANY PEOPLE HEARING the word "automation" picture robots assembling cars in a factory. But an IEEE quarterly journal has, since its introduction almost three years ago, been making every effort to establish automation as a science in its own right and a field separate from the robotics in manufacturing plants. The journal, *Transactions on Automation Science and Engineering* (T-ASE), is out to give automation greater visibility—and credibility. And preliminary readership figures indicate that it is succeeding.

DYNAMIC DUO Automation and robotics have often been confused, notes IEEE Fellow Peter B. Luh, professor of electrical engineering at the University of Connecticut at Storrs. Research in robotics today deals mainly with applying intelligent systems to explore the unknown, be it on the ocean floor or on a far-off planet. Because scientists don't know what will be encountered, robots must be flexible when it comes to the [Continued on page 8]



**Drug companies
apply automation
techniques to
parts-feeding
mechanisms.**

tasks they can perform. Certainly, the accomplishments of the Mars rovers *Spirit* and *Opportunity* publicized in the general press indicate that robotics gets more glamorous chores than automation, as well as more media attention and, perhaps because of this exposure, the lion's share of research funds.

Automation research, in contrast, tackles predetermined tasks, devising systems that repeat a process over and over. Principal concerns are not with the unknown but with speed, precision, efficiency, reliability, quality, and cost-effectiveness. Yes, automation may be incorporated into robotic systems, "but when it works well, you don't see it," Luh says. "That very invisibility hampers research, because automation 'gets no respect,' to quote comedian Rodney Dangerfield, and it's hard to attract the best minds here." This is so "even though many fundamental scientific and practical questions about automation are still unanswered," he adds.

To lift automation out of the shadow of robotics and address its unique issues—especially the need to set fundamental automation theory on a sounder footing—the IEEE's Robotics and Automation Society launched its new journal in June 2004. Actually, the RAS split its journal, *IEEE Transactions on Robotics and Automation* (T-RA), into two publications: *T-ASE* and *IEEE Transactions on Robotics* (T-RO).