



Biomedical Engineering Ph.D. student Lise Johnson (center) was one of the graduate students who taught girl scouts about robotics during the Girl Scout Robotics Camp sponsored by the Electrical and Computer Engineering (ECE) Department.

Girl Scouts Learn That Robots Aren't Just For Boys

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Sixteen girl scouts were on campus in July for a Girl Scout Robotics Camp sponsored by UA Electrical and Computer Engineering (ECE).

"The whole point of this camp was awareness," said ECE Associate Professor Charles Higgins, who organized the camp. "We're trying to make girls aware that it's possible for them to go into science and engineering, that it's not just a boy's thing."

Higgins said he thought gender stereotyping for careers was a thing of the past until he heard comments from some of his daughter's classmates, who are all about 9 years old.

"I'm surprised to hear some of the things they believe, even at age 9," he said. "They say things like, 'Well, girls can't do math' or 'Girls can't be smart' or 'Girls just need to be a homemaker. I'm not going to college. Why would I go to college?'"

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Related Web Sites

[Sahuaro Girl Scout Council](#)
[Lego Mindstorms Robotics Invention Systems](#)
[Charles Higgins' homepage](#)
[Neuromorphic Vision and Robotic Systems Laboratory](#)

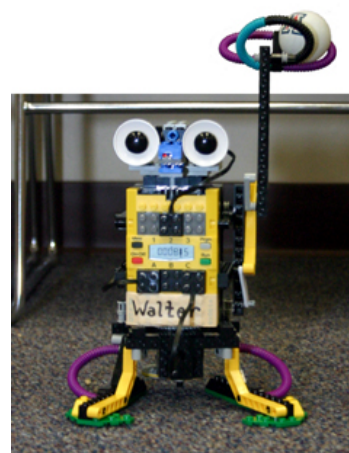
"It bothers me to discover that some girls think that engineering is not a possibility for them," Higgins added. "Even if they're interested in technology they think it's closed because it's something that only boys can do."

The scouts used Lego Mindstorms Robotics Invention Systems kits to build their robots, but the camp's structure was not rigidly defined at the beginning.

"Since this was our first summer robotics camp, I was very careful not to over-plan it," Higgins added. "I had a lot of contingencies prepared, but I wanted the camp to be flexible enough to follow the interests and capabilities of the girls."

As a result, Higgins scrambled to make new plans almost hourly as the girls accomplished much more than he had thought possible.

"It was, in fact, a suggestion from one of the girl scouts that we have a robot 'style' competition," Higgins said. This competition included choreographing a dance for each robot and programming it to "sing." "This would not have occurred to me!" he added.



Walter the Robot gets set to throw a pingpong ball.

One of the camp advisors, Kristen O'Halloran, came up with the idea of a triathlon for the robots that involved a throwing contest for accuracy, a battle between robots, and the style competition.

The scouts, who ranged in age from 11 to 13, were taught by Higgins and four graduate students, all of whom volunteered their time.

The students included:

- Lise Johnson, a Ph.D. student in Biomedical Engineering.
- Leslie Ortiz, a master's student in Electrical Engineering.
- Abby Hedden, a Ph.D. student in Astronomy.
- Kristen O'Halloran, a Ph.D. student in Biomedical Engineering.

The girls split into two groups, with each group spending two days experimenting with robots on campus. During the other two days they learned about engineering design and participated in summer camp activities such as swimming and Tang Soo Do martial arts at a girl scout facility in Tucson.

About 60 girl scouts, advisors, parents and siblings of the scouts attended a robot competition and exhibition on the final evening of the camp.

"I think the girls realized that engineering has nothing to do with gender," Higgins said. "It's just a matter of how interested you are."

"On top of that, it was a fun thing to do," he said. "Even if they don't go into technical careers in the long run, they still had a great week of learning about robots, swimming, doing martial arts and having fun with friends."

However, Higgins hopes to see some of them enroll as freshman engineers at UA in a few years.

With the success of this year's camp, plans already are underway for next year. "The Girl Scouts haven't settled on what to do yet for next year," Higgins said. "But we're very likely to have another technology-related camp because this one was so successful."

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