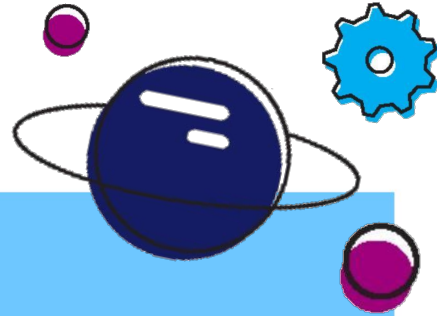


5327Z

GIRL POWERED

Changing it Up, One Girl At a Time





Making a Change

Bringing Girls Up in STEM

When pursuing a career in STEM, women oftentimes find themselves in male-dominated workplaces and face pervasive gender discrimination. As Catalyst describes, “Their contributions are often ignored; they experience isolation caused by lack of access to women peers, role models, and mentors; and they are paid less than their male co-workers.” This, along with the implicit bias against girls pursuing STEM in education, pushes many girls away from pursuing STEM careers (Carlana, 3). Prompted by this issue, 5327Z has set out to provide a welcoming space for both our male and female classmates to explore their STEM interests and develop their skills.

Our Origin Story

Being one of the newer teams to join Gael Force Robotics, 5327Z began its journey just last year during **Tower Takeover**, creating a team that **consisted of an equal amount of male and female members**. When entering this year's Change Up season, our captain intended to recreate the same welcoming environment she had experienced on her team last year. This led our team to **originally have 4 boys and 4 girls**. Because we prioritized inclusion and diversity when recruiting members, 5327Z not only has members with **strengths in different fields of VEX robotics**, but also **varying perspectives on robot design**.

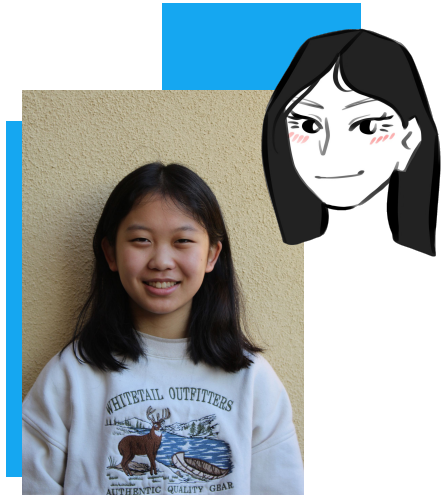


“Changing Up” the Team

Originally, our team had an equal amount of males and females, but we wanted to take advantage of our several more experienced members and recruit a newer, younger student. This way, we could **pass on our knowledge** and expand on **our mission to encourage more girls to join robotics in the future**. As a result, we were able to recruit **Jeia So**, a freshman who had a year of experience from being on an all girls team during her 8th grade year, and was already equipped with foundational skills. Today, with her addition, we have 5 girls and 4 boys, making us the only Gael Force Robotics team with **a female majority**. Being a new member, her skills have grown and she’s been able to gain more **hands-on building experience** while **learning and understanding** the reasoning behind the changes she was making. Overall, through the inclusion of young girls in robotics, 5327Z has been able to **encourage future female leadership** from our members.

