Synopsys Introduces Digital Twin Racetrack and NVIDIA Omniverse to STEM Racing

Synopsys unveiled racetrack experience at the Aramco STEM Racing World Finals inSingapore ahead of releasing an enhanced, technical version for the 2025-2026 STEM Racing season

Key Highlights

- Ansys, part of Synopsys, created a digital twin racetrack for STEM Racing (formerly F1 in Schools) that enables students to virtually test aerodynamics of miniature F1 cars using advanced computational fluid dynamics (CFD) methods
- The new experience will be available to teams at events for the 2025-2026 racing season and includes a digital twin model of the racetrack, Ansys Discovery™ software, and NVIDIA Omniverse
- A simplified version that enables younger students to adjust with basic parameters and understand performance impacts will be demonstrated at the Aramco STEM Racing World Finals September 27-October 2

SUNNYVALE, Calif., Sept. 29, 2025 /PRNewswire/ -- Synopsys, Inc. (NASDAQ: SNPS) unveiled a digital twin racetrack experience featuring Discovery accelerated by NVIDIA Omniverse libraries at the Aramco STEM Racing World Finals in Singapore. As the exclusive global CFD simulation partner for STEM Racing, Synopsys offers over 400,000 students across the globe complimentary access to advanced simulation software — the same tools leveraged by professional F1 teams — educational resources, and technical support. STEM Racing features middle and high school student teams across 65 countries competing to design and race miniature F1 cars.

The new setup links their race car, refined in Discovery, with a digital twin of the racetrack and Omniverse libraries. Using Discovery, teams can explore advanced aerodynamics concepts and learn how to interpret CFD behavior. Then, they can import this data to Omniverse to visualize the air flow in real-time, enabling deeper understanding of complex STEM topics.

At the STEM Racing World Finals, students can interact with a simplified version of the workflow, where they can easily modify key features of the car, like swapping pre-made parts to test various spoiler designs. This hands-on method helps them explore how design decisions impact performance, fostering creativity and innovation through direct experimentation.

Before each major race in the 2025–2026 STEM Racing season, demo days will provide students with access to the more advanced workflow. Teams can upload their custom car designs to Omniverse and use Discovery for CFD analysis — gaining predictive insights into physical performance to refine their virtual models.

"Synopsys' specialized simulation & analysis tools have already transformed the way our student teams approach STEM learning," said Andrew Denford, founder and chairman at STEM Racing. "And this new virtual STEM Racing track will enhance that experience even more. Enabling students to explore complex concepts such as aerodynamic drag and iterative design in an immersive and engaging environment will strengthen their practical engineering skills — not only will this deliver real performance gains on the physical racetrack, but it will also prepare them for success in advanced degree programs and future STEM careers."

"Deploying physics-accurate digital twins of racing environments represent the state-of-the-art within motorsport, allowing teams to optimize their cars for the unique characteristics of each racetrack and achieve minimum possible lap-times," said Tim Costa, GM for industrial and computational engineering at NVIDIA. "By connecting NVIDIA Omniverse libraries with Discovery, alongside Synopsys' advanced design and AI-driven capabilities, the digital twin racetrack delivers a physically accurate environment where students can experiment with different vehicle designs and optimize for real-world performance through simulation alone."

Research indicates that 82% of STEM professionals became interested in their field prior to high school.The introduction of advanced tools like Discovery and Omniverse in grades K-12 enables students to gain practical experience in computer-aided design (CAD), computer-aided engineering (CAE), and simulation — skills that can seamlessly translate to degrees in engineering, design, computer science, and more.

"The collaboration between Synopsys and STEM Racing proves that STEM is about creativity, teamwork, and real-world problem solving," said Antonio Varas, chief strategy officer at Synopsys. "In fact, research shows that grade-level students exposed to hands-on STEM experiences are more likely to pursue STEM careers. This initiative reflects Synopsys' deep commitment to childhood STEM education, helping students build confidence with complex topics and encouraging lifelong learning, while igniting excitement for a potential career in STEM."

This announcement follows a recent agreement signed between NVIDIA and Synopsys under which Synopsys will license, sell,

and support Omniverse libraries embedded in its simulation & analysis solutions.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) is the leader in engineering solutions from silicon to systems, enabling customers to rapidly innovate AI-powered products. We deliver industry-leading silicon design, IP, simulation and analysis solutions, and design services. We partner closely with our customers across a wide range of industries to maximize their R&D capability and productivity, powering innovation today that ignites the ingenuity of tomorrow. Learn more at www.synopsys.com.

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