



# MONKEY BUSINESS

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



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## Upcoming Events In School

Workshops:

Electrical (*Monday*)

CAD (*Wednesday*)

Machining (*Thursday*)

Software (*Friday*)

Animation (*Saturday*)

**Out of School** — Oct. 11 - 12

San Francisco Fleet Week

**Competition(s)** — Oct. 3 - 4

CalGames

## 2014/2015 Officers

Co-Presidents:

*Raphael Chang, Brent Yi*

Vice Presidents:

*Nikunj Khetan, Srinjoy Majumdar*

Vice Presidents of Engineering:

*Rahul Iyer, Tony Peng*

Electrical Lead: *Shikhar Jagadeesh*

Hardware Lead: *Owen Li*

Software Lead: *Manoj Vasishtha*

Event Manager: *Nikita Seth*

Media Lead: *Megan Lau*

Public Relations: *Joshua Yuan*

Treasurer: *Patrick Dong*

Secretary: *Amrita Iyer*

Webmaster: *Brandon Strong*

## Editor-in-Chief

Megan Lau

## Editors

Owen Li, Nikita Seth,  
Alex Shmakov, Brent Yi



Dear Funky Monkeys,

Welcome to our team! Be prepared to experience the best four years of your life, filled with robots, monkeys, food, friends, and more robots. You are joining us during a very exciting time; in the last two years, we have claimed our first regional victory, gained extensive support from our school and sponsors, and have grown extensively in both members and mentors.

You might be wondering what part

*continue Raphael's Welcome, page 2*

To our new, aspiring young Funky Monkeys:

The team has come a long way since my freshman year, when we had only just received a permanent room on campus. In three short years, we've filled that room with a variety of tools and machines. We've mastered a new CNC mill, vinyl cutter, lathe, and 3D printer. We reached the finals of a regional competition for the first time in 2013, won a regional for the first time in 2014, and gained a number of

*continue Brent's Welcome, page 2*

## Chezy Champs

We attended the very first off-season Chezy Champs competition, finishing as one of the finalists.

*Nikita Seth (junior)*



Owen Li stands next to Paul Copioli, president of Vex Robotics, and game announcer Karthik K. during alliance selections.

Starting on August 29th, the Funky Monkeys competed at the inaugural Chezy Champs competition, hosted by

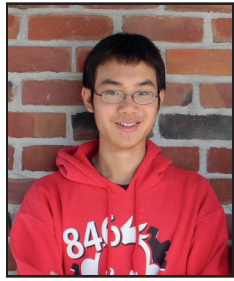
Bellarmino College Preparatory and FIRST Team 254, The Cheesy Poofs. Although it was our first off-season competition with a new drive-team, our team performed exceedingly well. We finished the qualification matches as the second seed, picking Team 971 from Mountain View High School and Team 2135 from Presentation High School to join our number two alliance. We did everything we could, played some amazing matches, and blasted our way into the finals. In addition to the Finalist trophy, we were presented with the "Most Improved Team" award for our "endless pursuit of excellence, working during the off-season to improve [our] robot or strategy".

Four teams came to Chezy Champs from out of state, a number that is incredibly high for most off-season competitions. Team 148 came from Texas, and Teams 1318, 1983, and 2928 all came from Washington. Why did

*see Chezy Champs, page 2*

## Presidents' Welcomes Continued

*Raphael's Welcome Continued from Page 1*



you will play in this dramatic growth of the team. Our team grows by having all sorts of members with different skills they can contribute. Each one of you has a unique set

of skills that will undoubtedly play a part in the years to come. Allow me to offer an observation I have gained in my years on the team. A wise man once said, "A lot of people never use their initiative because no one told them to." When members become active on the team, there are two paths they can choose: to follow or be followed. There are those people who simply do what they are told, without question. This is the majority of the people. There are also those who think on their own to dream of new challenges to conquer. These people become leaders on the team, defining projects and driving them to completion with the help of others. These people are the key to the success of our team. With students to lead visionary projects to completion, our team will advance to levels higher than before. I challenge all of you to take this harder, less travelled path. Use your skills and define a place for yourself on the team. This is what will keep our team on this upwards trend and define our success.

As new members, these options are completely open to you. The first steps are simply to get involved and try everything. Step into room 612 and see what we are working on, attend our workshops to learn essential skills, attend our competitions to experience the excitement. You have already taken the first step of initiative to join this team, now take it a step further and actively engage yourself in our activities. Then, in a few years when you are in our positions leading the team, you will look back on the path you've taken, and you won't regret it.

*-Raphael Chang, Co-President 2014-2015*

*Brent's Welcome Continued from Page 1*



members with a seemingly endless amount of motivation and dedication. Each new year has brought new potential, and this year is no different.

But, in the words of one of our past presidents, potential is not success. Success is going to require patience, hard work, and dedication. It's going to need a few late nights, some frustration, and a whole lot of persistence. Most importantly, it's going to require people. People like you. People who come into our team with little more than time and an open mind, and finish the year with a sense of pride in not only what they've learned, but what they've accomplished and contributed.