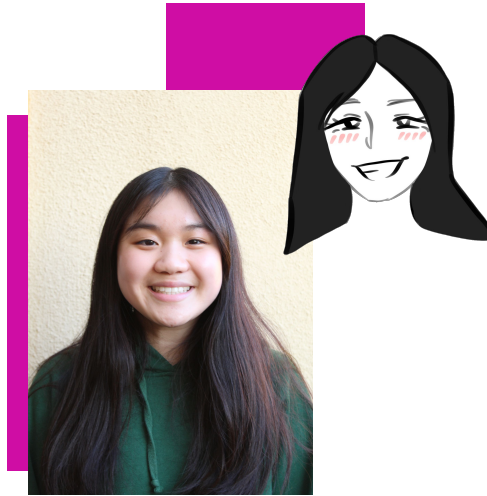


The Girls Powering Our Team



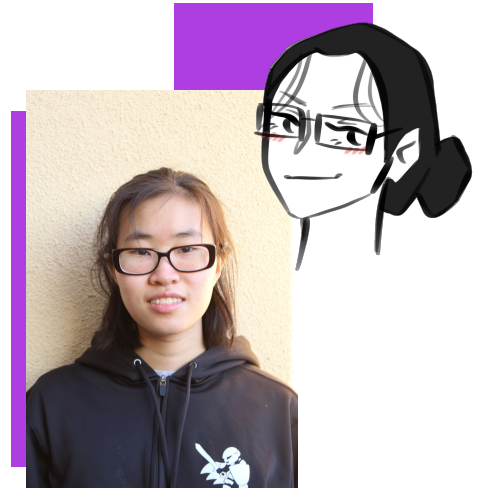
Karen Zhao (she/her)
CAPTAIN

Karen is the **only junior female captain** from her school this year, leading her team with two years of experience in VEX. As captain, she **teaches her members** about building, programming, and the design process while **also allowing them to experiment and grow as individuals**.



Chelsea Lee (she/her)
LEAD CAD AND DESIGN

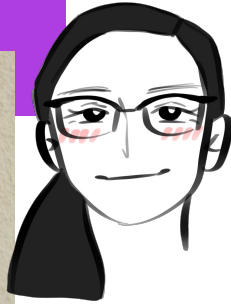
Chelsea is a **junior member**, with this being her second year participating in VEX. Due to her **prior experience with Autodesk Inventor**, she is the lead designer of the robot, and **brainstorms with other members** to CAD the robot before building it.



Angela Chao (she/her)
LEAD BUILDER

Angela is a **senior member** on the team, with two years of experience in VEX. Her **strong passion for physics and mechanics** has allowed her to develop a sharp build intuition throughout her robotics journey. Using this, she **helps as a mentor and a leader when building** with the team.

The Girls Powering Our Team



Polly Peram (she/her)

BUILDER AND NOTEBOOKER

Polly is a **junior member** and this is her first year on a VEX Robotics team. She's always had an **interest in both biology and technology**, but has shied away from tech for most of her life. This year however, she was **inspired by her female classmates** and decided to give her tech interests a shot!



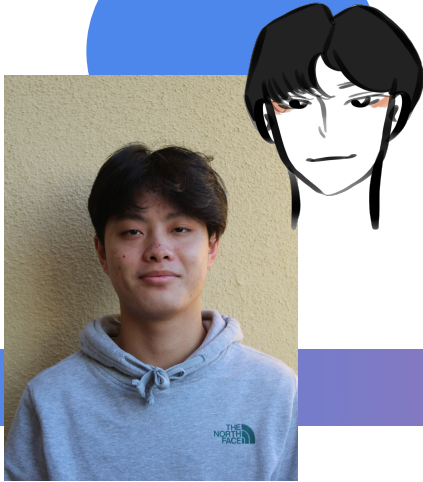
Jeia So (she/her)

BUILDER AND PROGRAMMER

Jeia is a **freshman**, and although this is her first year in high school, this is her second year on a VEX Robotics team. Using her experience from being on an all girls middle school team last year, she's able to **learn quickly by communicating with her peers**, this time **both male and female**.

The Other “Brain”s Behind the Bot!

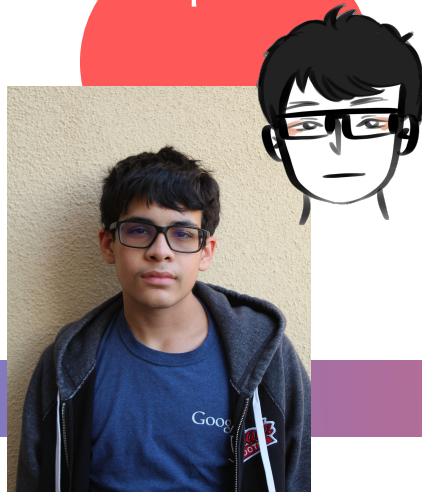
sophomore



Dylan Wang (he/him)
BUILDER

always wins with his
build intuition!

