

Cinderella team is Terminator in robot contest

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A pick-up team of five MIT undergraduates with only a week to prepare won \$1,500 for finishing second in a robotic competition sponsored by the International Council on Systems Engineering (INCOSE), defeating teams of graduate students from five other schools.

In an exhibition match after the contest, MIT scored a clear victory over the winning team from George Mason University, flipping the Mason robot and knocking it off the table.

It was "a double-win, in-your-face, we're-MIT victory," said sophomore Lauri Kauppila, a mechanical engineering major. "The moral victory was everything and the money was irrelevant ... a beautiful way to end the contest on our part."

The competition took place on July 2 at INCOSE 2003 in Arlington, Va. Junior

Arthur Mak organized the MIT team after a group of graduate students withdrew on short notice. Mak, Kauppila, sophomores Dheera Venkatraman and Akhil Shashidhar and senior Maxwell Planck gathered nightly for a week over Lego sets in Kauppila's room at Chi Phi for a series of construction and robot battles. Their faculty advisor was Olivier L. de Weck, assistant professor of aeronautics and astronautics and engineering systems.

"We spent the majority of our time not thinking in a high-level 'what if' way, but

rather in the spirit of the scientific method—think of something and test it," said Shashidhar, who is majoring in electrical engineering and computer science (EECS). "With such experimental methods, the group had an impressive array of 10 or so robots at the end of the building stage. Not all were good, but each employed a new and unique structure for winning."

The choice was narrowed down to a low-lying machine with "inverted" wheels designed by Venkatraman that gripped the ground tenaciously or a wedge robot by Planck that attacked aggressively. The decision to enter Planck's robot was made three hours before the competition commenced.

"Most often, life's decisions aren't as clear-cut as one or the other, but this one almost split us in two, with the final decision being made purely on gut instinct," recalled Planck, also an EECS major. "Engineering may be an analytical science, but in the end, it's the creative insights and gutsy decision-making that make it fun."

The contest took place before an enthusiastic audience of about 500 that included representatives of 50 aerospace firms and 10 universities.

"It was funny to see all of them so enthused by the competition as if they were little kids," said Mak, a junior in aeronautics and astronautics.

"The competition was an excellent experience to test our skills not only at engineering a robot, but also at minimizing costs much as one would see in the real world," said Venkatraman, a sophomore in EECS and physics.

In addition to the competition, the MIT students visited the Goddard Space Flight Center in Maryland and did some sightseeing in Washington. They cruised exhibits at INCOSE and gathered business cards from potential employers.

"One of the best moments of the competition was that a lady from the Aerospace Corp. came to us and asked us to work for them next year, which is something I never thought would happen in my college years," Mak said.



Left to right: junior Arthur Mak, sophomore Dheera Venkatraman, senior Maxwell Planck, and sophomore Lauri Kauppila and Akhil Shashidhar made up the winning team in a national robot competition.