To be honest, I really don't know why I originally joined the robotics team. I remember having a whole host of reasons why I didn't want to, though. My favorite subjects definitely

*"If you can't find an opportunity, make one."*

didn't include math or science. I didn't think that I was any good at either of them. I didn't have any friends on the team. I needed to spend more time on my grades.

But I gave it a shot. I don't know why, but I did. And I really, really liked it here.

Perhaps you're like I was, and don't know why you're even reading this. Maybe you've got every detail of the next four years of your life planned out. Whoever you are, whoever you want to be or are planning on becoming, here's what I have to say to you: give everything a chance, especially things you aren't sure about. If you can't find an opportunity, make one. Step past your comfort zone. Maybe you'll like it. I did.

*-Brent Yi, Co-President 2014-2015*

## Chezy Champs

*Continued from Page 1*

they come all the way to California to compete? According to a member of Team 1318, the winners of the 2014 Pacific Northwest District, "Chezy Champs . . . was different from other offseason competitions". Team 1983, Skunkworks Robotics added that because "many powerhouses attended, which made the competition more exciting." The overall consensus of the out-of-state teams that came was that the competition was an impressive experience, and worth flying to California for.

But how exactly was Chezy Champs different from other competitions? Why did so many powerhouse teams decide to come? Why did we decide to go, to begin with? There are plenty of explanations, the most obvious of which is the fact that Chezy Champs was hosted by our friends at Bellarmine, Team 254, *The Cheesy Poofs!* They are arguably one of the strongest teams in the world, having won twenty-seven regional competitions, more than anybody else in the world, and the World Championships in both 2011 and 2014. But, beyond that, we also went to Chezy Champs because it sought to set a new standard for not only offseason robotics events, but for FIRST robotics competitions as a whole. They looked to not only fix all the issues that official competitions had, but also to completely revamp the overall quality of the event. Like many other offseason events, Chezy Champs took the opportunity to tweak rules and match logistics, based on feedback from the spring competition season, and they took it even further. Team 254 implemented a fully-functioning webcast, ESPN-style commentary, and even built a custom field management system that automatically published match scores on the web. Chezy Champs revolutionized the FIRST experience.



Driveteam members Srinjoy, Owen, Raphael, and Rahul proudly hold the Funky Monkeys' new awards.



## Decline in Donations

The California law AB1575 is detrimentally affecting our team.

Owen Li (junior)

On September 29, 2012, Governor Jerry Brown signed AB 1575 into law, reinstating a former law that prohibits students from being required to pay fees in any school-related activity. Lynbrook and the Fremont Union High School District (FUHSD) began enforcing this law in the 2013-2014 school year, threatening to disband any club who required membership fees. Among the activities affected is our Robotics club, which has experienced a loss in member and parent financial support.

Each year, the Lynbrook Robotics Team needs a significant amount of money to cover its operating expenses, which range from FIRST registration fees to robot material purchases. All of this adds up to about \$25,000, a third of which was once covered by our student membership fees. However, after the law was implemented, our team experienced a 40% drop in funds raised from our members. We spent a huge chunk of time calling parents and reaching out to our membership for donations, but upon receiving a poor response from members, we were forced to search for additional corporate sponsors, using valuable time that we could not afford.

Let us go back a few years. Back when we could collect membership fees. Our team had more than 130 members who were more than enthusiastic to pay to become a member of the team. However, after the law was implemented, our membership dropped down to 80 members, with only 45 donating, even when we had members call parents to ask for donations, and explained how their contribution would help our team succeed. This statistic begs the question: Why were more people more willing to pay when it was a fee, but are less inclined to contribute when it became a donation?

We may never know the answer, but we do know one thing for sure: our team would not be possible without contributions and support from our students and their families.

## Funky Summer Jobs in Robotics

Robotics members take on summer projects and internships using their experience in robotics

Alex Shmakov (senior)

*Over the summer, many Funky Monkeys took opportunities to explore science and technology in activities outside of school and robotics. They took internships that expand their knowledge and experience with engineering, or create personal projects that showcase what they've learned throughout high school. Here are a couple examples of our members' summer activities:*

### Electric Skateboard

Working off the experience he gained while building an electric longboard with former Vice President Eric Yeh last year, Brent Yi designed a new and improved motorized skateboard over the course of the last school year. He modeled each part of it using the Autodesk Inventor CAD skills he learned through robotics, before finally using a combination of 3D printed plastic and machined aluminum to bring the skateboard to life over the summer. The skateboard, which uses a belt drive and motors designed for radio-controlled planes, is controlled by a wireless game controller made for the Nintendo Wii. It can travel at a maximum of 20 mph for over 15 miles, and is a lot of fun to ride: I recommend trying it out if you ever get a chance!



It looks like a regular longboard, but it's actually an electric vehicle!

### Savioke

Our Co-President Brent used the computer-aided design, programming, and 3D printing experiences that he procured from robotics to work at a startup robotics company named Savioke. With his company's impressive variety of 3D printers and robots, Brent further explored aspects of STEM. He also exercised his programming skills to help develop the tablet interface on Savioke's "SaviOne" robot, a robot that delivers supplies and food to guests at hotels. The intelligent SaviOne is capable of automatically navigating between floors to travel from the front desk to guests' rooms. You can check out Brent's work at the Aloft Hotel in Cupertino, where the first SaviOne is currently delivering towels and drinks to its customers.



