



# MONKEY BUSINESS



News of the Lynbrook High School Robotics “Funky Monkeys,” FIRST® Team 846

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## Take a look behind the scenes!

Out mentors are keystones to our success. Meet Mr. Lowd on page four.



**Moving with the music, Miles punctuates his solo with delicate vibrato. As one of the starring performances, he was even featured on concert posters.**

## Violin Virtuoso

Vice president Miles Chan performs at Flint Center

Raphael Chang (webmaster *sophomore*)

On October 27, I went with some team members to the Flint Center to watch Miles perform a violin solo with ECYS (El Camino Youth Symphony). We arrived there at 6:45 p.m. (just as the doors opened), redeemed our free tickets, and entered the concert hall. Row after row of burgundy auditorium chairs stretched out before us, seats crammed with guests. We walked down the sloped hallway, to the third and fourth rows where we took our seats. The lights dimmed and the symphony emerged from wings of the stage. The hall fell silent as the conductor raised her baton.

The first piece was “Candide Overture” by Bernstein. It was a very exciting piece and I felt as if I was flying through bright clouds. As it ended, I felt suspense building up around us as Miles prepared to enter the stage and perform the first movement of “Violin Concerto No. 1” by Paganini (one of the most difficult pieces for

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**Members cheer rauciously in the stands as the Tail of the Monkey successfully balances on the bridge during competition.**

## Let the Games Begin

Despite obstacles, team takes 2012 CalGames by storm

Kenny Yuan (rookie *freshman*) and Abhiram Kothapalli (veteran *sophomore*)

From the Funky Monkey mascot dancing Gangnam Style to the Tail of the Monkey scoring tense buzzer-beaters, the 2012 annual CalGames was immensely fun, yet also technically challenging. Amidst powerhouses like the Bellarmine and Mountain View teams, the Funky Monkeys emerged to lead the third alliance into the elimination rounds. Although made to face several obstacles, the team reached the semifinals and also captured several prominent awards.

As our blue-haired MC waved the 846 war banner at the start of the first round of the tournament, the Funky Monkeys rose in the stands and cheered with deafening, reckless abandon, shaking the auditorium walls. Complete with pale blue LED strips to guide the drivers, the team’s robot—the Tail of the Monkey—whirred to life and began firing away as the clock winded down. To the team’s disappointment, the Tail of the Monkey did not start off as strongly as

planned. During the first match, the robot scored many points, but lost due to penalties incurred by fellow alliance members. Co-Hardware Lead Anurag Makineni, drove for his first time during these rounds.

“The first match is really nerve-wracking,” he recalled. “You don’t want to mess up because a lot is depending on it.”

In the second match, while other robots sped around the field, the Tail of the Monkey remained immobilized.

“Later we discovered it was caused by the USB hub we were using to connect the controller to the computer. Even after we removed the hub, we made sure to check the connection before every game, just in case,” said Makineni.

Another problem was communication lag, which caused the robot to respond slowly to the drivers’ commands.

Despite these initial disappointments, the team blazed through the rest of qualification rounds. By winning the subsequent five matches, the Funky Monkeys secured a high position as third seed out of thirty-six teams. Mr. David Giandomenico (Mr. G.), the head coach, attributes our success to all the hard work of our members.

“I was really proud to see the team much more self-sufficient this year, they were able to

see **LET THE GAMES BEGIN**, Page 2

## VIOLIN VIRTUOSO

*Continued from Page 1*

the violin). The side-door opened. He strutted out in a glorious blue dress shirt and golden tie. Giving the conductor's hand a firm shake, he took his position on the stage.

The solo was split into several parts, each increasingly dramatic and complicated. We watched as he played, creating different tone colors with the violin. His fingers glided up and down the fingerboard. We held our breaths. He played ascending and descending scales with increasing fervor. Dust seemed to shimmer in the air as he furiously drew his bow across the strings. As the climactic finale approached, Miles finished his blazing fast passages, followed by an epic ending from the booming orchestra. We clapped furiously.

As he bowed, people in the audience rushed to the stage, gifting him with flowers and other items. We watched Miles receive many huge bouquets, which he eventually could not carry and had to give to someone offstage. We gave Miles some things of our own, too: three batches of flowers, two posters, and some tools (including a wrench and a hammer).

I am proud that an extremely involved robotics member can also have such a deep connection to music. It shows the wide range of talents in our team.

Go Miles! We're all proud of you. 🍌

## Demonstration, Please

Team brings robot to Texas Instruments Demo, is visited by industry leaders

Matt Wang (event manager *sophomore*)

“I give this industry an A+ for making things work, but you get a C- for contributing to our culture.”

