

Chairman's Essay 2020

We are Team Neutrino

What is success? To us, success looks like a freshman girl who discovers that she can bring CAD to life, or later when the same girl discovers the leadership qualities she never knew she possessed. Founded in 2011 by nine Ames High School students, 3928 has grown into a team of 35 dedicated students—a model for other FIRST teams. Team Neutrino catalyzes cultural transformation in Ames as we commit ourselves to the enrichment of STEM through FIRST in Story County and beyond.

3928's eight sub-teams have specific areas of focus, each with distinct goals and projects that further our team's overall mission. The Captain and Co-Captain oversee the technical and non-technical aspects of the team. This year we've developed Leadership Core, a group of nine student leaders and five lead mentors, to encourage communication between subteams. The Core keeps the larger picture of the team in mind and focuses on the future of the team beyond the current season. This year, with input from the broader team, Core redefined long-term mission and vision statements to guide team decisions.

Due to overwhelming interest in FRC this season, 3928 incorporated an associate role to open our doors to more students. Our six associates are invited to mentor FLL and FLL Jr. teams and attend offseason meetings, summer camps, and team bonding events. The associate role also prepares students to eventually become full team members as exemplified by two members this year.

This season, 74% of our team members are underclassmen. To train new students in crucial build season skills, returning members have organized annual summer camps since 2016. Students learn technical skills such as manufacturing, CAD, and programming, as well as non-technical skills like graphic design and videography. Throughout the offseason, student leaders continue teaching about mentoring, outreach, fundraising, and award submissions at full team meetings. These opportunities create a welcoming environment for NEWtrinos. As NEWtrino Humza said, "It's a great experience; everyone's always willing to work with you."

We are Expanding the FIRST Community

3928 prepares the future generation of innovators. We run dedicated mentoring programs in our community to expose elementary and middle school students to STEM skills they can use throughout their lives. Since 2014, we have mentored 34 FLL and 37 FLL Jr. teams at seven schools; since 2015, 3928 has hosted an FLL scrimmage for our teams to prepare them for competition. As FLL coach and 3928 mentor Dagny says, "It is super exciting to see all our FLL teams come together, and it's really the first time they feel like a team."

In the fall of 2019, 3928 created a Slack workspace for our FLL and FLL Jr. coaches and student mentors to exchange valuable resources, promote collaboration between teams, and connect the *FIRST* community in Ames. The Slack workspace serves as a "real-time" question and answer forum for teams throughout the season, with all team coaches chiming in. Our website is another useful resource for growing teams, providing documents regarding FLL and FLL Jr. program proposals, project and robot help sheets, and team building activities.

Beginning in 2015, 3928 began a mini-grant program that allows teams to request funding for specific needs such as season or competition registration fees. To remove financial barriers for growing FIRST programs, we prioritize sponsoring rookie teams and those who are not financially supported by their

schools. This past season, we provided \$1,200 in grant funding to six teams from the Ames community, and we have provided a total of \$4,389 to 28 teams since the program's founding.

Team member Henry sums it up best: "I mentor because mentoring is a lot of fun, and the more kids I can teach and help out, the more likely they are to have a future in technology and engineering."

We are Inspiring Future Generations

The Science Center of Iowa (SCI) remains one of our strongest outreach relationships. Since 2012, we have reached 27,579 people by assisting at 24 of their events, including both their annual Girls in Science Festival and Mini Maker Faire. At the Girls in Science Festival, Neutrinos use Snap Circuits to promote engineering concepts to girls of all ages. Seeing their need for volunteers, we brought 22 team members to volunteer at their Mini Maker Faire this past year—an act that brought tears of joy to Kay, the event coordinator. Alumna Dagney began her involvement at SCI through representing 3928 at outreach events. This relationship has brought her opportunities at SCI to train volunteers, lead summer camps, and design an exhibit to be installed this May.

