Fall 2020 Volume 28

Monkey Business

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

Editor-in-Chief
Shriyanshu Kode

Editor
Joseph

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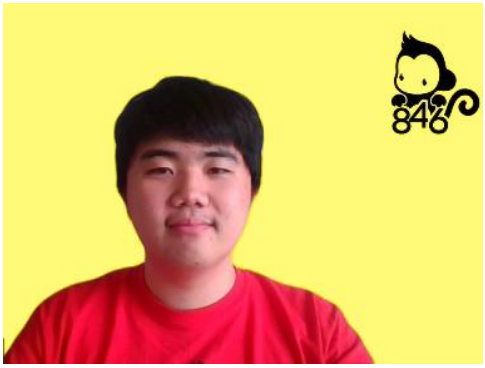
Presidents' Welcomes



Joonha Hwang (sr.)

My first time at a robotics event, there were screaming cheers at the top of my lungs for the yellow robot on the field—our robot—"Wes," it was called. It zoomed around the field, lifting up milk crates to score, and latched onto a metal bar to climb up at the last second. The buzzer sounded at the end of the match, and the crowd around me erupted into deafening cheers once blue fireworks showed on the scoreboard, signaling our victory. As soon as the match was

see ***Joonha's Welcome****, page 2*

Isha Venkatesh (sr.)

I remember seeing the robot tower over me for the first time as a freshman. I was surprised at how something so big and complex was built by students my age! Just three months later, I was working on building a robot just as big and complex as the one I first saw.

When I first joined Lynbrook Robotics, I had no idea there were so many different areas I could be involved in. Whether you're interested in design, machining, and software

see ***Isha's Welcome****, page 3*

KLA RoboGames

Our First Virtual Event

Hari Parthasarthy (jr.), Sid Kannan (jr.)

This past year was a tumultuous one for our team and the many other FIRST teams. The pandemic cut our season short, and we couldn't compete with the robot we had built, but the Funky Monkeys remained committed to making the best of the situation. Instead of quitting when the season was canceled, we shifted focus to participate in the second annual Robogames, hosted by KLA. Team members spent hours carefully preparing submissions for nine awards covering both the technical and nontechnical aspects of our team.

Over the summer, twelve members prepared essays, document packages, and videos that showcased our design process, team culture, and outreach efforts. Our efforts were rewarded when the Funky Monkeys were recognized with not just one but two awards: the Excellence in Engineering award and the Innovation award. Sam Pi had prepared a document package detailing the math, modeling and planning behind our turret and shooter, winning the Excellence

FIRST Director Theresa Bateman and Funky Monkey alum Anna Shaposhnik as the Masters of Ceremonies for the 2020 KLA RoboGames.

see **KLA RoboGames***, page 3*

The Monkey Bars Journey

Connecting with the Community

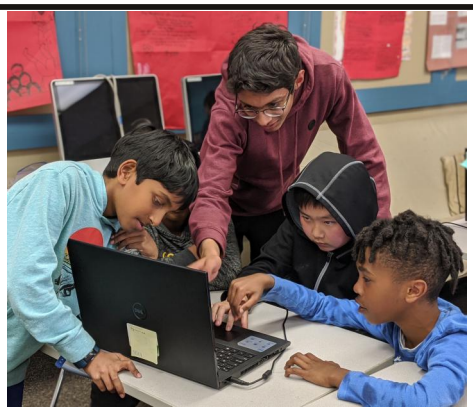
Hari Parthasarthy (jr.)

Monkey Bars. I am not referring to the colorful bars that decorate elementary school playgrounds. I am referring to Team 846's new outreach program. The Monkey Bars initiative unified all of our middle and elementary school outreach initiatives (Miller Robotics, FIRST Lego League teams, demos, and FLL info sessions) under one workgroup that works to introduce middle and elementary school students in our community to robotics and engineering. Over the past year, the Monkey Bars team has worked with Ms. Amin, our mentor, to improve ways that we teach and engage our students.

Hari Parthasarthy (jr.) teaches students at our local middle school basic LEGO robotics.

Our first few meetings centered around expanding existing programs. We asked ourselves how we could expand Miller Robotics and how we could scale to reach more FLL teams. Our goal was both to broaden our reach and to improve the experience of the students we already had. While previously the Miller Robotics curriculum only focused on LEGO Mindstorms EV3, we have developed four new curriculums: a VEX curriculum, an Arduino curriculum, basic EV3 on Mindstorms, and Advanced EV3. The Monkey Bars team also planned and presented a demonstration of our robot at the Google FLL Qualifier to over 200 students and mentors.

