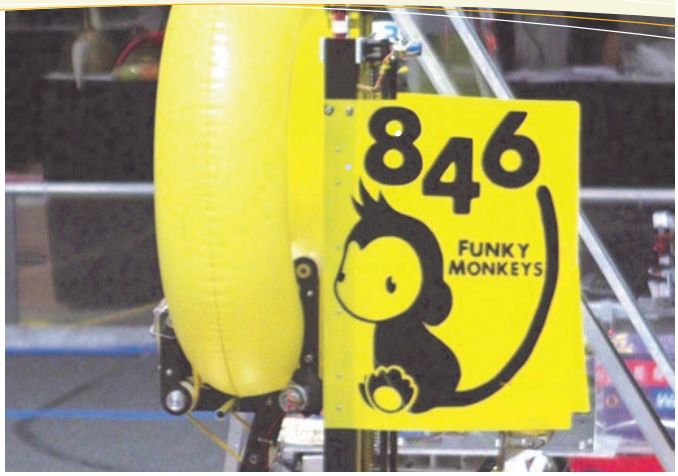
Summer 2011

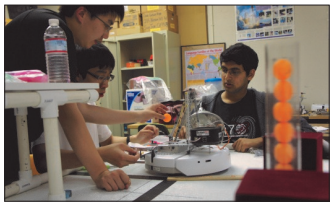
Monkey Business

News of the Lynbrook High School Robotics "Funky Monkeys," FIRST Team #846



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Botball Championships at Anaheim

By Diane Wang

It is easy for anyone to collect ping pong balls and foam blocks, and moving paper airplanes across a table takes merely seconds to complete. However, Botball 2011 brought a challenge for students: to complete the same tasks using only autonomously-run Lego robots.

For the first four weeks of summer, team members traveled to Oak Grove High School every day to mentor their two Botball teams, collectively known as the Eaglebots. Regardless of specialty, students learned to manage all aspects of building a fully functional, autonomous robot. Preparation for the competition became increasingly stressful as the days numbered down.

"Seven hours a day seemed like a lot of time to work, but the time always disappeared by the end," said team member sophomore Michael Chang.

Sixty-four teams across the globe attended Botball's annual international competition, GCER, in Orange County, California. Teams faced off in a variety of competitions,

See **BOTBALL**, *Page 3*

A New Year, a New Adventure

Welcome to the Lynbrook Robotics Team!

I hope you all enjoyed your summer vacation monkeying around and are eager to expand your skills. Lynbrook Robotics wants to help you extend your scientific and mathematical knowledge beyond the classroom environment and apply them to our club. You can get involved immediately by helping us prepare this year's robot for our first competition of the school year, CalGames, this October.



Building a robot will involve skills such as computer programming, 3D CAD design, physics, and math; however, no prior experience is required. Our veteran members and mentors will gladly guide you and help you develop these skills.

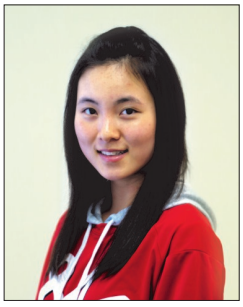
Besides the technical challenges of building a robot, we provide opportunities for you to showcase a variety of skills. For example, artists and designers have a chance to improve our website and to design banners. Our club also presents opportunities for writers, public speakers, and math whizzes. I welcome all of you to join in on the fun!

Alric Siu
Lynbrook Robotics Co-President 2011-2012

Hi Team!

Welcome to Lynbrook Robotics! In the past, our team has consisted of people with interests in math, writing, art and everything else in between. Everyone, regardless of skill, has a place on our team.

The best chance to get involved is presented during build season. Our program is centered on the *FIRST* Robotics Competition,



which requires us to build a fully functional robot in 6 weeks. We spend this time designing, machining, and assembling a 120-pound robot, alongside mentors who are professionals in their various fields. This process is challenging but gratifying, especially after seeing a robot that you've worked on come alive on the competition field.

Robotics has a lot to offer and I know you all do too. High school is a time to take chances. It's a time to try a bit of everything, because all of the things you do now will impact your future one way or another. Get involved, take the initiative to try and learn, and I guarantee, it will all be worth it. Go Funky Monkeys!