These were the words that Dean Kamen, the founder of *FIRST*, spoke at the Semiconductor Industry Association's annual National Convention. Held on November 29th of this year, the event brought leaders in technology and electronics together to discuss recent improvements in the semiconductor industry. The convention this fall focused on promoting STEM to the community and to society, featuring a keynote presentation from the creator of *FIRST*, Dean Kamen.

As part of his presentation, several *FIRST* teams from our area were invited to show their robots to the attendees and introduce the *FIRST* program to those who were unfamiliar with it, with the intent of motivating industry leaders to mentor students with *FIRST* and altogether increase the culture of technology for the next generation. And that was how we found ourselves at the San Jose Fairmont Hotel, with robot in tow.

After arriving at the hotel, our team set up a table alongside Monta Vista's robotics team. We set up the hoop and began playing the 2011-2012 *FIRST* Robotics Competition game with our foam basketballs as the first attendees came in. Since it was a formal event, all of them were wearing formal dress, tuxedo, tie, and all. For me, the appearance of so many experienced, brilliant people was quite intimidating, and in retrospect, I suppose it makes sense. We were also visited by the CEO of Texas Instruments, Mr. Richard Templeton, and Dean Kamen, and took pictures with them. Interestingly, Dean Kamen still remembered us, and was very pleased to see that we had preserved his signature on the wedge of the Tail

© *FIRST* Team 846 The Funky Monkeys

## LET THE GAMES BEGIN

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identify and solve problems much quicker by themselves,” he said.

The subsequent intermission was tense. Amidst the noise in the hallway, Funky Monkeys crowded together, trying to analyze the scouting data and select an alliance for the playoffs.

After Public Relations Officer Michael Lin drafted Valley Christian's WarriorBorgs and Mitty's TKO as alliance partners, a familiar tune began to play. PSY's sensation, “Gangnam Style,” echoed through the auditorium, and the monkey mascot soon stole the spotlight as it dished out iconic dance moves.

The robotics matches resumed. With a strong alliance, the Funky Monkeys advanced through the quarter-finals with two victories over the sixth alliance and came face-to-face with Alliance Two, consisting of the Citrus Circuits, Buchanan' Bird Brains, and The WildHats, in the semi-finals. The Funky Monkeys' alliance scraped by the first match by a close one point. Though the team fought hard during the following two matches, the Funky Monkeys' CalGames journey ended there, but the excitement and surprises did not.

During the awards ceremony, the team was presented with two awards. The System Design Award was bestowed for having a unique, exceptional software and hardware design. Ad-

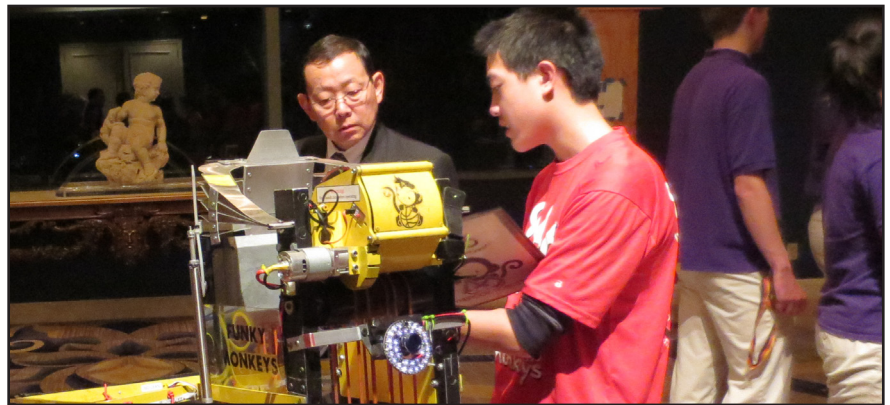


This year's CalGames logo was designed by Co-President Diane Wang.

ditionally, the Volunteer of the Year Award was presented to our very own mentor, Mr. G., for his outstanding contributions, including developing a new scoring and ranking system for CalGames and presenting the DC Motors talk at WRRF. The judges voiced congratulations as the Funky Monkeys ecstatically stormed the arena and raised up the awards to the applause of the audience.

Mr. G. recounted: “I was really honored to see the team so excited about the System Design award, and to see them more excited about the award I had received”

The Funky Monkeys' performance at the 2012 CalGames was rife with team spirit and problem-solving, definitely one to repeat in future CalGames. After all, who doesn't like a Gangnam Style Funky Monkey? 🍌



Secretary Michael Chang introduces the robot's features to a businessman. Members took turns answering questions and presenting the robot.

of the Monkey, our robot.