3928 has spent 2,978 hours teaching classes for Ames Community School District's Empower, Enrich, Excel (EEE) program, reaching 497 kids since 2012. After assisting for three years, we began running the classes in 2015. Now, we develop our own curriculum for seven classes: three centered around LEGO Mindstorms and four on Makerspace activities such as 3D printing and circuitry. 42% of our current team members have taken Neutrino-led EEE classes before joining the team, including Claudia, who now helps teach the same class that Neutrinos taught for her.

This year, 3928 partnered with the Ames Public Library on a new outreach event, Month of Cardboard. This event introduced people of all ages to STEM in a fun and approachable way. For three consecutive Sundays, we invited the community to build with cardboard and MakeDo kits. We sparked the visitors' creativity with a new set of prompts each week. On the final day, we were joined by 87 participants to create an intricate maze with massive rooms. Freshman Leslie's little sister became so excited about building with cardboard that she pulled old boxes up from her basement to build an even better rocketship than what she built at the library.

To commemorate the 50th anniversary of Apollo 11, we collaborated with WC Rocketry, a high school rocketry team from Webster City, to host Rocket Day at the Story County Fair. Participants designed, made, and launched bottle rockets. Kids got especially excited, going through multiple versions of their rockets while competing with each other for height and distance. This event introduced the kids to the engineering design process while having a blast!

Outreach has been an integral part of our team's mission since our founding. In 2019 alone, we volunteered at 26 events, reaching 18,786 people. As team member Rida said, "We do this because it's inspiring, because we've seen the impact it has on the community, and because the kids we've impacted come back to tell us that it had a positive influence on their lives."

We are Partnering with Professionals

Our partners, Iowa State University (ISU) and 4-H, alongside our 21 sponsors, are essential to the sustainability of our team. They enable us to spread FIRST by providing us with monetary and in-kind donations. We create strong relationships with sponsors through monthly newsletters, annual visits, and personal thank-you letters from the team. To recognize our sponsors for everything they do, we display their logos on team literature, shirts, robots, and in the pit. CIT Signature Transportation has sponsored us

by providing bussing to competitions since 2012; their owner Kim says, “we continue to sponsor because we believe in the mission of *FIRST*. *FIRST* has so many opportunities for students to excel... lifelong skills are taught through this organization.”

Team Neutrino values personal relationships with our sponsors; 29% of our sponsors have supported us for 5+ consecutive years. In addition to donations, we currently have 13 professional mentors, half of which come from our sponsors. Daniel, a mentor from REG (a renewable fuels company), asserts: “[3928] reignited his passion for *FIRST*”.

We are Creating a Legacy

3928 is still a home for many of our alumni, who return to show their support for the *FIRST* community. As alumna and current mentor Sarah says: “We embraced the circle of *FIRST* mindset from our founding. A strong sense of belonging and drive to inspire others as our mentors inspired us keeps us coming back to the team.”

Bojun, a startup-company owner and active *FIRST* volunteer, states how “Team Neutrino built me a strong technical foundation that put me ahead of other college students [and] helped me gain two internships.” All of our graduating seniors over the past three years have pursued STEM majors in college, such as Benjamin, a mechanical engineer, who gained a research position at ISU building agricultural robots because of Team Neutrino. In addition to technical knowledge, many alumni echo the belief that 3928 helped them mature and develop leadership, communication, and teamwork skills.

However, the most memorable takeaway that countless alumni affirm is the sense of family 3928 exhibits. Former Team Lead Tianxin summarizes it well, declaring “though there were many sleepless nights, at the end of it all, I gained so many good friends and great experiences that I don’t think I would have found anywhere else.”

We are a Family

3928 celebrates the successes of its members not as individuals but collectively as members of the Neutrino family. Teammates create strong bonds over long build season hours, holiday parties, movie nights, pasta bonfires, and team kickball. Those bonds last lifetimes, and though members graduate, the spirit of the team remains the same. Alumna Moriah says, “These are people that I haven’t seen in a year...but you go back to the team and it’s just like it always was.”

We are dedicated to the enrichment of STEM in our community.

We are creative in our efforts to design robust, effective robots.

We are passionate about expanding the *FIRST* family.

We are inspiring future generations.

We are Team Neutrino.