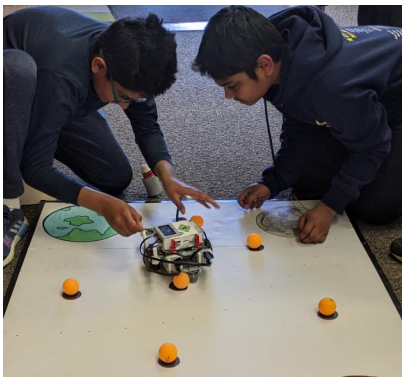
In conjunction with the expansion of our prior offerings, we recruited new members to join the initiative. Over the past few months, our team has gone from a small team of five students to a large workgroup of over nineteen active members. Monkey Bars acts as a training ground for underclassmen to improve their presentation and teaching skills. As their confidence has grown, these underclassmen have taken on projects of their own. For example, freshmen Kaustubh and Yuvraj have planned a workshop on Arduino for Miller Robotics students. We hope to continue brainstorming new ideas, and giving new members the chance to gain leadership and confidence through this initiative.



Arnav Doshi (soph.) helps a Miller robotics team fix their software bugs.

"Monkey Bars acts as a training ground for underclassmen to improve their presentation and teaching skills."

Looking back at the growth of Monkey Bars, it is really amazing to see the amount of progress that has been made over such a short period of time. While it originally began as a small idea to gather existing outreach projects, Monkey Bars has become the Funky Monkeys' primary outreach initiative. We will continue improving this initiative throughout this upcoming year and continue providing a playground for students to explore the depths of robotics.



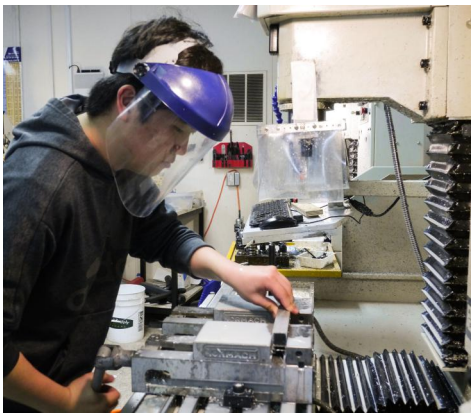
Miller robotics students put their skills to the test on a custom game mat created by the mentors.

***Joonha's Welcome**, Continued...*

over, I remember running down to the pits to do whatever maintenance and improvement I could do in the short time between matches, and rushing back to the stands to watch the next match. And as I watched the 125-pound piece of metal—our piece of metal—come to life on the field, I fell in love with robotics: I was proud of the robot we had created.

"Robotics is an opportunity for you to explore all your curiosities."

The thing that excited me in my first year was the robot itself, and I soon grew passionate about other non-technical tasks such as writing to ask grants from donors as I found them necessary to continue working on the robot itself. Robotics is an opportunity for you to explore all of your curiosities—from working with mechanical designs to create the robot to publishing newsletters and photo journals that thousands see every year, from creating artwork to promote the team to writing software to make the robot drive around, Robotics is a place where you can pursue your passion.



Joonha Hwang (sr.) machining a part on the CNC during one of the last days of build season.

Over the coming months, even in this pandemic, the Funky Monkeys will continue to have the most fun in our work. With new ideas, both in technical and non-technical aspects of the team, Team 846 will continue to *build, learn, and inspire*. So from the bottom of my heart—no, my metal-chip-and-tool-filled hoodie pocket—I hope you find the same magic I found in Lynbrook Robotics.

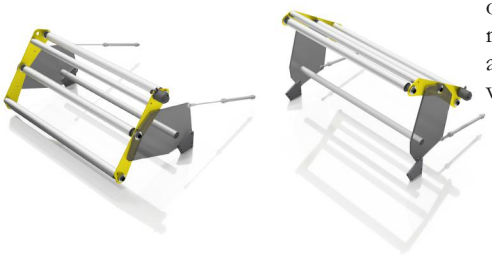
Summer Activity

Covid-19 Can't Stop Us!

Conrad Ho (jr.)

This summer, we worked virtually to improve our robot. Because of the stay-at-home order, we were forced to develop methods to work remotely, and our team rose to the challenge! We conducted Zoom meetings to discuss ideas, and when we weren't on a Zoom call, we were typing away on Slack. The relatively stress-free environment of summer also provided an opportunity to teach rookie members. Jing-Chen Peng, an alumnus and former 846 Co-President, held workshops weekly on Zoom about pneumatic usage in design. We learned how to choose pneumatic actuators by calculation, use geometry to determine the design of the intake subsystem, and more advanced Computer-Aided Design (CAD) skills that are not taught at our fall workshops.

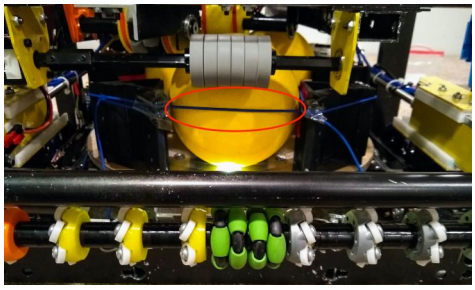
While that was going on, the design team was hard at work redesigning the intake and storage subsystems. For the intake, we worked to fix the problem of balls getting stuck under the robot while collecting. For the storage, we worked to fix the carousel's jamming problems. In order to test out new designs, we relayed our ideas to the team member who housed the robot, and he ran whatever tests were required and relayed the results back to the team.



