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Fighting for Brazilian Technology

Team RioBotz from Rio enters the ComBots ring and proves the heavy mettle of tomorrow's engineers

By Filipe Pacheco

A GROUP OF STUDENTS FROM BRAZIL AND THEIR PROFESSOR recently boarded a flight out of Aeroporto Internacional do Galeão, in Rio de Janeiro. Their destination: the California city of San Mateo. Their goal: to fight as hard as possible, and to come back home with perhaps a few trophies.

In their checked suitcases: hundreds and hundreds of metal pieces totaling 1 ton of equipment, which obliged them to take all their clothing and personal belongings in their carry-ons.


Team RioBotz and their encased combatants.

The Brazilians were on their way to participate in the ComBots Cup, one of the most intense and important robot competitions in the world, which takes place annually in the United States and has become quite a spectator sport.

The Brazilian competitors are part of Team RioBotz, coordinated by professor Marco Antonio Meggiolaro, from the Centro Técnico Científico – or the Technical and Scientific Center – of PUC-Rio, one of the most traditional universities in Rio de Janeiro. The professor is also author of the RioBotz Combat Robot Tutorial.

The pieces that came out of the 14 suitcases they took with them were transformed into fighting robots — and as it turned out, *champion* fighting robots. "Touro Feather," weighing in at 13.6 kg, won in the featherweight category; "Touro Light" won the lightweight category. They were the first non-English-speaking robots — and robot designers — to win in those categories. (Touro, in Portuguese, means bull.)
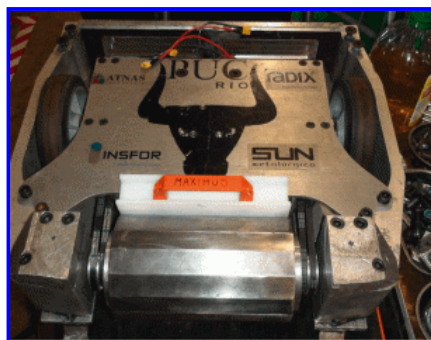
In this corner: Touro Maximus.

In the middleweight class, the two highest spots on the podium were filled by "Touro" and "Malloney," both built by the RioBotz crew. In the heavyweight category, "Touro Maximus" (100 kg) took fifth place, while at the opposite end, among the extra-light competitors, "MicroTouro" came in third.

These electromechanical creatures do not look like Optimus Prime or even, for you vintage toy collectors, the Rock'em Sock'em robots. Many of them actually look more like little round vacuum cleaners, and were all developed to go into the ring to fight hard. That means smash into opponents and send pieces hurtling in the air, destroying the enemy and amazing the audience — and, as the professor said, "show that Brazilian technology is among the best in the world."

Professor Meggiolaro says that the support of the American audience during ComBots "was amazing. It was the first time we participated in this competition since the group was created in 2003, and we went up there with the intention to thrill the people present."

"People were cheering hard for us," he said in an interview with Sourcing Brazil. "We took with us a mascot that amused the kids…. and at the end, we were giving autographs and taking pictures with the people. People want to be amused, to be surprised. If you do that, no matter where you are from, they are going to cheer for you!"

In April, the RioBotz team participated in the RoboGames, known as the Olympic Games for robots and an event that features 70 different categories of competition.

Not Just About Robots

Competing in ComBots is a much more serious affair than it might look at first. Professor Meggiolaro has seen about 60 students go through RioBotz since the group was founded in 2003, and a few of them went on to create their own robot battling groups after they left the university.

Some assembly required.

Of the 20 students who are part of the group today, most are engineering students at PUC-Rio, focused on areas such as electronics, automation, computing, or materials. Professor Meggiolaro explains that before building a robot, there is a lot of theoretical analysis that has to be done, rules of electronics and physics to be respected, materials that need to be developed and treated, and many tests and trial runs to be deployed.

"All of that makes the students become very disciplined, to learn how to work in a group and to develop skills they wouldn't end up acquiring in a regular classroom," he says. "In the market nowadays, you will hardly ever find a high-tech product that is only mechanical or only electronic: All of these engineering segments are important for design and production of a competitive product." Meggiolaro says.

After spending a few years with RioBotz, many of its members go on to work for big companies, such as Petrobras, that have most of their strategic operations on the coast of Rio, and those graduates are rapidly absorbed by the market. "Companies come look for trainees in our group, because they know how serious we work," the professor says.

"Our kids go through a lot of challenges in different engineering fields, from tech aspects to material matters. They end up thinking about problems in a different way."

Opportunities for Engineers

Brazil has a lack of qualified workforce in the IT industry, which includes graduates in areas such as electrical and computer engineering. Professor Meggiolaro explains that, in the past, some of the students he taught at PUC-Rio, or that had been part of RioBotz, used to look for jobs in the States or Europe right after graduating.

But that scenario has changed in recent years, he says. Now many of the graduates end up finding well-paid jobs within Brazilian companies, in the regions where they want to live.

"Many times, it's the [hiring] company that comes after them, that chooses them before even getting out of college. Which is good, because moving away from your country demands a lot of effort," Meggiolaro says. "There is a whole sentimental part of life that has to be considered."

Unlike with robots.

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