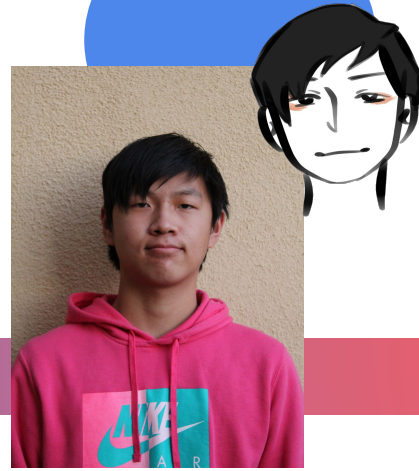
sophomore



Andres Silvera (he/him)
PROGRAMMER

puts the “pro” in programmer!

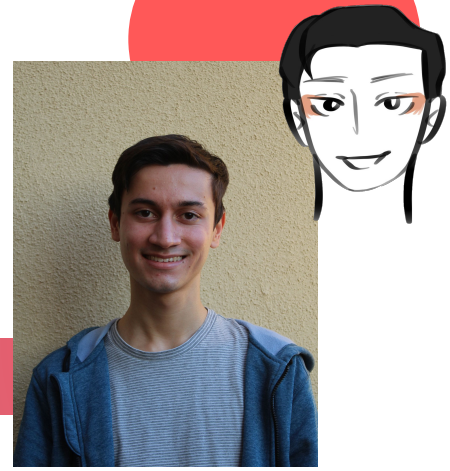
sophomore



Samuel Wu (he/him)
BUILDER

greatly skilled in the
world of build!

senior



Jacob Sommer (he/him)
PROGRAMMER

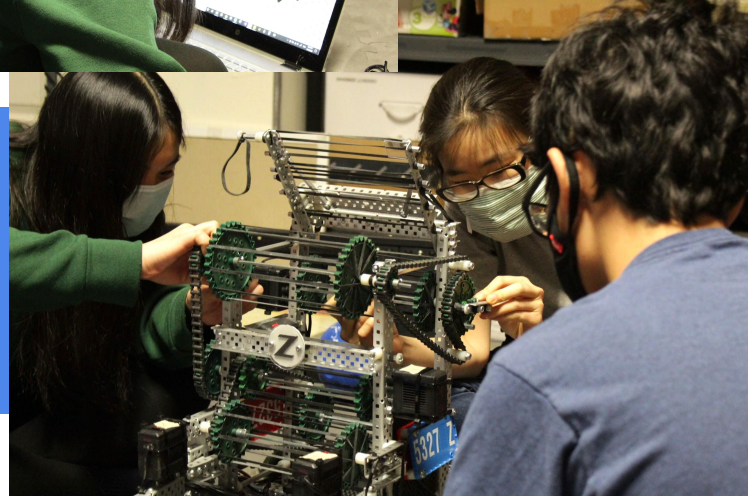
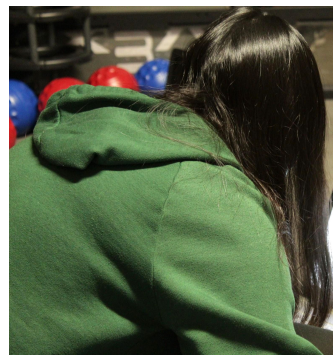
nothing he doesn't know
when it comes to code!

Team Chemistry

Through our diverse team make-up of both boys and girls, we've been able to incorporate a variety of ideas and perspectives into our robot design, forming a close-knit team along the way. Our meetings are both fun and educational, as we're constantly learning new things about robotics and each other. Having a cooperative and fun group welcomes members to suggest new ideas both comfortably and confidently.

