

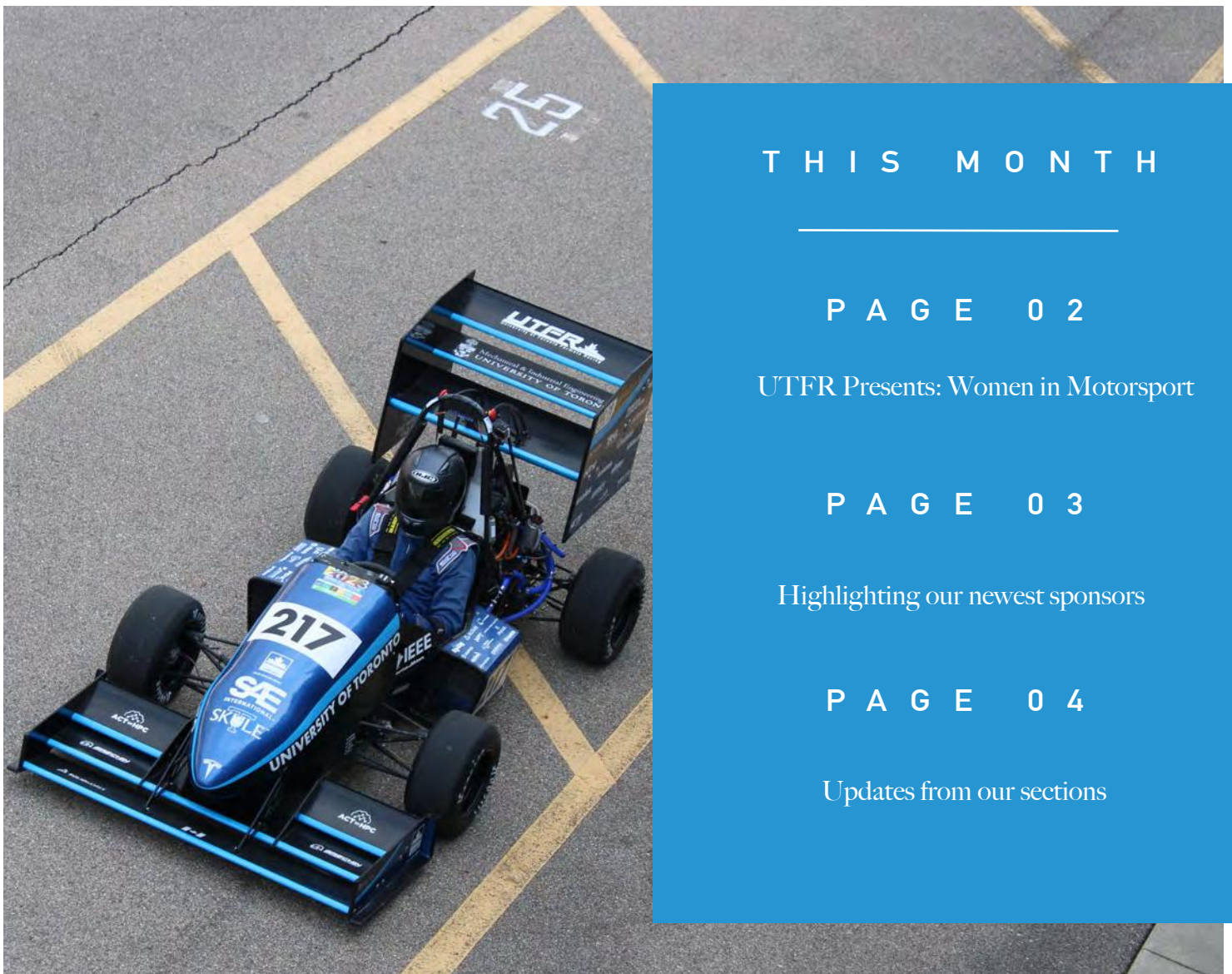


UTFR

UNIVERSITY
OF TORONTO
FORMULA
RACING

MONTHLY NEWSLETTER

ISSUE 02 / OCTOBER 2023



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INTRODUCTION

Welcome to the second edition of the University of Toronto Formula Racing team newsletter! We are delighted to have you with us again. Your unwavering support and engagement continue to fuel our passion, for which we are very grateful!

As we gradually wind down from our recent competition season, the team has been hard at work evaluating our performance and gearing up for an exciting 2024 season. We've also been busy hosting events such as our annual Women in Motorsport Panel and various recruitment initiatives. But that's not all—stay tuned for more exciting updates in this newsletter!



THANKS

As always, thank you for staying in touch with the team and for your continued support! We look forward to connecting with you again in our November release! In the meantime, please do not hesitate to reach out if you have any questions or if there's anything you would like to discuss further!



UTFR
WOMEN IN
MOTORSPORT
PANEL

On September 18th, UTFR proudly hosted its second annual Women in Motorsport Panel on campus. We had the distinct honor of hosting five Canadian women who have made incredible marks in the motorsport industry: Chelsea Giffin, Erika Hoffmann, Megan Tomlinson, Jessica Benevides and Ellen Sanders. From drivers and technicians, to managers and race team owners, these women brought a diverse range of experience as they discussed their journeys, shared unique industry insights and provided advice for those looking to kick start their careers. At UTFR, we are incredibly appreciative to have been able to host such an event and celebrate the talented women in our community who inspire us all.



