

# ENGINEERING

CORNELL

SUMMER 2003

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Jim Gossett's pioneering research pays off with the discovery of organisms that clean up contaminated groundwater.

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## Shaping the Future

Cornell names Joe Burns as vice provost for physical sciences and engineering.

**J**oseph A. Burns, the Irving Porter Church Professor of Engineering in the Department of Theoretical and Applied Mechanics (TAM) and professor of astronomy, has been named as the university's vice provost for physical sciences and engineering. His role is to facilitate Cornell's research in the areas of physical science and engineering, especially at federally funded centers, and to advise on the university's research policies and priorities in those areas.

In the appointment, which became effective July 1, Burns replaces John Silcox, who retains his post as the David E. Burr Professor of Engineering in the School of Applied and Engineering Physics.

Commenting on the appointment, Vice Provost for Research Robert C. Richardson said: "I am delighted that Joe has agreed to join us. He is a very distinguished scientist—a faculty member in the College of Engineering with a joint appointment in the Department of Astronomy—and a nationally recognized scientist. Joe has a long record of distinguished leadership in his department,

college, and the university, and his work on the physics of the solar system has long been admired."

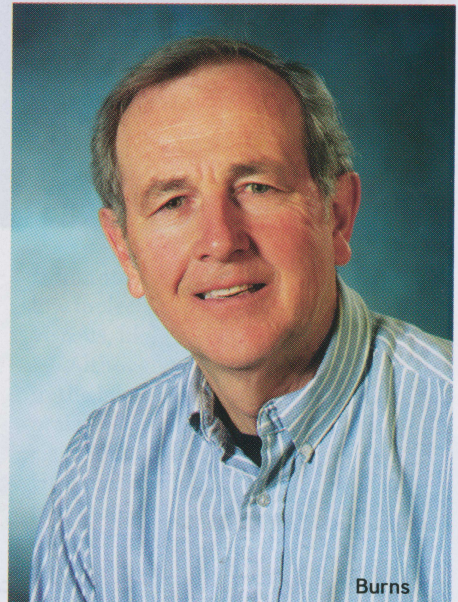
Burns joined the TAM faculty in 1966 after earning a B.S. in naval architecture at the Webb Institute and a Cornell Ph.D. in space mechanics in 1966. After serving a year as a postdoctoral research associate at NASA's Goddard Space Flight Center, he returned to the faculty two years later. His current research concerns planetary rings and the small bodies of the solar system, such as dust and satellites as well as comets and asteroids.

—Roger Segelken  
Cornell News Service

### STRUTTING THEIR STUFF

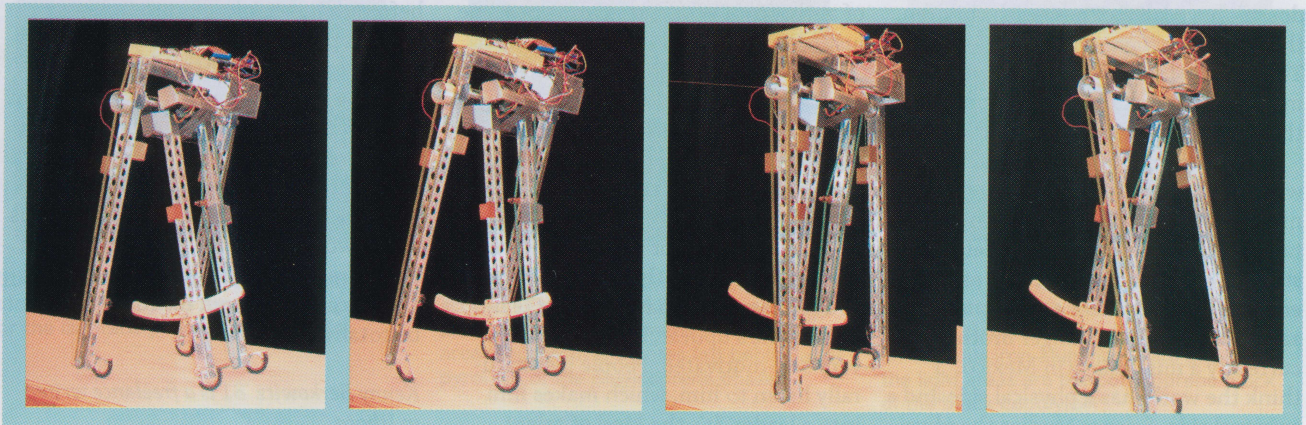
**B**efore a gathering of prospective Cornell students and parents in April, engineering