The "SaviOne" butler robot.  
Photo Courtesy of Savioke.com

### Nanosyn

Current Co-Electrical Lead Alex Shmakov used his experience in chemistry and computers to work at a startup drug synthesis company known as Nanosyn. Working in the labs to test and purify chemicals, Alex learned the intricacies of spectroscopy and other forms of chemical analysis. Using a

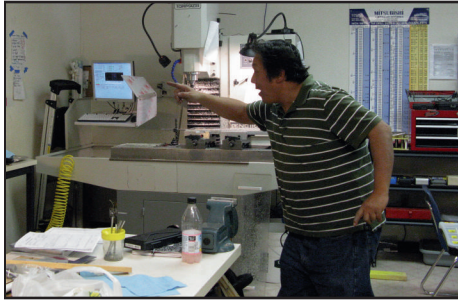
*"in one day he could separate over 100 different solutions with the help of a robotic system"*

process known as ion spectroscopy, Alex separated compounds into their individual chemicals and masses. However, he did not just work on one or two compounds at a time: in one day he could separate over 100 different solutions with the help of a robotic system to transfer and separate the solutions. Alex's experience in robotics proved to be valuable when he combining chemical skills with computer automation!

## What is Your Opinion: Should Mentors Be Allowed to Coach?

Why mentors should be prohibited from being a drive team coach

Megan Lau (senior)



Fernando feigns exasperation.

At competitions, adult mentors are everywhere, from inspecting robots to being on the drive team commanding every move of the robot. Though these mentors that are on the drive team do help in increasing the experience level of their team, it turns out that mentors are actually winning medals for their teams and, in turn, students are unable to fully experience competitions.

Some people, like team 1323 Madtown Robotics' mentor Andrew Lawrence, strongly believe in the phrase "you can't teach experience". Lawrence says that the coach position on the drive team is "not really a spot for students to be in. The student's supposed to be learning. The coach doesn't really do as much learning as teaching". Mentors obviously know more about a variety of topics and have the ability to lead more efficiently from years of experience as compared to a high school teenager, but at the same time they should not dictate the drive team's actions. Even if the coach position seems to be a spot for the skilled and knowledgeable mentors, students can learn to be great coaches as well. Students can ultimately develop numerous skills such as decision-making, communicating, and thoroughly knowing the functions of the team's robot all with practice during competitions to become a coach.

Not allowing mentors to be on the driveteam also gives students a chance to learn and understand the robot, the game, and its strategy. This truly exemplifies FIRST's ideal of "inspiration" since students involved

succeed in learning, rather than merely focusing on achieving glory at competitions. In the case of all-girls teams like Team 1868 the Space Cookies that hold a "pro-student" standpoint, prohibiting mentors from coaching eventually promote another FIRST's goal to inspire others because it would create better chances for girls to be on the drive team and balance the ratio of boys to girls in engineering.

Since a student cannot learn experience, he or she should be allowed chances to build up experience levels. Even a student from Team 1678 Citrus

Circuits, which has a mentor as a coach agrees that "it should be student-driven drive team, not a mentor driven team." If a single mentor constantly assumes the role of his or her team's drive team coach, students may neither find a chance to continuously hone these important skills nor interact with other teams. Therefore, by ruling for student-only drive teams, mentors would be doing a favor to students by providing chances for students to learn and accomplish the task of winning a game on their own.

## World Championships

Funky Monkeys take the World Championships by storm

Raphael Chang (senior), Owen Li (junior)



Our victory in Cleveland qualified us for World Championships.

The 2014 season has truly been a monumental one for our team. We worked tirelessly all throughout build season, and when stop build day came around, we had put together a very competitive robot. We flew over to Cleveland and won the Buckeye Regional, winning our team's very first blue champions banner. Because of this, we were able to take a step further and travel to St. Louis, Missouri to compete in the Newton Division at the World Championships.

We were more ready than we ever were for the World Championships this year. In the weeks preceding the competition, we targeted all the weaknesses we discovered at our previous regionals, and we went into the competition with a robot we were confident would do well. After a slightly rough start with getting all the parts replaced on our competition robot in the pits, we went into our first match all guns-a-blazin'. Our first matches were accompanied by the announcer saying, "846 has returned stronger than ever." Unfortunately, we suffered two losses in the middle of the qualification rounds, but that did not stop us. We finished qualifications as the 7th seeded team among the 100 teams in our division, and held the highest Offensive Power Ranking in our division!

In alliance selections, we were the third pick of the draft, selected by the third seeded team, team 910, who happened to also be our alliance captain from the Buckeye Regional. After two intense, quarterfinal matches, we were defeated by team 971, a powerhouse team and our friends from Mountain View high school.

And while the 2014 season winds down to a close, it's time for our team to refocus on the upbringing and nurturing of a new generation, to make sure that our successes build upon each other for all the years to come. And as we look forward to the 2015 season, we will do as we always have — Build, Learn, and Inspire!