Annie Yang
Lynbrook Robotics Co-President 2011-2012

A Summer On the Moon

Vice president Brian Axelrod shares his experiences of working at NASA.

By Jocelyn Shieh

After hearing about an available summer internship from NASA researcher Mark Leon, Lynbrook Robotics vice-president Brian Axelrod decided to take up the challenge. While most other rising juniors worked retail jobs and studied for their SAT's, Axelrod spent his summer researching and developing projects for NASA instead.

"Since NASA is a government organization, they tend to have a larger focus on education," said Axelrod. "I believed that as a student, I would get better opportunities to learn about and experience different things there."

Axelrod's main assignment, the Lunar Micro Rover project, was to design and produce a lightweight rover that would be inexpensive to send to the moon yet efficient enough to operate well there. Several problems arose during the project, such as low bandwidth and high latency communications. However together with the Lunar Micro Rover team, Axelrod was able to make great strides towards solving these problems.

"Quite frankly, the typical work done by high schoolers there is manual labor, so once I managed to fix the problems puzzling the other interns and some software engineers as well, I gained a lot of respect," said Axelrod. "It was a good feeling, realizing that I was able to provide valuable help beyond what they expected of high school students."

Axelrod credits his successes at NASA to his two years' worth of experience from robotics. For example, several programs used at NASA were similar to those used while programming the robot.



A group photo of the team from the NASA Ames Research Center.

"When I first started, I wasn't clueless about the systems. I knew most of their functions and how to resolve issues concerning them," said Axelrod. "One time one of our mentor software engineers was confused over why the speed controllers were spitting out errors and I was able to solve the issue and explain to him why it was happening."

In return, Axelrod gained valuable experience that he plans to implement into robotics this year.

"While most of the things we did at NASA wouldn't be possible on our team because of financial issues, I learned a great deal about electronics such as radios and speed controllers and machinery such as lathes and CNC mills."

"It was a great experience," Axelrod said, "but I missed working with my team and looked forward to the beginning of the school year."

Fundraising at Concours

By Vincent Yao

On Sunday, August 21st, Lynbrook Robotics went to Concours d'Elegance at Pebble Beach, CA. They sold concessions to event-goers in order to raise money for the club. The team was also able to observe hundreds of different cars, ranging from classic models to brand new, luxury sports cars. Members studied the designs, hoping to apply them to future robots. Some members were lucky enough to see celebrities, including Jay Leno, from afar. Overall, the members had a great time helping their team while also enjoying the show for themselves.





UPPER RIGHT: One of the hundreds of cars that were at the event and in mint condition.

RIGHT: Rishi Debnath and Eric Yeh serving customers lining up at their stand.

Beyond the Classroom

Members of the Lynbrook Robotics team pursue their outside interests.

Robert Ying:

For summers of my sophomore and junior year, I interned at Cypress Semiconductor. It was a great opportunity for me to experience engineering in real-life situations, and ended up being more engaging than I'd expected. Some of the things I worked on were optical navigation systems, capacitive touch screens, and software development, both firmware for the Cypress PSoC architecture and drivers for the Android OS.

Miles Chan:

This summer, I went on tour as principal second violin with the El Camino Youth Symphony (ECYS) in Europe. The orchestra was well received by audiences in France and Spain, who forced upon us 2 - 3 encores a concert. Needless to say, I had a great introduction to European culture with my musical buddies. I am still with ECYS for the upcoming season; we appear next at Flint Center on Oct. 29!

Lucy Mou:

Over the summer, I went to Nicaragua to volunteer. It was interesting to see how different life there was compared to life in the U.S. Aside from the painting houses, building cement platforms and laying down pipelines, we also had fun swimming in Lake Nicaragua, the beach, and a freshwater lagoon. My favorite part of the trip was trying to teach a group of Spanish-speaking Nicaraguan kids English without knowing any Spanish. Though much of the volunteer work was manual labor, the trip was a great experience.

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Botball

Continued from page 1

including seeding matches and the highly anticipated double-elimination matches. Robots had to score through a number of ways, and with each task weighted a different amount, teams were forced to prioritize their strategies. The autonomous aspect of the competition also brought its own challenges.

"Even the smallest bump on the game field could immediately knock your robot off track. We learned by the end that effectively using sensors was the only way to ensure a reliable robot," said team president senior Alric Siu.

