



Home > About > Press Room

## Go 'Bots! NYU-Poly mentors cheer on FIRST LEGO League competitors

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Students from PS 11 prepare their 'bots for competition with their mentor Carlo Yuvienco, an NYU-Poly biomedical engineering PhD candidate.

For Carlo Yuvienco, a PhD candidate in NYU-Poly's Biomedical Engineering program, January 9 was a preview of parenthood. "I feel like one of those parents outside a high school waiting for kids to come out of their tests and asking afterward, 'How'd you do,' and feeling that sense of pride," he said, as he high-fived students he coached at PS 11 for the borough-wide qualifier of the FIRST LEGO League, a competition that uses robots to conquer real-world engineering challenges.

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Yuvienco should be proud. Since last fall, he and 12 other NYU-Poly students have lent their services to middle schools in Brooklyn as part of the Applying Mechatronics to Promote Science (AMPS) and the Central Brooklyn Robotics Initiative (CBRI) programs, initiatives funded in part by the National Science Foundation, the Brooklyn Community Foundation, and a Motorola Innovation Generation Grant. Dr. Noel Kriftcher, executive director of NYU-Poly's [David Packard Center for Technology and Educational Alliances](#), as well as Professors Vikram Kapila and Magued Iskander, guided their activities, which aligned with the center's mission to train and support teachers interested in weaving advanced technologies into their curricula.



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2010 FIRST LEGO League Competition

"If you study to be a science teacher, you don't necessarily study engineering," Dr. Kriftcher explained. "You certainly don't study robotics or mechatronics, and if teachers lack information — through no fault of their own — students get shortchanged."

### Say what?

Each week for 10-15 hours Yuvienco and his peers visit a local classroom and share what they know about the STEM — science, technology, engineering, and mathematics — disciplines. Doing so cultivates a skill Dr. Kriftcher believes paramount to the successful promotion of the sciences: presentation skills. "With a

lay audience, you have to have fluency. You have to break complex ideas into simple steps," he said.

Peter Baker, another PhD candidate in Biomedical Engineering and a second-year veteran of the AMPS program, agrees. Talking about his interactions with schoolchildren, he said, "When I have to explain to them what I do, it helps me figure out ways to explain my science to other people."

Baker believes the experience will help him professionally. "If I go into a boardroom for funding and talk about all these weird enzymes and weird chemistry, it's going to go over some people's heads," he said. "But if I can define my research in a way that's easily relatable, it's going to open doors."

### Open doors lead to open hearts and minds

Doors may have opened for Baker and his NYU-Poly peers, but hearts and minds have opened for Brooklyn middle school students. Siad Natalie Sinclair, a fifth grader at PS 11, "Our coaches are very, very encouraging."

Her classmate and FIRST LEGO League team member, Shyanne Hall, seconds the opinion. "They are our inspiration in robotics and in life," she says. "When we ask for something, they help us problem solve. That's fun."

Their positive attitude characterized game day, marked by cheerleaders, anxious parents, beaming coaches, and a booming sound system blasting dance tracks. "It's more like a football game than an academic event," said Pavel Khazron, a PhD candidate in Electrical Engineering enjoying his second year in the AMPS program, as he surveyed the competition. "Kids are dancing, singing. This is as much about the robot and the programs [the students] write, the algorithms, the tasks they accomplish as it is about them having fun and being engaged in a very meaningful way."

### Inventing the future

Through four rounds, students aged 9- to 14-years-old navigated small robots through obstacle courses mounted on table tops clustered in the middle of NYU-Poly's gym. Watching the event, Mary McAveney, the parent of a participant from PS 58, remembered, "Last year they had a broken robot and they had to fix it and reprogram it — and they were able to! It's really amazing what these kids are able to accomplish and how seriously they take it."

It's precisely that drive and focus that Dean Kamen, inventor of the Segway Human Transporter and founder of the FIRST LEGO League competition, wished to instill, a goal Yuvienco admired. "He developed so many inventions. That mentality — it started so young, when he was in high school — to imagine that these kids could possibly do something like that is really wild," he said, as he moved away to help a student redesign his robot before the start of another round.