EVENTS

CLUBS FAIR + RECRUITMENT

With an incredible response of over 600 sign-ups at the club fair, we are excited to welcome new members to our team. This turnout is truly remarkable and we are very grateful for your support. We will be hosting a few introduction events over the next month to help recruits get up to speed with the team's operating procedures and start getting them involved.



PETRO CANADA EVENT

It was an extraordinary privilege to be invited to Petro Canada Lubricants' 80th Anniversary Open House. It was great to see all the fantastic projects Petro Canada supports and to be a part of that community. Your support remains a driving force in our journey, we look forward to continuing this partnership and achieving more milestones together!

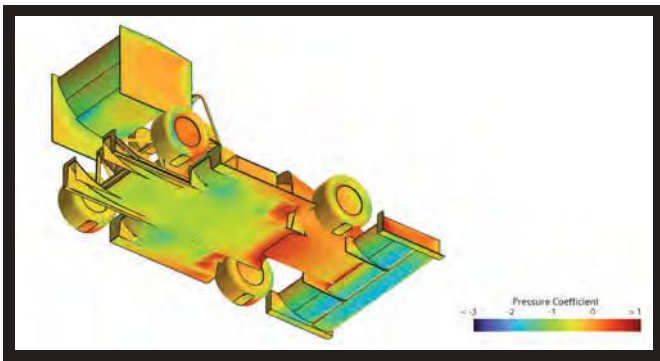


AN HF SINCLAIR BRAND



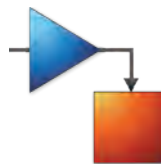
SECTION HIGHLIGHTS

AERODYNAMICS

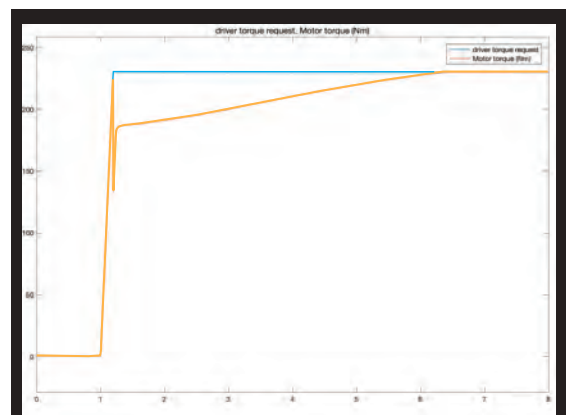
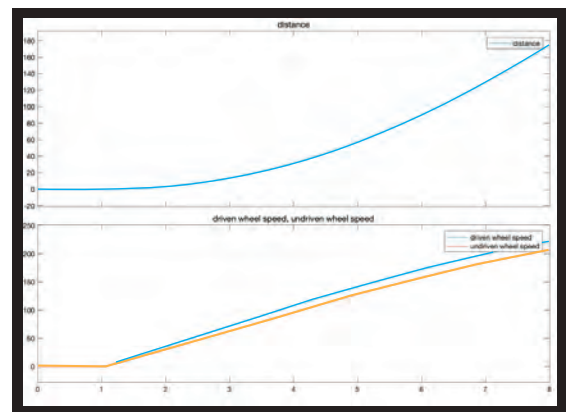


Exciting news from our aerodynamics department: the team is working on UTFR's very first undertray! The undertray is a pivotal aerodynamic device mounted to the car's floor, harnessing the Venturi effect to accelerate air beneath the car. This action creates a low-pressure region (yellow-blue) that generates downforce. The resulting increase in tire grip significantly bolsters braking, acceleration and cornering performance. Implementing the undertray brings us one step closer to the very top of FSAE competitions, and we cannot wait to see it on the car this spring!

VEHICLE DYNAMICS



Our recent competitions have unveiled a recurring performance challenge: wheelspin during both launch and corner exits. To address this, we are diligently developing a traction control system that can automatically adjust the motor torque in order to maintain optimal slip ratios at the edge of grip. We've built a physics-based model of the car in Simulink, which has the ability to account for tire non-linearities, aerodynamic effects, and vehicle dynamics. Currently, we are actively working on developing control algorithms, with preliminary tests revealing an estimated 15% boost in acceleration event times. While there is still much work ahead, this marks a promising start.



SPONSOR SPOTLIGHT

TOPDON

We are thrilled to introduce our latest Gold partner, Topdon Electronic Co.! Their cutting edge thermal cameras will be instrumental during our car testing, providing very valuable data on how our car performs under various conditions. Keep an eye out on our social media accounts to witness the impact these cameras will have on the team's progress!



Movella's Automation and Mobility branch has graciously provided our team with a GNS-S/INS unit that will facilitate accurate state estimation for our driverless team as well as telemetry for our vehicle dynamics validation. We are excited to implement this on our UT24 car as we work toward Formula Student German's driverless vehicle competition.



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LOOKING FORWARD

In October, we will finish the design phase of our development process and by the end of the month, start shifting our full focus to manufacturing. This is a very exciting time for the team as the final design wrinkles are being smoothed out and the form for our UT24 is coming into shape. This year's car will have multiple new elements, a few of which were mentioned in this newsletter but more will be displayed over the next few months.