Pre-conference workshops, student presentations, and keynote speakers made the competition aspect only a fraction of GCER. Speakers were continually presenting projects from their own corporations and showing students real-life applications of the skills learned in Botball.

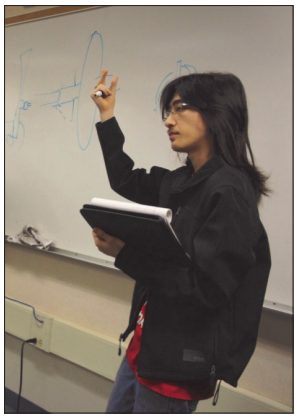
"GCER taught us more than just how to build a lego robot; constant events throughout the conference also taught us about the next Mars rover project, robots as psychological data collectors, and CAD software usage," said Chief Hardware Officer Eric Yeh.

The two Botball teams managed to place in alliance matches, bringing back a trophy and a judge's choice award. With a nearby pool and hot tub, rooms in a four star hotel, and Disneyland only one mile away, the students managed to not only succeed competitively, but also have a unique experience.

Eaglebots member senior Andrew Michelsen said, "Even though the tasks were stressful at times, our days spent at Disneyland and the conference truly made my summer unforgettable."







Clockwise from top left: *Stephen Giandomenico visiting Stonehenge; working on assembling the drivetrain; explaining physics and circular motion to rookie team members.*

A Blast From the Past

Former team president pays a visit to the Funky Monkeys.

By Jocelyn Shieh

Even now, you may remember Stephen Giandomenico, the good-natured president of the Funky Monkey Robotics Team from a few years earlier. Though now a Lynbrook alumnus and MIT graduate, Giandomenico has not forgotten his former Robotics team. After completing a full year at one of the nation's top engineering and technology schools, Giandomenico reveals what it is like to be an MIT student with a Robotics "degree."

Giandomenico acknowledges that there are many benefits in having experience in Robotics throughout college. Majoring in computer science and minoring in physics, he faces no shortage of situations where his Robotics knowledge comes quite useful. For example, Giandomenico had a definite advantage in his intro EECS (Electrical Engineering / Computer Science) class, where the class focused on robots to learn the fundamental concepts of the course. With his Robotics experience backing him up, Giandomenico had no problem constructing and managing robots, and with his knowledge and skills easily segued into and succeeded in the course.

"I went into the classes already knowing how to build a robot and having a strong background designing and programming state machine control systems," Giandomenico said. "[Because of this] I quickly found myself a de facto team leader."

Already knowing much of his courses thanks to Robotics, Giandomenico often finds himself with time to spare. He turns time into productivity over summers, interning at Sun Microsystems and Hulu, where he works with engineers to develop software for the companies. Though the competition for the internships was fierce, Giandomenico managed to land spots easily due to his past programming experience.

"I am looking to continue on in the software field," said Giandomenico.

During the school year Giandomenico also participates in an MIT programming competition called *Battlecode*. The challenge of the competition is to program a large number of virtual robots to battle and defeat an opponent's robots, either by completing a task or simply overwhelming them by force. Because the actual competing is preceded by a four-week build season similar to that of the *FIRST* Robotics competitions, Giandomenio's programming experience from Robotics directly carries over to the *Battlecode* competition.

"Thanks to all my years of working with robots, I placed in the top 24 two years in a row as a solo team," said Giandomenico.

Now, Giandomenico's ties to robots exceed engineering. The former Robotics president, once working almost exclusively in garages and competitions, found himself on stage last year for the MIT production of Karel Čapek's play "Rossum's Universal Robots," which, ironically, coined the term 'robot' from the Czech word for "forced labor." It was a new and gratifying experience for him, who appreciated the chance to learn more about robots from a theatrical perspective.

Giandomenico sums up his four years of Robotics and four years of MIT with a few well-chosen quotes.

"I have a passion for math, physics, and computer science which stems from but now extends beyond Robotics. I don't want to work with robots for the rest of my life, but Robotics was the best way to initiate my interests in the aforementioned subjects," said Giandomenico.

"The experience I gained from Robotics is so broad," Giandomenico added, "that I believe many of its results intangible: beyond that which I can explicitly enumerate."

