

NYU-Poly Mentoring Helps Take Brooklyn Robotics Team to World Finals

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ITAVA students celebrate being part of the alliance of three teams that won the citywide FIRST Tech Challenge. Photo by Adriana Groisman

It was an unlikely robotics victory by any measure: high school students from an inner-city Haitian neighborhood of Brooklyn, most new to the team, trying to drive their robot against competitors who had been playing games with joysticks for years and some who even drive cars. No matter how good the robot they had built, no matter how great their programming skills, the team from It Takes A Village Academy (ITAVA) would be facing an experience gap.

Then there were the other 63 robots competing in the New York State FIRST® (For Inspiration and Recognition of Science and Technology) Tech Challenge (FTC) in the Javits Center.

“Even though I was co-coach, and others might go in full of confidence, I looked around and thought, ‘There are so many good robots...’” Zachary Nishino’s voice trailed off. As an NYU-Poly mechanical engineering graduate fellow, he had been mentoring the students since autumn. This was an exam unlike any university test he had ever taken.

The first two rounds weren’t so good.

“Then something really clicked in the third match,” Nishino said. “They were driving really great by the end.”

Thanks to their quick learning and a rugged robot – maneuverable, bigger than many, with a strong drivetrain and quick to dispense the batons it picked up – Nishino and the ITAVA team will head to the FIRST® Tech Challenge World Finals in St. Louis this April.

The victory is in large part due to a nationally recognized initiative at NYU-Poly that pairs graduate fellows, teachers and robots to develop exciting, hands-on lessons in science, technology, engineering and math – the STEM subjects – for economically disadvantaged students from 18 Brooklyn elementary, middle and high schools. Sixteen of those schools competed at the Javits Center – some in the more advanced FTC, while the younger students participated in the FIRST® LEGO League (FLL). The Central Brooklyn STEM Initiative (CBSI) is sponsored by The Brooklyn Community Foundation, J.P. Morgan Chase Foundation, The Black Male Donor Collaborative, Motorola Foundation, NY Space Grant Consortium, White Cedar Fund and XEROX Foundation.

The National Science Foundation’s GK-12 Fellows Program supports Nishino and 13 other NYU-Poly graduate fellows through Applying Mechatronics to Promote Science (AMPS) project. They spend summers working with CBSI teachers on research and lesson plans, then 10 hours each week in the schools working with the student teams – and often much more as they prepare for the FIRST® competitions.

Dr. Vikram Kapila, associate professor of mechanical engineering, heads both programs. On March 12, the GK-12 Fellows Program of NSF presented his team with an award for building the most sustaining pre-college program and for achieving the most media attention about the importance of STEM education.

Although the youngsters and their robots get the most attention, one of the main objectives of NYU-Poly and the NSF is to improve the skills of the graduate fellows and help them become articulate advocates for science and engineering, Kapila said.

Nishino said he has learned from his co-coach and ITAVA teacher Yvon Morin how to motivate students and make science exciting. “I was lucky,” he said about being paired with Morin.

Nishino said AMPS fulfilled its promise to teach him time management skills, too.

“I live in Astoria and have to get up early every Saturday morning to take the train to Brooklyn for the meetings – that’s not my favorite thing in the world. But when you see how the students’ faces light up when they learn something, it’s worth it. There is nothing that can really prepare you for being in the classroom.”

Public donations have reached \$900 after the New York Daily News told its readers about the team and its need to raise thousands of dollars to travel to the finals. To contribute, go to the home page of the Brooklyn Community Foundation.