No “Limit” to the “Size” of Your Role

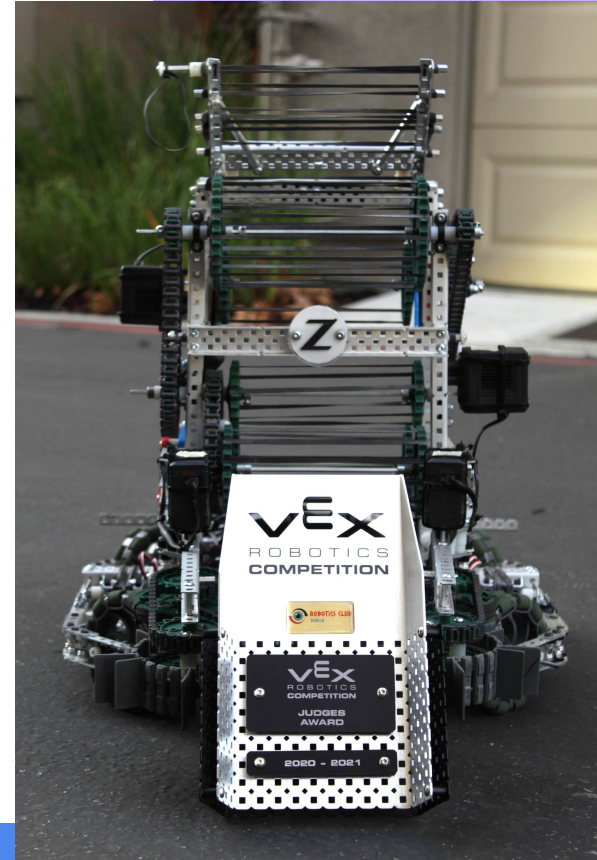
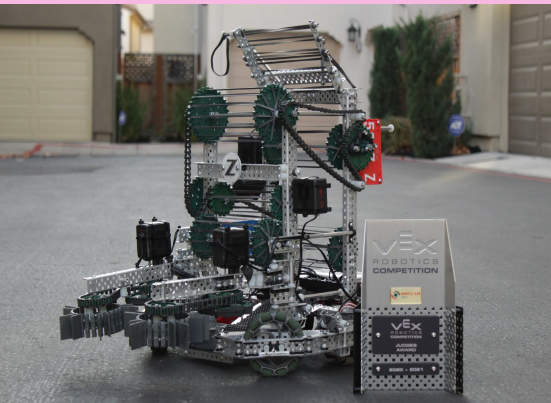
At the beginning of the season, there were no designated roles for our members on the team, as we wanted people to have the opportunity to **experiment with different aspects of robotics**. Then, as the year progressed, we've given assigned roles based on a member's expertise and interests, whether that be building, programming, CADding, or organizing the engineering notebook. But **our members are never restricted to these roles**. We actively initiate discussions during meetings to **help each other obtain new skills** and **further our own knowledge** by gaining others' insights on our ideas. When a member wants to participate in a certain activity within our meeting and learn the skills required to do it, they **don't hesitate** to ask and involve themselves.



A “Drive” to Succeed

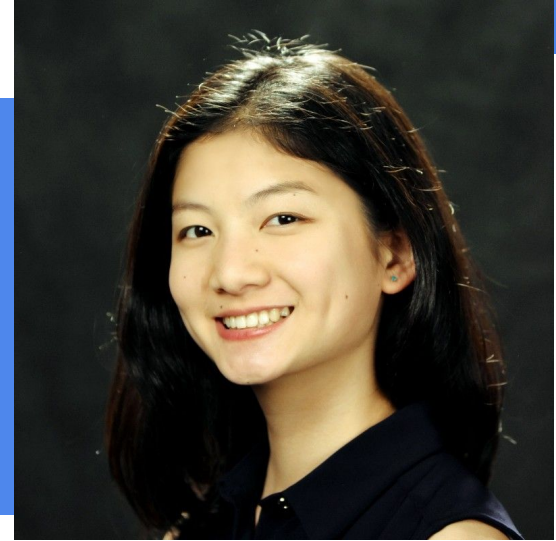


After working long hours as a team and constantly searching for new solutions to implement on our robot, our efforts paid off. In just our first competition of the season, we were able to win a **Judges Award!** Dylan and Chelsea were the drive team members for this competition, and **we plan on bringing different members to each of our future tournaments**, which will allow for everyone to have more **hands-on experience as a strategizer** in a competition environment.



