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## ASU robotics camp clicks for students, teachers

CHRISTINA VANOVERBEKE, TRIBUNE

Keiland Brooks sits in front of a computer and a pile of Legos in a crowded room with other high school students - all with their own computers and building blocks.

The Desert Vista High School sophomore is trying to figure out how to build a robot that will navigate through a plywood maze faster than the creations of his competitors, and it hasn't been easy.

"Right now we're making bumpers, in case it runs into anything in there," he said.

Wednesday was the last day students in a summer robotics camp at Arizona State University had to prepare their robots before competing against the others. Brooks said it's not necessarily the building, but the programming that's been difficult.

"It's been annoying," he said. "You leave things out, and you miss it the first 20 times you check it. It requires a lot of patience."

Thursday is the last day of the camp, which began June 23, and students will get to apply what they have learned in a competition that will test the capabilities of the robots they have designed, built and programmed by having their robots navigate through a maze, collect balls and complete other timed trials to demonstrate motor skill and dexterity.

The camp is sponsored by the U.S. Department of Education, Intel Corp. and ASU's School of Computing and Informatics in the Ira A. Fulton School of Engineering. It's part of the engineering school's contribution to the national effort to interest more students in careers in science, engineering, technology and mathematics, said Yinong Chen, a lecturer in the Department of Computer Science and Engineering and leader of the camp.

Chen said the whole purpose of the camp is to get high school students interested in computers and to give teachers skills to teach the subject in their classrooms.

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HANDS-ON LEARNING: Tommy Wojtas, 14, a student at Stapley Junior High School in Mesa, looks over his robot Wednesday morning during the 2008 Arizona State University Robotics Camp, a summer program designed to excite young students about science through hands-on applications of robotics engineering and programming. Jennifer Grimes, Tribune

"Many people think computer sciences are boring," he said. "We want to try to teach it in a more innovative way."

"We used to teach high school students the same things we taught college students. We'd teach them to write programs and print them out. But that wasn't very engaging. This is an outreach program to change the way we are teaching."

The teaching strategies - including the kits for building the actual robots - are being developed as tools that any teacher can use, regardless of whether they've been part of the camp. Chen said the skills learned from spending time with the robots go beyond computer sciences and engineering to those any student can learn, no matter what their ultimate career goal.

"We're teaching logic and reason," he said. "The students program the computer using sensors to know when it starts to get close to a wall. It measures the distance to the left, it measures the distance to the right. It has to make a decision about what to do. Next, the student figures out how to get it to repeat those movements. It's all logical thinking."

About 10 local teachers also took part in the camp and said the experience provided them with information to bring back to their classrooms.

"My participation is paying back in dividends," said Michael Warner, who teaches and coaches the robotics team at Tempe High School. "The kids have a natural affinity at most of this stuff because they've grown up with it, but we're learning a lot of it as we go."

Teacher Susan Farretta of Coronado High School in Scottsdale agreed that perhaps the biggest benefit is that practicing these skills over the summer gives her the confidence to teach them once school is back in session.

"You use these programs over and over, and you really start to feel good about it," she said. Farretta is trying to get a pilot version of Chen's program started at her school where students can be dual enrolled at a university and gain college credit for completing it.

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**Robotics competition**  
**When:** 1 p.m. to 5 p.m. today  
**Where:** Arizona State University, Coor building, Room 170  
**Information:** Visit <http://sci.asu.edu/roboticscamp/>

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