Laramie club teaches area students to control robots

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Laramie High School junior Mrudhula Baskaran wanted to make her robot follow the light.

She stared into a glowing screen Thursday evening, typing lines of code onto a white page.

As the code piled up, it created a sort of script, the language of which could be understood and interpreted by a small, wheeled robot.

"I'm making this simulation robot follow a light automatically," Baskaran said.

She hit enter, and the robot on the screen — a simulation of the real thing — crawled across the screen, approaching a white light. If Baskaran shifted the light's location, the robot would make adjustments based on the code she'd entered.

University of Wyoming computer science student Henok Mengistu watches a robot perform a task Thursday in an Engineering Building computer lab. Mengistu wrote script, telling the robot to move toward a light source until its sensors detect a specified light value in which the robot will stop. JEREMY MARTIN/Boomerang photographer

Baskaran was at the Laramie Robotics Club weekly meeting, held on the fourth floor of the University of Wyoming Engineering Building.

Jeff Clune, UW assistant professor of computer science, teamed up with Jeff Herndon, Laramie software engineer, to found the club in October.

At Thursday's club meeting, about 15 other students worked on coding scripts similar to Baskaran's.

Some imputed their code into the robots themselves, placing them on the floor so they'd whirl, turn and scoot in pursuit of the light.

The night's challenge was to make two robots perform an age-old practice more commonly seen among animals in the wild.

"Some of our students are programming the robot to try to run away, like a prey item trying to avoid a lion," Clune said. "The other students will program a robot to try to follow it and chase it and tag it."

Robots playing tag might seem like a simple task, Clune said, but teaching students how to program robots serves multiple purposes.

"We founded Laramie Robotics Club just to allow children in the area to come together and have fun playing with robots and getting them to do cool things," he said. "In the process, they have to learn some skills that will be very important for the rest of their lives, in terms of programming and math and science and engineering."

Clune directs UW's Evolving Artificial Intelligence Lab, which tries to create independently smart robots by mimicking evolutionary processes, like natural selection and survival of the fittest.

"We try to study, just like in nature how evolution evolved, how that can happen inside a computer, in a virtual world," Clune says in a video on his website.

Several of Clune's lab students are involved in the club, and Roby Velez, UW Ph.D. student, leads and creates the weekly challenges.

"The club is a fun dovetailing with our research," he said. "My students spend every day on very cutting edge science, making robots advanced, but they also get to turn around and teach local area kids what they love and what they like to do, which is play with robots."

Henok Mengistu, UW computer science student, often helps children in the club troubleshoot problems with their code.

He does so in hopes of getting young students involved with programming.

"This will probably make them be innovative at that young age," Mengistu said. "You know, if you show them this kind of scenario, they will keep learning, keep asking themselves questions. 'Why is this happening? What can I do to make it even better?'"

Clune said he had similar motivations for starting the club, which meets 4-6 p.m. Thursdays and is free and open to the public.

"When I was a kid — I didn't know it then — this was the stuff that I loved," he said. "And I wish that I would have had a space that would have encouraged me and allowed me to flourish, to quench that thirst for science."

The club started small but quickly blossomed, Clune said.

"It's been much more popular than I would have thought," he said. "Initially, we were thinking we may have a few high school students. But we had such an overwhelming response from parents who have middle school students who are very curious and interested, so we expanded to middle school students. Then it started getting into undergraduates and even Ph.D. students, who were saying, 'Hey, I want to play with robots.'"

Clune said he thinks the club grew so quickly because it's fun to play with robots, but also because children and parents recognize robotics as the wave of the future.

"The computing revolution is the revolution of our times, but the next major revolution that's going to completely change the economy is the robotics revolution," he said. "Robots are going to change everything in society, so learning how to make robots do interesting things is effectively like training people in programming and computer science in the 1970s."

As Baskaran writes code Thursday evenings, she said she also has her eye to future.

"I want to know this because I want to go into physics and stuff, and it's going to have applications for knowing computer software," she said.

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