



THE SPARTAN RACER

GO GREEN! GO WHITE! GO FAST!



SEPTEMBER 2019

Welcome

To our friends,

Welcome to another exciting year of racing! This is the first installment of a resurrected monthly newsletter! You can look forward to reading updates, featured team member biographies, sponsor shout-outs, and general information about the team on the first of every month.

In this initial newsletter, we'll cover how the team performed in our competitions, as well as what we have to look forward to in the remainder of this season.

With that being said, be sure to follow our social media pages for more frequent updates! Plus, get inside details on things that we simply can not fit in the newsletter. Not to mention, you'll be able to follow along as we compete in competitions, and later, as we construct the SR-20!

Best regards,

Chris McCloskey

Chris McCloskey
Project Manager

James Provax

James Provax
Chief Engineer



First drive of the SR-19!

Team Updates

The SR-19

After major design changes to the vehicle, such as a change of tire size and a complete redesign of the aerodynamics package, the SR-19 was built from the ground up and completed last spring. The first drive followed only hours after completion on March 9, 2019. In the months following our vehicle's maiden-voyage, over 300 miles (and plenty of broken parts) accumulated on the car in preparation for our first competition, FSAE Michigan in early May.



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Team Updates, Continued

FSAE Michigan 2019

After a week of final exams and last-minute wrenching on the car, the team headed to the first and largest competition of the year, FSAE Michigan, on May 8th.

Even though the team scored well in static events as well as most of the dynamic events, the car ran into some troubling electrical issues that the team had never seen before.

Although an overnight engine rebuild and sensor replacement attempted to fix a fuel delivery issue, it simply was not enough to make it through endurance. Unfortunately, the SR-19 retired on it's second-to-last lap with an empty fuel cell.



Getting in some practice laps at MIS



Tilt test at Lincoln

FSAE Lincoln 2019

After a tough finish at MIS, the team was itching for a win, and Lincoln proved promising. Great design and statics scores placed us tentatively on the podium. Those results continued to the best of their ability through rainy skidpad and acceleration runs. In fact, the team finished 2nd overall in acceleration thanks to excellent time management and competition strategy!

However, history had a habit of repeating itself. The SR-19 experienced a catastrophic engine failure only a few laps into endurance. We've studied the data, and we know what needs to be changed for this year's upcoming car.



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Endurance on the MIS infield.

Competition Results by the Numbers

	FSAE Michigan	FSAE Lincoln
Overall	40/108	38/76
Design	T8	T15
Presentation	21 st	17 th
Cost	56 th	31 st
Acceleration	8 th	2 nd
Skidpad	T63	15 th
Autocross	14 th	DNA
Endurance	DNF	DNF
Fuel Efficiency	40 th	N/A



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Shootouts!

Pittsburgh Shootout 2019

On July 5th, about half of the team made the trip over to Pittsburgh for our first appearance at the Pittsburgh Autocross Shootout on July 6th, hosted by Pitt FSAE!

As soon as the track opened, we were there running hot laps. The weather couldn't have been better for the first half of the day. However, shortly after the lunch break, a terrible storm rolled in. As a result, the event unfortunately ended earlier than planned.

At the end of the day, we placed third out of the twenty-eight teams that participated! We were awarded a solar-powered Ansys backpack and another trophy to add to our growing collection.



Getting ready for the start of another run.



Celebratory Cane's chicken fingers! A team favorite.

Overall, we were really impressed with the Pittsburgh Race Complex and how much fun the event was! Hopefully our attendance becomes a team tradition—we're already looking forward to next summer!

Toronto Shootout 2019

Last year, the team was able to secure a 2nd place finish at the Toronto Shootout. We're excited to announce that we'll be returning to Brechin Motorsports Park in Gamebridge, Ontario for this year's event. It's scheduled to take place on September 28th, so be sure to follow our social media accounts for play-by-play story updates and awesome photos!



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Featured Team Members

Name: Nicholas Kopec
Roll: Electrical Team Lead
Hometown: Freeland, MI
Major: Computer Engineering
Class Standing: Junior
Years on the Team: 3



What is your role as Electrical Team Lead?

As the Electrical Team Lead, I am responsible for the vehicle's control, power distribution, and data logging systems. Most of these systems are built upon custom designed PCBs. As the Electrical Team Leader, I am responsible for managing the rest of the Electrical Team to design and manufacture the electrical circuits, PCBs, wiring harness, and software for these systems.

What is your favorite memory from your time on the team?

My favorite from this past season was seeing the car drive for the first time. It was very rewarding to see all of the long days and nights spent at the shop with the team working on the vehicle finally pay off.

What do you find most challenging about being a member of the team?

The most challenging part about being a member of the team is definitely time management. In order to build a competitive car, each team member spends 40+ hours a week working at the shop. It becomes difficult to balance my time spent at the shop, classes, and studying for exams.

Name: Garrett Colasinski
Roll: Aerodynamics R&D
Hometown: Canton, MI
Major: Mechanical Engineering
Class Standing: Sophomore
Years on the Team: 2



What is your role as Aerodynamics R&D Lead?

