

UTFR

University of Toronto Formula Racing

Read time: 6 min

THIS PAST MONTH

UTFR Takes Off!



Fresh off the 2024 season's first win at New Hampshire, Maria has now taken on some wings!
[More photos here.](#)

Testing our complete aerodynamic package for the first time at the Ford Driveability Test Facility in Allen Park, Michigan, the team received vital data to validate design ideas, which will be seen on track come **June 12 for FSAE Michigan.**



Deep Dives #2

Given the innumerable hours of labour going into our car, the newsletter team shall bring you a close look into the people behind Maria – Deep Dives.

Each month, we interview directors to learn more about the journey behind their section. Scroll to the bottom of the newsletter to find our second interview with our Electrical Technical Director, Jake Sprenger.

DEVELOPMENTS

Approaching the end of our development season, our focus shifts from the shop to the track, testing and fine-tuning the UT24 car to perform best on track.



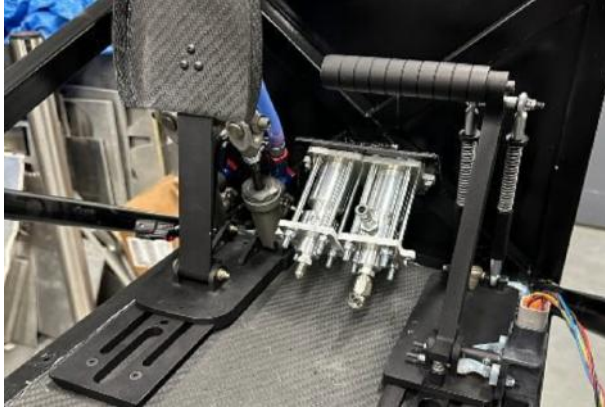
Mechanical

As summer sets in, temperature is a growing consideration for optimizing UT24's performance. Our team has designed a cooling system for our accumulator to extend performance during endurance events. Roll-bars are another addition to support car stability.



Electrical

Our launch control system manages a harmonious relationship between the torque, grip, and throttle to assist our drivers in accelerating. The team has been focused on validating the system for optimal guidance for dynamic events.



Driverless

Months of testing on the DV bench are translating into steps toward our goal of a fully driverless system. We have successfully validated a remote-controlled EBS system with developments in remote steering on the horizon!

SPONSORS



Becker Pumps

Becker Pumps is a leading manufacturer of vacuum pumps, compressors, and regenerative blowers based in Akron, Ohio, with coverage all of North America for services and replacement parts. They graciously sponsored us with a vacuum pump, a vital part of rebuilding our nose cone and other carbon components.

Deep Dives #2

Electrical Technical Director, Jake Sprenger



This month, we caught up with UTFR's Electrical Technical Director, Jake Sprenger, in between testing sessions to get his thoughts during the tail end of his long standing journey with the team. Here are the highlights:

The Engineer's Obsession

"I've lost so much sleep over the years," admits Jake Sprenger with a laugh. UTFR's outgoing Electrical Technical Director has an unwavering pursuit of solutions often keeping him awake. But this semi-obsessive tenacity and caffeine love (addiction) is exactly what has propelled the team's fortunes from rookie EV builders to consistent podium contenders.

A Competitive Drive

The ultra-competitive Jake can trace his obsessive tendencies back to his lifelong love of sports - having played varsity baseball at UofT. "It's a competition against myself," he explains about engineering. "If there's a solution, why can't I find it?" This mentality translates into an insatiable desire to conquer every technical challenge, whether it be building the first accumulator pack or a simple brake switch redesign.

Failure: A Rite of Passage and Fraternal Motivations

But conquering doesn't come without its trials. "I've definitely had more non-working projects than working ones," Sprenger admits candidly. The rude awakening UofT's engineering degree can be after breezing through high school was the initial shock. However, the veteran now embraces failures as incremental steps toward solutions and personal growth.

"As long as each failure is teaching me something, I like that," he beams. This resilient mindset is something he aims to instill in new team members by giving them room to stumble and pick themselves back up - even if his obsessive tinkering instincts flare up. "Of course, I'd like to step in and solve every problem; however, it is good for recruits to fail and see leadership fail – even more that they stick [at it]."

Having worked with his elder brother Ben, a previous Team Principal, Jake has seen the team grow alongside him and keep at its upward trajectory, not without the occasional hiccup. "Ben definitely yelled at me a bunch that year," Jake chuckles. "But you're always hardest on the people you care about. Having him there kept me going even when things didn't work out."

Bridging Classroom to Shop

However, Sprenger acknowledges the gulf between classroom theory and UTFR's iterative designs. "In class, it's so black and white - something works or doesn't. But here, it's about finding what works best despite limitations."

"So much gets lost year-to-year, so being able to analyze everything through that lens of seeing what worked and what failed is key," he explains. These insights combined with data like simulations are how Jake convinced everyone to take on ambitious gambles like lowering UT24's pack voltage.

To bridge this gap for fresh recruits, he stresses immersing themselves in the garage to experience first-hand how designs play out in the real world. This enriching process is further amplified by having access to Sprenger's encyclopedic knowledge, amassed from designing the first accumulator and serving in numerous leadership roles.

Hungry for More

Despite UT24's remarkable strides, Sprenger's hunger isn't satiated. He's already part of strategizing plans for the team to keep elevating the team's performance year after year.

But beyond even dominating the North American competitions, Sprenger hopes sharing his obsessive attention to detail will seed a new generation of problem-hungry engineers who find fulfillment in the relentless pursuit of solutions - no matter how small or reoccurring the problem.

"Anything I don't know is interesting," he grins. With Jake now moving on to equally ambiguous problems at SpaceX, UTFR's future will rely on cultivating that same insatiable curiosity in its incoming cohorts. Only then can the team's dream of trading podiums for European championships be realized.