Our Inspiration

Christy Koh, the first female president in the history of Gael Force Robotics, and an exemplary leader in our eyes. Being one of the few girls in robotics during her freshman and sophomore year, **Christy played a critical role in the programming aspect of her team**, aiding in producing their autonomous programs. Continuing her passion for engineering, she became the **only female captain in Gael Force Robotics during her junior year season**, In The Zone. With Christy's leadership, her team, 5327C, won second place in the Texas Instruments Innovation Challenge along with multiple awards throughout the VEX season. During her senior year, as **president of our school's Gael Force Robotics club**, she advocated for female representation and different perspectives when teaching new members of VEX in our Gael Force Academy. She's now enrolled in UC Berkeley's EECS program. **Christy's accomplishments have inspired our female members** and given us the confidence to push forward as girls in STEM. We hope to further influence girls to join robotics, so they can fulfill their greatest potential, just as Christy has.

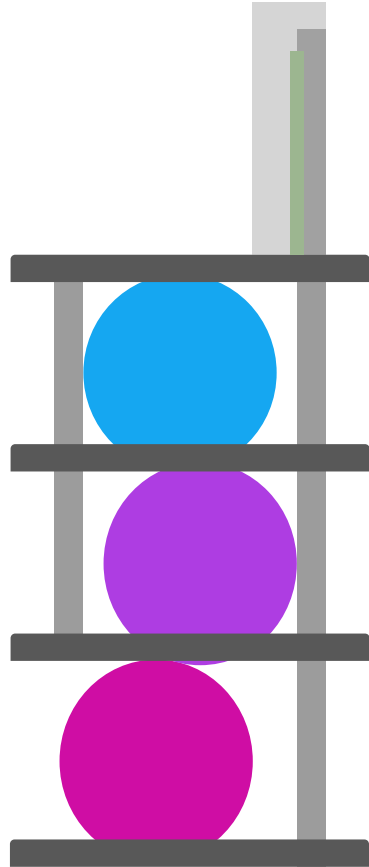


Our Ultimate “Goal”

Following in the examples set by our female role models, team 5327Z strives to **continue creating more inclusive environments for girls in STEM**, and encourage younger generations in VEX robotics to do the same. By creating equal opportunities and **allowing for diversity of thought** on our VEX teams, not only does the robot improve, but so does the future of technology in the real world. In addition, by **branching out to students in middle school programs** within our school district, along with members of our high school’s VEX Gael Force Academy, we can spread our influence and **encourage higher female participation in robotics and STEM in general**.

Girl⚡Powered

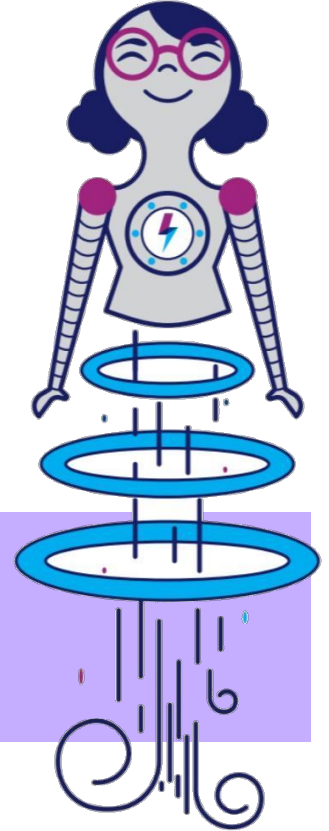
When we hear the phrase “Girl Powered”, it’s not about wanting to achieve a completely female dominant field. Rather, girl powered is about **empowering girls in order to narrow the gender gap in STEM**. Through the efforts of both men and women, Girl Powered **works towards a future** where in teams, classes, and workplaces, **female voices will be heard at the same level as male voices**.



Works Cited

Catalyst, *Quick Take: Women in Science, Technology, Engineering, and Mathematics (STEM)* (August 4, 2020).

Carlana, Michela. "Implicit Stereotypes: Evidence from Teachers' Gender Bias." *OUP Academic*, Oxford University Press, 2 Mar. 2019, academic.oup.com/qje/article/134/3/1163/5368349.



Credits

Names of entrants: Karen Zhao, Chelsea Lee, Angela Chao, Paulette Peram, Jeia So, Dylan Wang, Jacob Sommer, Samuel Wu, Andres Silvera

Team Number: 5327Z

Title of Submission: "Girl Powered: Changing it Up, One Girl At a Time"