As Aerodynamics R&D Lead, I am responsible for designing, validating and manufacturing the vehicle's aerodynamic elements and structures for the formula car. Each element is modeled in CAD then imported into our CFD wind tunnel model. Composite components are manufactured using both dry and pre-impregnated carbon fiber fabrics which minimizes the overall weight of the vehicle.

What are you most excited about for this upcoming racing season?

I am most excited for the next car this upcoming season. It will be faster than ever and I can't wait to see it compete at competition!

What is your favorite part about being a member of the team?

My favorite part about being on the team is all of the hands-on experience and the bonds I have formed with my teammates. Being able to design an aero package from ground up and then manufacturing it by hand is a unique experience not found in many other places. After joining the team, I now have some of the closest friends because of all the time we spend together working on the car, and outside of the shop.



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Featured Team Alumni

Name: David Caples
Hometown: Huntington Woods, MI
Degree: BS Mechanical Engineering
Years on the Team: 2009-2014
Roles: Aerodynamics Lead (2012-2014)
Powertrain Lead (2011-2013)
Intake & Exhaust Lead (2010-2011)

How did you contribute to the advancement of Michigan State Formula Racing?

From 2012-2014, I led the team's first-ever development of dedicated aerodynamic devices including a front and rear wing and undertray. This included establishing a full-vehicle Star-CCM+ CFD model and coordination of wind tunnel testing at Ford's Drivability Test Facility. In 2011-2013, I led the powertrain development to improve overall fuel efficiency by 39%, while also increasing peak power output by 8% and the RPM range of 80% peak torque output by 19%.

What is your favorite memory from your time on the team?

Rebuilding the engine in a hotel room and successfully finishing 2014's Lincoln comp, seeing my aero package produce downforce at my first-ever wind tunnel test, celebrating each car's first drive (typically at around 4 AM), and finishing in the top ten a few times. However, the longer I am away from Formula, the more I realize that it's not any single memory that I cherish the most, it's the entire experience and the people I shared it with. My favorite "memories" from the team are the friendships I made and the lifelong sense of accomplishment knowing that, no matter how rough things were at times, we persevered and built Car 71, 51, 27, 15, and 9.



What is your current professional role?

Since graduating in 2014, I have been the Aerodynamics CFD Engineer on Corvette Program and am responsible for all of the virtual aerodynamics analysis for the vehicle. This includes developing aerodynamics components, supporting wind tunnel testing, collaborating with the Design Studio, and integrating aerodynamics with the rest of the vehicle. In my five years in this position, I've worked on two different vehicles, the 2019 Corvette ZR1 and the 2020 Corvette Stingray.

How did your experience as a member of the formula team help shape your future?

I would not have the dream job that I have today without my formula involvement. The knowledge I acquired through the formula team was important, but it is just a small sliver of why formula has had such a profound impact in my life. I acquired many intangible skills such as project and time management, dealing with ambiguity, and working as a team. Further, FSAE helped inspire a confidence within me through which I now believe I can tackle nearly any challenge as long as I put my heart and soul into it. There are simply no words strong enough to describe how much of a positive impact my formula career had on my professional career and life in general.



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Featured Sponsors



Name: Michigan State Trooper Training Academy

Location: Lansing, MI

Not only is racing fun, highly educational, and a blast to watch, it's actually illegal pretty much everywhere! Lucky, the Michigan State Trooper Training facility has been very generous in giving us testing time on their dynamic training pad just a few miles from campus.

From breaking in our cars before competition, to testing new designs and collecting data during the summer, STT allows us to do so safely in a controlled environment.



Name: IAV Automotive Engineering

Location: Northville, MI

Headquartered in Berlin, Germany, IAV is an automotive developer, supplier, and consultant. They're most known for their powertrain and electronics modules, but have been a major player in the up-and-coming fields of e-mobility, autonomy, artificial intelligence, and machine learning.

IAV has been a key sponsor for our team financially, and the additional support from major automotive companies is *always* appreciated! We're looking forward to a continued relationship with them in the future, and we can't wait to see how their developments shape the future of mobility!



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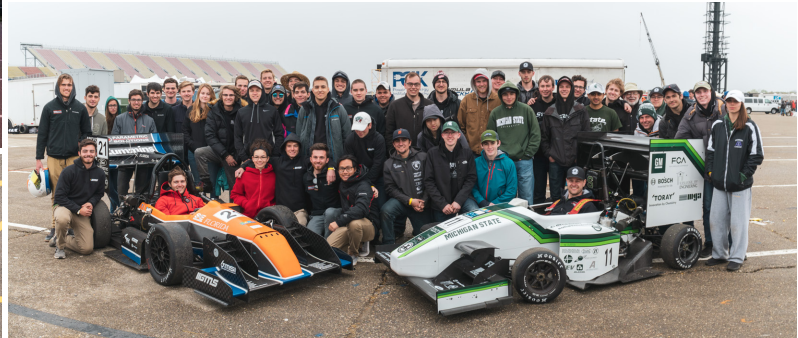
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Photo Gallery

Here are some of our favorite photos from this summer!



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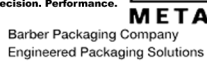
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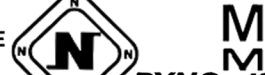
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