



## Supporting the Next Generation of Automotive Engineers

With deep roots in the world of racing and motorsports, TotalSim has enthusiastically supported Formula SAE (FSAE) racing teams for many years. Formula SAE is a collegiate student competition hosted by SAE International (Society of Automotive Engineers) in which student teams design, build and test formula-style race cars. TotalSim provides sponsored academic teams with free access to our [TS Auto App](#), approximately \$5,000 worth of simulation tokens and engineering support.

“The fact that we can provide students with the chance to apply CFD to real world problems and expand their toolset is very rewarding,” says TotalSim US president, Ray Leto.

TotalSim is proud to have sponsored 13 Formula SAE teams, the most recent of which is a “boomerang” team that came back to us in 2022 after trying out TS Auto a few years ago. [The University of Southern California’s FSAE Racing Team](#) has used TS Auto to design and

develop their air ducts, rear wing, rear wing mounts and undertray, as well as running an aero map.

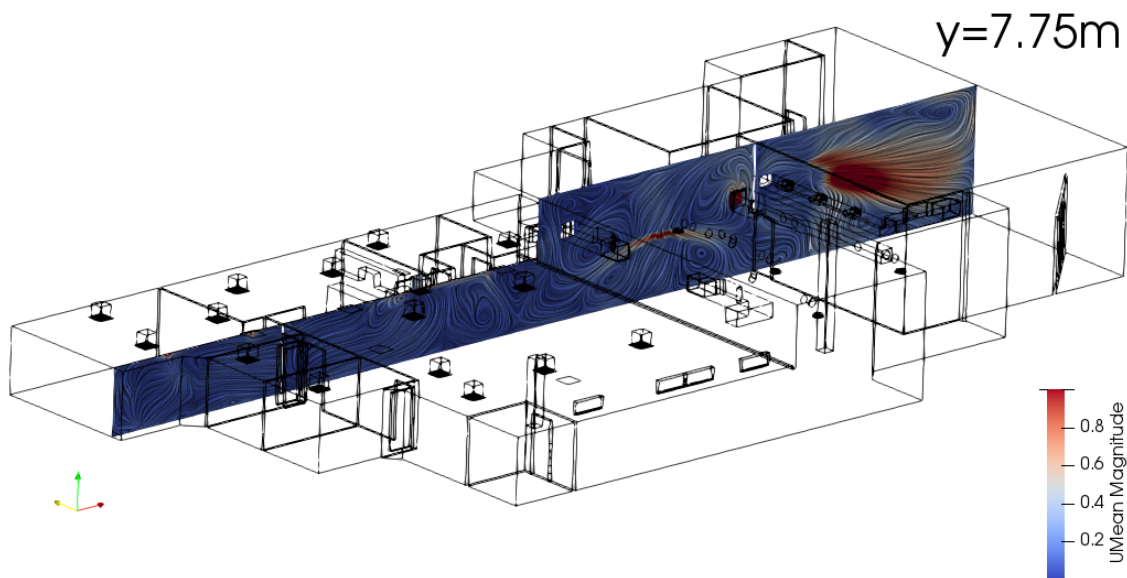
Find out what Ramakrishna Senthil, aerodynamics lead engineer for the USC FSAE racing team, has to say about the team's experience using TS Auto to automate the entire CFD process and optimize their vehicle. Read the full blog post [here](#).

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## CFD Study of Office Airflow Upends Assumptions

The importance of proper airflow and ventilation was certainly brought to the world's attention during the height of the pandemic, but its significance shouldn't be dismissed now that the worst appears to be behind us. Back in 2021, when most of our team was still working from home, we decided to investigate the airflow within the TotalSim US office space.

We primarily leveraged portions of the OpenFOAM® toolset to assess air changes per hour (ACPH or AC/hr) within the office space given certain real-world criteria that reflect how our staff works and moves on a daily basis.



The results surprised us and cemented what we already know to be true about CFD—it upends assumptions using concrete data and is the ideal way to visualize what's actually happening in complex multiphysics situations involving fluid/air flow.

Read the full blog post [here](#) and learn why it's more important than ever for businesses to investigate and optimize their office air flow.

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## TotalSim US Helps Hypersports Beat World Record for Snowmobile Speed

[Hypersports](#), a Wisconsin-based builder of extreme high-horsepower, purpose-built snowmobiles and engines, came to TotalSim with a problem. They were looking to beat the world record for speed, with a goal of hitting 200 mph. They had the mechanical side down but needed design solutions that would keep the snowmobile planted on the ground at very high speeds. Basically, they needed it to go faster with more downforce—but therein lay the challenge.

Adding more downforce almost always means more drag, which can defeat the purpose for land-speed vehicles. Using reverse engineering, which integrates 3D scanning with CFD technology, we were able to provide a solution that increased downforce without slowing their top speed. In the end we were able to nearly quadruple the downforce with only a 1% increase in drag.

There were cheers all around when Hypersports recently raced the snowmobile and broke the world record with a speed of 198.67 mph over 1000 ft. Stay tuned for a full case study on this reverse engineering collaboration in next month's newsletter.

Here's a [quick clip](#) of our 3D scanning work with Hypersports.

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## Have an existing prototype? Want to optimize it?

You can improve performance with TotalSim's end-to-end reverse engineering solution. This fast, accurate and affordable solution integrates 3D scanning with CFD technology to help you enhance aerodynamics without building a new prototype from scratch. Our reverse engineering capabilities can uncover issues with particular features and parts of a vehicle, aircraft, ship or even industrial machinery and provide solutions to improve overall aerodynamic performance.

Read more about our Reverse Engineering capabilities [here](#).



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## Start of Year Celebration at PINS? That's Just How We Roll.

The TotalSim US team had the opportunity to celebrate another great year for the company at PINS Mechanical this month. We were lucky to have our full staff in town for the event. Even our favorite out-of-towner's, Perry and Michael, were able to fly in from California and Texas to join us in person.

Besides the good company, we enjoyed delicious catering from Local Cantina and maybe a drink (or three) from the conveniently placed bar. It was a great chance to let loose outside of the office and grow closer as a team and a company.

Check out our LinkedIn [post](#) for more about the party!



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