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Upcoming Events

San Francisco Fleet Week
— Sat.-Sun. Oct. 8-9
Fundraising concessions sales with the Blue Angels at San Francisco

WRRF CalGames 2011
— Fri.-Sat. Oct. 21-22
Archbishop Mitty High School

***FIRST* Robotics Competition Kickoff**
— Sat. Jan. 7
San Jose State University

Meet the New Officers

Alric Siu
Co-President

Annie Yang
Co-President

Brian Axelrod
Vice President

Eric Yeh
Chief Hardware Engineer

Robert Ying
Chief Software Engineer

Miles Chan
Treasurer

Michael Lin
Secretary

Diane Wang
Public Relations

Aneesh Sreedhar
Event Manager

Jocelyn Shieh
Historian

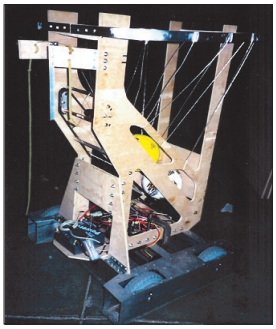
Vincent Yao
Webmaster

10 Years of Lynbrook Robotics

From Zone Zeal to Logo Motion, the Funky Monkeys are there for action

By Vincent Yao

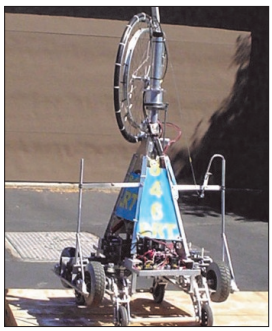
Zone Zeal 2002



Stack Attack 2003

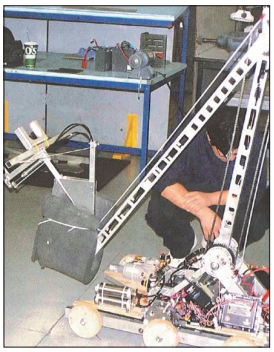


Raising the Bar 2004



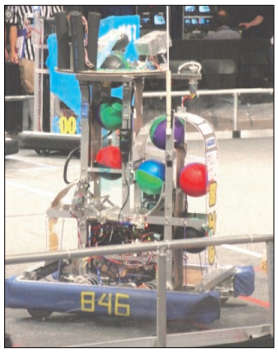
BIKEBOT

Triple Play 2005



TETRABOT

Aim High 2006



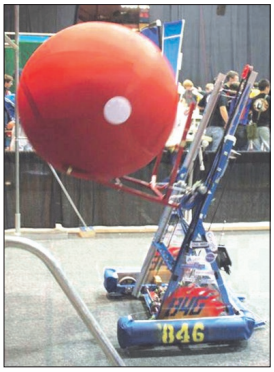
ESCARGO

Rack N' Roll 2007



SPIDERMONKEY

Overdrive 2008



HOWLER

Lunacy 2009



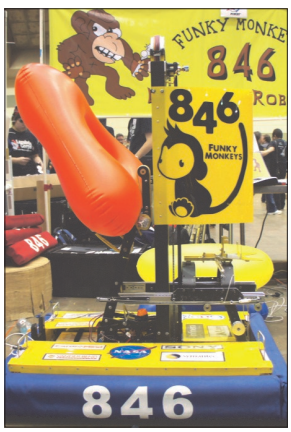
MOONKEY

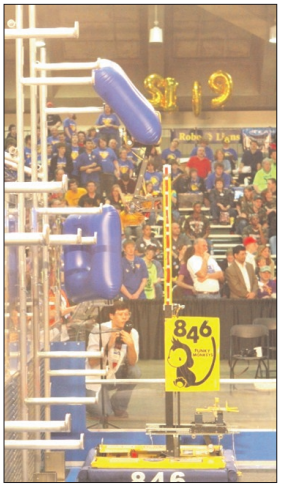
Breakaway 2010



SOCCER CHIMPBOT EXTREME

Logomotion





2011

HAND OF THE MONKEY

Lynbrook Robotics was founded in 2001. Since its inauguration, its members have been dedicated to build the best robot possible. Every year, the team has built a robot corresponding to each new game. As time passed, the team has gained more and more experience from each robot designed and built. This has led to advantages in more recent designs, as the team has had experience with different techniques and mechanics. These ten robots represent what the Lynbrook Robotics team has achieved in ten years.

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