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## Robots go to war in San Francisco

A 340lb robot that can flip washing machines smashes all comers to win annual RoboGames competition

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**Bobbie Johnson** San Francisco  
guardian.co.uk, Wednesday 17 June 2009 13.30 BST

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San Francisco has played home to plenty of sporting drama over the years: Joe Montana's winning final-minute pass in 1981's American football NFC championship final or the earthquake that struck during the middle of baseball's World Series in 1989.

Last weekend the city once again played host to a high-stakes spectacle, albeit of a slightly different tone, when thousands of spectators and competitors turned out to witness the annual RoboGames.

The event, which has been running for six years, has become the world's largest open robotics competition and has turned into an annual pilgrimage for the most dedicated robotics enthusiasts.

"I've been interested in robotics my entire life so, getting here, there's a lot to see," said 19-year-old Chris Farrell, from Maine, a former gold-medal winner. Chris and his father, Rob, a systems engineer, form the team, Farrell Robotics.

"It's new every year – there's usually a new technology that will emerge here and you don't see it in other parts of the world for a couple of years."

David Calkins, the president of the Robotics Society of America and the event's founder, says the show is an example of "knowledge and building just for its own sake".

San Francisco's Fort Mason centre thronged with spectators of all stripes: young engineers, seasoned veterans and streams of excited children scurrying around to take in the many games, events and displays.

RoboGames encourages everybody to take part, from professionals to the garage fanatics.

But, despite the wide range of machines on display, including robots dedicated to art, speed, music and sport, the real attraction was the arena: a high-tech caged fighting ring – surrounded by bulletproof glass – reminiscent of the TV series Robot Wars, which ran on British TV for five years.

To the cheering of spectators, the competitors – who had come from as far afield as India, Australia and Egypt – sent their robots to battle; spinning, smashing, bludgeoning and slicing each other until only the wreckage remained.

The mob was baying for the sound of crunching metal and was duly rewarded with a series of spectacular battles, including one bout in which a robot weighing more than 200lbs was picked up and thrown over the barriers – a first for the competition.

While the ring resounded with the noise of battle, the workshop area behind the arena showcased the remains of the robots that had failed to emerge victorious.

Although more than 60 teams competed, not one could strip the title from the reigning superheavyweight champion, Ziggy, a 340lb (155kg) monster from Canada with a flipping arm so powerful that it can throw washing machines into the air.

"It's been frenetic," said competitor Eduardo Von Ristow, a member of the team Riobotz from Brazil.

"We brought 12 robots from 150 grams to 250lbs (113kg); we've got four sumo robots; an autonomous fighting robot. I think I've slept six hours since Wednesday."

Despite the passion exhibited by the crowd and the bittersweet grimaces on the faces of those who saw their creations ground to pieces, many competitors say that the event is not purely for the sport.

Ristow said his team, which comes from the Catholic University of Rio de Janeiro, also works on robotics for mining companies and nuclear power plants. Plenty of the innovations developed for the RoboGames end up making their way back into civil projects as a result.

"It's a really good exchange. Here you meet a lot of crazy fellows who know a lot of stuff," he said. "We chat a lot and exchange experience, exchange techniques and that's really interesting."

Many of the teams return several years in a row, fine-tuning their techniques and coming up with new ideas for their robots.

Rob Farrell, of the Farrell Robotics team, said that learning was an important part of the games – and that he hoped one day to apply what he had learnt in order to turn his hobby into a fully fledged enterprise.

"We do it for fun," he said. "I think we're also building it, eventually, into a business and it's a great learning experience."

On the floor, meanwhile, some first-time attendees were getting their own taste of proceedings.

"I hope it happens again," said Canner Mefe, who was displaying her own robot – the Flu Virus, an eight-legged walker built with friend Tracy Jacobs and based on the designs of artist Theo Jansen. "I loved the sphere robots, and a lot of the firefighting robots are really cool."