The intake subsystem, designed by students over the summer, in its deployed position on the left and stowed on the right.

Because we felt that there was significant room to improve the entire robot, we recently decided that we would be redesigning the whole thing in an artificial build season. Because of the stay at home order, we aren't sure if we will get to machine the bot, but the redesign process itself will provide experience for our members and improve their design skills. It also provides us with a low risk setting to try out new ideas and improve on the previous year's design. Working remotely has been an interesting challenge, and we're excited to be able to continue developing our robot!

"We were forced to develop methods to work remotely and our team rose to the challenge!"



The carousel spins as we test how effective bungee cords (annotated in red) are at securing the power cells (yellow balls).

***KLA RoboGames**, Continued...*

in Engineering Award. Patricia Chang, Ankith Madadi and Sid Kannan received the Innovation Award for their video presentation explaining the team's efforts in developing a food rescue app for a local food redistribution network.

Despite the disappointing end to the season, the Funky Monkeys are proud to say that our members stayed engaged in robotics. While we can't wait to return to the thrill of in person

The team's virtual trophy for the Innovation Award at the KLA RoboGames for the team's efforts in developing a food rescue mobile app.

The team received the Engineering Excellence Award at the KLA RoboGames.

***Isha's Welcome**, Continued...*

Isha Venkatesh (sr.) wiring the robot on stop build day last year.

or art, writing, and business, there's a place for you.

As a freshman, I discovered my interest in electrical by attending the fall workshops. These workshops gave me the opportunity to explore different areas on the team and taught me the basics, preparing me to contribute during my first build season.

Four years ago, I would never have guessed how much this team has helped me grow. I use so many of the skills I've developed at robotics in my everyday life. Lynbrook Robotics has helped me become more confident in myself and more comfortable speaking in front of a group. The fast-paced six weeks of build season taught me time management, organization, and most importantly, that hard work pays off. Going to competitions and seeing our robot compete (and win) is one of the best feelings ever! The energetic atmosphere at competitions surrounded by passionate people is something I look forward to at the end of every season.

"Robotics has helped me become more confident in myself and more comfortable speaking in front of a group."

Although this season is different from usual, I am confident that you will find a place on our team and have a great experience just as I did. Get ready to make some of your best high school memories!

I'm so excited to welcome you to our Funky Monkey family!

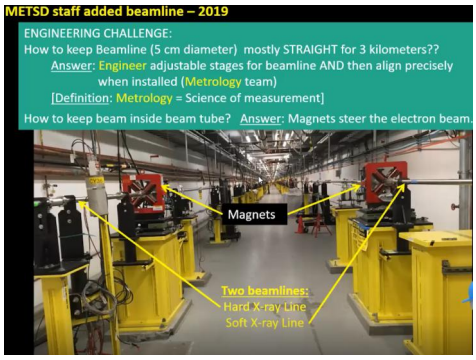
Summer at Stanford

Funky Monkeys take part in the Stanford/SLAC Sage-S Program

Swasti Jain (jr.)

Oftentimes, we're taught that a career in STEM is a one-track path. That being a scientist, researcher or engineer meant you had to compromise your creative ingenuity for a more practical and logical approach. At the SAGE-S (Science Accelerating Girls' Engagement in STEM) program, we received many career talks from various female scientists, researchers, and engineers and from every presentation

"I realized that creativity and logic weren't two mututally exlusive things."



Picture of the particle accelerator at the Stanford Linear Accelerator Center.

and conversation, I realized that creativity and logic weren't mutually exclusive things. In retrospect, it does seem intuitive, but what caught me off guard was how dependent those two elements are upon each other.

Besides these career talks, SAGE also offered fun at-home projects. Given how the camp wasn't able to operate in person, these at-home projects were incredibly thoughtful and engaging. The camp instructors shipped us a box of a few small projects introducing basic concepts like circuitry, laser diffraction, and drag and drop type programming.

"We discussed traits important for collaboration and leadership."

We finished off each day with a Professional Growth Sessions. In which, we discussed traits important for collaboration and leadership. Perhaps, my favorite lesson was the one based on a common improv technique: "Yes, and..." Though the activity was lighthearted and very silly, the intention of this message proved to be extremely helpful to me.

Upcoming Events

Monkeying About

Shriyanshu Kode (sr.)

Even in this pandemic, the Funky Monkeys plan to have an action-packed schedule, albeit virtually. We will still be hosting our eight week long workshops for new members to learn more in each of these areas: software, machining, electrical, design, media, and animation. These workshops do not require prior experience so don't be afraid to join!

We also have plenty of exciting team events coming including our Fall Social coming up on September 26th. We'll have plenty of fun online games and activities, and this is a great time to connect with more people on the team.

The Funky Monkeys are looking forward to having a blast, so make sure you don't miss out!

Workshops

Mon - Electrical

Tue - Animation
- Machining

Wed - Design

Thurs - Media
- Arduino

Fri - Software