

Inspiring High School Students to Become Leaders in Science and Technology

By *Melanie A. Farmer*

Bob Stark was the kind of kid who always took things apart and put them back together. "I always had an erector set as a toy, or built model airplanes with my brother," he says. These days Stark, 51, the longtime manager of the mechanical engineering lab at the Fu Foundation School of Engineering and Applied Science, is still constructing and deconstructing things, only now he toys around with 120-pound robots.

For six weeks each academic year, Stark leads a group of underserved high school students in an annual robotics competition held by FIRST (For Inspiration and Recognition of Science and Technology) Robotics, a nonprofit group that encourages young people to be leaders in science and technology. For the past 11 years, Stark and students from Morris High School in the Bronx have been competing with customized robots built on the Columbia campus.

Each year the team, called 2 Train Robotics, receives a new kit and a specific challenge or task that the robot must complete in regional competitions. (Stark's team usually competes in New York City and Philadelphia.) In 2008, for example, the robots had to maneuver around an enormous ball, forty inches in diameter. This year, the team's robot played in a soccer game against robots from other teams.

Stark devotes weeknights and weekends building the robot, along with Columbia engineering students who serve as mentors to the Morris High students. The competitions are so exhausting, Stark thinks each year will be his last, but so far the experience has been too rewarding to give up.

"Admittedly the kids on the robotics team are already kids who have enough motivation to step out of their normal high school activities; to

come down here and get involved in something new," says Stark. "But these are also the kids who are on the border [academically], and with the right mentoring they can achieve a lot, and I've seen it."

Stark never imagined a career for himself in higher education. A native New Yorker, he graduated from Cooper Union in 1980 and worked for five years at Bell Laboratories, a top research and development lab (now called Alcatel-Lucent). At Bell, he worked on a team to develop the Merlin telephone, an innovative office telephone design, while completing his master's in mechanical engineering at Columbia.

Stark caught the teaching bug when he came to Columbia and began managing the mechanical engineering lab, which he has done for 22 years.

One former student, Reuben Bridges, considers Stark a trusted mentor and has continued to volunteer with FIRST since his participation as a Morris High junior 11 years ago.

"Bob gets great joy from teaching, and gets excited when you learn

from him," says Bridges, a shift manager at The Children's Hospital at Montefiore in the Bronx. "He is very patient when it comes to making sure students learn. If you make a mistake, he will help so you don't make them again."

Stark roller blades to work each day from his Upper West Side apartment and makes time to meet his father almost weekly for lunch. He can imagine no better place to work than amidst the loud machinery and commotion of the mechanical engineering lab, where students design everything from energy-saving devices to micro surgical tools for use in laparoscopic surgery.

"The academic environment is pretty hard to beat," says Stark, "Working with professors who are stretching the envelope, working on the next new technology, and working with bright, motivated students... You never know exactly where a project will get you, but it's fun."

Kids who are on the border academically, with the right mentoring, can achieve a lot.
