



THE SPARTAN RACER

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OCTOBER 2019



Team Updates

Recruitment

The fall recruitment season is finally here! After showcasing the car at the Sparticulation and numerous pop-ups around campus, we collected over 350 emails of students interested in joining the team.

Recently, we hosted team-overview meetings to give the new members a better sense of who we are and what we do. They'll start coming out to the shop early within this month. We look forward to welcoming them into our shop!



MSU's new president, Dr. Samuel L. Stanley Jr., stopped by our booth at Sparticulation



Obligatory on-track team photo from Toronto

Toronto Shootout 2019

Rain, mud, and cold temperatures were not enough to keep the team away from competing in the 2019 Toronto Shootout!

We held on to the lead for most of the event, but we had to retire the car an hour early as a result of a fracture in our uprights. Unfortunately, this allowed for other teams to catch up in the last few minutes when the sun came out and the track dried up.

We placed third overall, with one of our drivers, Christian Abbate, placing second in the driver's championship!



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Toronto Photo Gallery

Here are some of our favorite photos from the Toronto Shootout!



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Featured Team Members

Name: Olivia Reyes
Roll: Intake and Exhaust Lead
Hometown: Ann Arbor, MI
Major: Mechanical Engineering
Class Standing: Sophomore
Years on the Team: 2



Why did you choose to join MSU Formula Racing?

Before coming to MSU, I had never heard of Formula SAE. My first exposure to MSU Formula Racing was seeing the car at the engineering Colloquium. I couldn't believe that students my age built this machine from the ground up to compete against hundreds of other teams. I went in with no previous automotive experience or interest, but within the first weeks I became hooked and I haven't stopped since.

What is your role as Intake and Exhaust Lead?

The intake system is responsible for providing the oxygen needed for each combustion cycle. After combustion, the exhaust works to clear out all of the burned gases. I work to design the least restrictive system possible in order to allow the maximum amount of airflow through the engine. I use STAR-CCM+ CFD to study and optimize air flow, as well as RicardoWAVE for resonance tuning and simulating engine performance.

What is your favorite memory from the team so far?

Last year, I took part in the wet-layup of the undertray, the largest component of our aerodynamic package. Myself and six others blasted music all night long while laying down each piece of carbon. The team bonded through the experience and the feeling of accomplishment after sealing the mold was incomparable to anything else.

Name: Dave Yonkers
Roll: Software and Simulation Lead
Hometown: Lake Orion, MI
Major: Computer Science
Class Standing: Junior
Years on the Team: 2



What is your role as Software and Simulation Lead?

As simulation lead, I'm responsible for creating a fully dynamic vehicle model within Pratt and Miller Lap Time Simulation software. I use that model to conduct a points-based sensitivity study and analyze predicted changes in vehicle performance. As software lead, I'm the head of all embedded software applications for the car. One of my hidden roles is team photographer! I also help our project manager out with smaller tasks (such as writing this very newsletter!).

What are some of your favorite hobbies or activities outside of the racing team?

In the winter, I love to go skiing. In the warmer summer months, I enjoy going outside for a run whenever I can. Staying active is important to me, and usually working out allows me to take a step back from school, work, or whatever's been on my mind.

What is your dream job?

My dream job involves me writing a few lines of code, uploading them onto a car, and then driving the car home to see if the changes were satisfactory or not (a major simplification, I know). I'm thinking something along the lines of chassis software controls, or even the up-and-coming field of autonomy! The automotive field is going through a computer-driven revolution, and I can't wait to be a part of it.



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Featured Team Alumni

Name: Erik McGuire

Hometown: Rochester Hills, MI

Degree: BS Mechanical Engineering

Years on the Team: 2013-2016

Roles: Suspension Team Member (2013-2015)
Structures and Analysis Project Lead (2014-2015)
Suspension Team Lead (2015-2016)
Chief Engineer (2015-2016)

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

I developed a comprehensive timeline to track vehicle build and held systems accountable to finish on time through weekly meetings. My senior year we finished the car on February 20, which gave us a lot of testing time and driver training time; 22 testing days before the Michigan Competition. This was a huge factor in our success that year of a 5th place overall at Michigan. Also, we developed a very comprehensive weight tracking system my senior year on the team which helped us cut around 55lbs off of the car in one year. Most importantly, I would like to think that I helped bring out the best in my teammates while helping shape the culture that MSU still has in its Formula SAE program today.

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

My favorite memory is finishing endurance my Senior year. That was a really fun and challenging time of putting together a top performing vehicle and a top performing team. Seeing the car cross the finish line at Michigan Endurance while turning in some killer lap times was one of the best feelings ever. A very close second was rebuilding an engine in the hotel room at the Lincoln competition and later finishing 6th overall.



What is your current professional role?

Currently, I'm a Calibration Engineer at Robert Bosch LLC. I work in the Chassis Controls – Active Safety group at Bosch, where we work on ESP (Electronic Stability Program), iBooster (electronic brake booster) and IPB (Integrated Power Brake, ie brake-by-wire) technologies. I am the Vehicle Performance Lead and calibration responsible for Traction Control, Stability Control and Vehicle State Estimation functions for General Motors programs. This includes in-vehicle testing, calibration, validation and software de-bugging. I am also the main customer technical interface for vehicle performance related topics.

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

The MSU FSAE team has had a huge impact on both my career and life and has opened up a large network of friends and professional colleagues. Skills wise, being a member on the team really forced me to learn how to manage my time effectively. Exposure early on to system integration and system level design through FSAE has also helped me become a better engineer and has translated well into the problems I face at work every day. Go green, go white, go fast!



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Featured Sponsors



Name: Pico Technology

Location: St Neots, United Kingdom

Pico Technology recently donated one of their incredible PicoScope PC oscilloscopes, along with a variety of probes to go with it, to our electrical team. Before their donation, the team was using an old cathode-ray lab oscilloscope from the 1970s! The PicoScope has been quite the upgrade to say the least.

The PicoScope will allow us to easily debug circuits in the Power Distribution Module and Traction Control Module, as well as assist with validating signal filtering in our Analog-to-CAN Converters. Not to mention, the scope has the potential to decode our digital communication busses in real time. Thank you!



Name: Venom Steel

Location: Northfield, Illinois

Last year, during our manufacturing period, one of our aerodynamics team members started to have mild skin irritation after mixing resin and performing carbon fiber wet-layups while wearing standard nitrile safety gloves. Tired of the irritation, he went to our local Home Depot where he stumbled across the premium, 2-layer, heavy duty 6mil nitrile Venom Steel gloves. Luckily, they solved the problem!

We reached out to Venom Steel with this story, and they were kind enough to send us some cases for this year's manufacturing! The entire team loves these gloves. Thank you for supporting us and keeping us safe!



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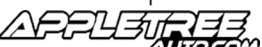
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