The attendees came from a variety of companies. Some of them were familiar with the *FIRST* Robotics Competition while others were new to the concept. Regardless, all the guests were interested in our team, some being especially inquisitive and asking many questions about our robot and the competition. In fact, one of our members, Anurag Makineni, was even interviewed\* by a reporter from the EE Times.

This event highlighted how important the *FIRST* program is to society. Here were hundreds of important company leaders, engineers, and business-people all gathered to talk about, well, us. Which further supports the fact that we, as the next generation, are incredibly vital to industry leaders and our society. And it seems obvious to me that Kamen was trying to make this point in his speech this year: in order to contribute to our culture, merely producing technological advancements is not enough. We must also continue the legacy so that each following generation may further the field. 🍌

\*Watch the interview at: [bit.ly/UzkgqO](http://bit.ly/UzkgqO)

lynbrookrobotics.com



# Preparing the Next Generation of Designers

Organized instructors help improve efficiency, learning at CAD workshops

Owen Li (rookie freshman)

Every January, *FIRST* releases a new challenge, a new game for a new season. In six weeks time, each competing team must design and create a fully functional robot in adherence to the challenge. But, before building can begin, teams must ensure that their designs work as intended, otherwise, their awesome creations might just fall apart during competition. It is vital to ensure that the robots need only be put together once, instead of constantly being deconstructed for the re-measuring and remaking of parts. To prevent such fallout, teams employ Computer Aided Design (CAD) software to enhance the planning process. The Funky Monkeys, in particular, have a predilection for Autodesk Inventor.

There's just one problem. Not everyone knows the functions and capabilities of CAD software. To bring knowledge of CAD and its uses to interested members of the team, the Funky Monkeys hold weekly CAD workshops to help interested students practice and learn the basics of Inventor. The lessons, which were headed by Co-Hardware Leads Eric Yeh and Anurag Makineni this fall, are meant to engage more members in robot design. They also test the ability of the instructors to make sure the classes are well paced and the students well taught.

Throughout the first semester, Yeh and Makineni guided students as they learned a wide range of techniques, from mating and constraining parts together, to re-assembling last year's Tail of the Monkey, to making machinist drawings and using TortoiseSVN to upload projects onto the team website. Preparing the lessons, however, is not so easy and the increased organization and planning this year led to much improvement.

"I remember last year, everyone was on a different step, a different project, and it was difficult trying to get what was going on because you were either before or way behind everyone else," said sophomore Matt Wang.

This year, the instructors maintained a

steady pace, keeping all students on the same page, and efficiently filling in students who missed the last session.

"Even after I missed the first two sessions, the other veterans there helping at the workshops really helped me to get back on track and learn the material that I had missed. Even after, they were very helpful in guiding me along when I didn't understand the action being taught" said freshman Ronald Zhang.

To ensure everyone was on the same page, Yeh and Makineni had to make sure that they were not going too fast or too slow, or making things too complicated. They spent many off-hours working together to prepare lectures, making sure that the lessons would be simple enough for students to understand, but still incorporate many useful Inventor features.

For Yeh, this was difficult. "We had to figure out a model that would best help the students to learn," he said. "It had to be simple, not repetitive, and all the while including many techniques important to designing the robot."

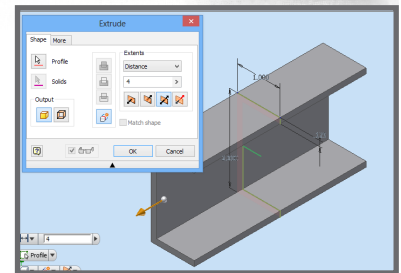
Makineni added: "It was our first time teaching the workshops, so we had trouble trying to gauge if we were covering too much or too little. We had to stop every now and then to make sure that everyone was ready to move on."

Despite these difficulties, this year's workshops operated without a hitch. With this season's CAD workshops over and done, Makineni and Yeh have gained a lot of experience and are confident that next year's workshops will be an even bigger success.

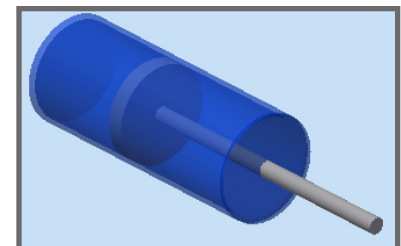
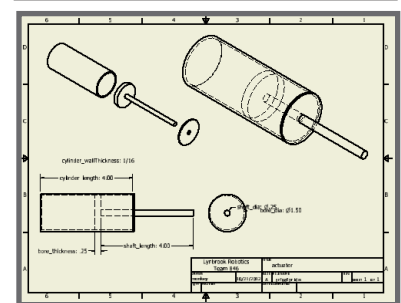
"I think we now know how better to teach the class. It should be a lot better!" said Makineni. ☺



Illustration: Michelle Chang (historian senior)



One of the first things the students learned was how to create basic parts, such as a c-channel.