students Oren Benjamin Yeshua '03 CS and Joshua Silberman '03 EE exhibited their research with Andy Ruina, professor of theoretical and applied mechanics, simulating human walking in robotics, a motion with "inherent mechanical characteristics, particularly its efficiency," Yeshua said. One of the greater challenges he found was "how difficult it is to build something that you know can work in theory." Obstacles in finding a stable walking cycle for such



Burns

Undergraduate research on display: Power and Control of a Passive Dynamic Walking Robot.



TOP: ROBERT BARKER/UP; BOTTOM: ANDREW DRESSEL

robots included timing issues, physical factors, and such conditions as the respective positions of robot limbs.

Yeshua and Silberman were among 60 seniors in the Cornell Presidential Research Scholars (CPRS) program who displayed the culmination of four years of their work for prospective research scholars (students accepted to Cornell for fall 2003 who have been offered research scholarships) and their parents. The incoming students who accept the Cornell presidential research scholarships will select faculty mentors to assist them in their projects and be given support of up to \$10,000 each. In addition, up to \$4,000 in annual loan reductions will be available for financially eligible students.

Other events at the spring open house for prospective members of the class of 2007 included information sessions about the program and a special session dedicated to their parents. Said one parent, "My son didn't know about the program until he got into it. From what I've seen and heard, it sounds like an honors program at an honors university. We are very excited."

"[Cornell] makes the offer [to be research scholars] to less than 3 percent of the incoming class," Isaac Kramnick, vice provost for undergraduate education, told the students. "You are a very special group."

—Allegra Giovine '06  
Cornell News Service

## DATA MINING

Johannes Gehrke, assistant professor of computer science, has been named an Alfred P. Sloan Foundation fellow. He is among 117 outstanding young researchers from 50 colleges and universities in the United States and Canada to receive awards of \$40,000 over two years.

The Sloan Research Fellowship Program is one of the

oldest such programs in North America. Fellows, who are selected from among hundreds of scientists in the early stages of their careers on the basis of their exceptional promise, are free to pursue whatever lines of inquiry are of most interest to them.

Gehrke's award will support research on privacy-preserving data mining and distributed database systems. His research is focusing on the design and implementation of a database system for sensor networks (see p. 12).

—David Brand  
Cornell News Service

## FLYING HIGH

Some 240 miles above the Earth, Russia's Expedition 7 Soyuz spacecraft docked with the International Space Station (ISS) early in the morning of April 28 and deposited NASA astronaut and Cornell alumnus Edward Lu '84 EE and Russian cosmonaut Yuri Malenchenko. The space station will be their home for the next six months.

Lu, 39, and Malenchenko, 41, the first men in space since the shuttle Columbia disaster Feb. 1, were launched from Baikonur Cosmodrome in Kazakhstan on April 26. The launch replaced that of the grounded space shuttle Atlantis.

The two astronauts replaced the three men who have been on the ISS since November.

Before this mission Lu, who earned a bachelor's degree in electrical engineering from Cornell, had flown into space twice before, both times on the shuttle Atlantis. He was a mission specialist in 1997 and a mission specialist and payload commander in 2000. In all, he logged 8.5 million miles and 504 hours, including a walk in space for more than six hours.

The Expedition Eight crew is expected to launch aboard the Soyuz TMA-3 in mid-October. Malenchenko and Lu will then return to Earth aboard the



Gehrke

Soyuz TMA-2 that brought them to the station. The TMA-3 will remain at the station for the use of the Expedition Eight crew.

—Blaine P. Friedlander Jr.  
Cornell News Service

## BUILDING GREEN

Abigail Krich '04, majoring in biological and environmental engineering in the College of Engineering and College of



Read Lu's  
space journal at  
[www.edlu.com](http://www.edlu.com)