A drawing and model of an actuator. Later in the semester, students learned to design parts of increasing complexity.



## Mentor Profile: Mr. Lowd

Former *FIRST* parent, MIT alumni, keeps Funky Monkeys inspired

Karthick Ravikumar (rookie *freshman*)



Mr. Lowd was first introduced to the *FIRST* Robotics Competition when his son began participating in the robotics team at Homestead High School (*FIRST* Team 670). So, when he came into contact with the Funky Monkeys through the MIT Alumni program (which introduces graduates to *FIRST*) two years ago, he already had more than a faint inkling of what he was getting into.

As one of the team's most spirited and active mentors, Mr. Lowd's main goal is to create and maintain a well organized group of young engineers and innovators. He is heavily involved in the mechanical aspect of the team, working closely with students in the manufacturing and assembly aspect of the competition robot. His contributions to the Funky Monkeys are diverse. In fact, Mr. Lowd opens each Active Member Meeting by reading meaningful excerpts from an array of interesting books. Due in no small part to his entertaining and profound pre-meeting presentations, the team is becoming increasingly exposed to aspects of American culture, history, and science that are not necessarily even related to robotics. One of his more notable

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presentations includes the introduction of Stan Freberg's "Take an Indian to Lunch," a light-hearted song from the sixties which Mr. Lowd played for the team near Thanksgiving. Not only did he take the effort to haul a CD player to the meeting, but Mr. Lowd's theatrical recitation of Freberg's recount of the events that followed his performance left the entire room heaving with laughter.

While Mr. Lowd is heavily involved in the technical aspects of the team, that is not his primary purpose. Instead, he sees it his job to bring the attention away from the game and towards nurturing the growth of the students.

"I have no opinion on the team's performance, because I do not pay attention to how we do. That is not my job," he says. "But from what I see, even if our team isn't the greatest at competing with robots, we have a very good display of teamwork wherever we go. We are a very active group of people, and I believe that we have a good chance at achieving success this year."

Mr. Lowd believes in the team wholeheartedly, and the rest of the Funky Monkeys are committed to achieving said success. Mr. Lowd is a proud member of the Lynbrook Robotics Team, and the Funky Monkeys are incredibly lucky to have him as a mentor. 🤖

## Website Revamp

Members give team website new look

Raphael Chang (webmaster *sophomore*)

A new design and an energized effort to improve content have boosted the significance of the team website this year. The revamped website now garners more attention than ever before and received positive feedback from team members and school faculty alike.

In May of 2012, team members Brent Yi, Tony Peng, Raphael Chang, and alumni Chinmay Jaju took it upon themselves to give the website a new identity. These individuals met with other interested team members over the summer to discuss how to improve each page of the website. Upon discovering a great amount of obsolete content, they took measures to bring all information up to date. Others also worked on creating a fresh design for the site. The result, which features a morphing carousel and eye-catching vector graphics, is brighter, more energetic, and more organized.

"Not only is it easy to navigate around this website, but the new design and layout is so relaxing that if I'm stressed with Robotics, I just stare at the website and I feel better," said sophomore Joshua Yuan.

The revamp also brought in a wave of positive feedback. Team members received compliments from other teams, saying that the new design was a great improvement aesthetically.

According to the school principal, Gail Davidson, "It is really fantastic, so filled with student creativity and learning." As a bonus, the newfound energy towards the website has positively affected other aspects of the team. Following the revamp an increased amount of event recaps were posted to keep the website content fresh, and more photos were taken at events to add to the expansive photo gallery. Even after the release of the new site, team members continue to take and implement suggestions for improvement. Site content continues to be updated and tweaked to make the website as professional and complete as possible. Send the team your thoughts—every word will be read. Promise. 🤖

## Upcoming Events

**FRC 2012 - 2013 Build Season (Jan 5 - Feb 16)**  
Where the fun begins. This is where the real robotics experience happens. Join us in building and designing our robot! No experience necessary.

**Boston Regional (Mar 21 - 23)**  
Our first competition of the season in the historical hub of Massachusetts!

**Silicon Valley Regional (Apr 4 - 6)**  
The annual competition in our local area. Come watch us play!

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