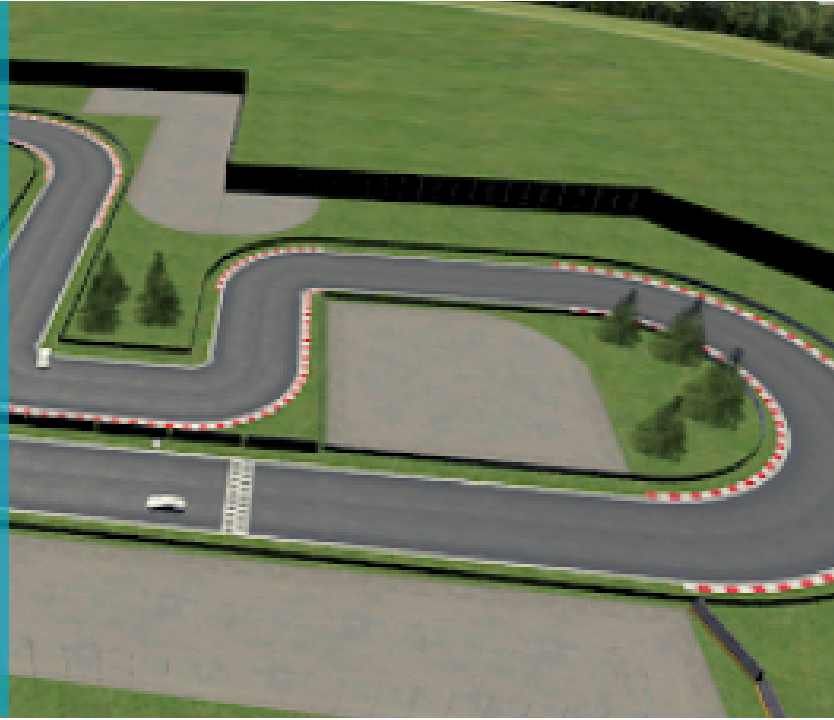


# CASE STUDY- DESIGN CHALLENGE COMPETITION FOR STUDENTS



## OVERVIEW

The American Society of Mechanical Engineers (ASME) is a not-for-profit professional organization that, “promotes the art, science, and practice of multidisciplinary engineering and allied sciences around the globe”. ASME holds a variety of competitions every year for engineering students from around the world, including during ASME’s annual E-Fest Digital event . However, with the emergence of the Covid-19 pandemic, such in-person competitions became impossible to organize. ASME collaborated with SimInsights to design, develop and host a brand new fully digital on-line competition. Utilizing the SimInsights HyperSkill platform, the competition focused on autonomous vehicles. The competition was a success with great feedback from organizers as well as student participants.

## OBJECTIVE

1. Design and implement a digital competition, to expand global access to the ASME student community
2. Foster engagement, creativity and STEM design skills
3. Include AR/VR/3D/simulation technologies

## KEY FEATURES

1. 3D Simulation for Desktop, Web and Virtual Reality
2. Multiplayer
3. Block-based coding
4. Design challenge competition

## THE CHALLENGE

Create an autonomous car racing competition and experience in a fully digital platform. Include the right level of difficulty and realism for the target audience, while staying within the time and budget constraints.

## THE SOLUTION

Design and launch the competition on a next generation AR/VR/3D/AI enabled software platform.

## DESIGN

- Two race tracks were provided to competitors to help them develop their solutions.
- These tracks were used by the competitors to train their own vehicle behaviors which would then be taken and put into a track unseen by the competitors and be measured against other teams.
- Whichever team's vehicle behavior design was able to complete the course with the fastest time and fewest crashes was judged as the winner of the competition.



## DELIVERY

The competition was hosted in late March during ASME's E-Fest Digital event whereby, team members from both ASME and SimInsights were present to encourage the participants and facilitate the event as well as provide live commentary while watching the vehicles move across the track based on their designed algorithms. When available, the winners of the round of the race were brought forward to answer questions about their design, both about the vehicle design and the behavioral (driving) algorithm. During the race, three views of the racing stadium were visible. In addition to the larger view showing the entire course, there was a view showing both the vehicle at all times.



## CONCLUSION

Over 40 students enthusiastically participated from all over the world. Participants commented that their leadership skills, technical skills, team-building skills, critical thinking skills, and presentation skills all improved as a result.

## TESTIMONIALS



Serosh and I really appreciated working with you and your team at SimInsights. Douglas was an excellent project leader – I can tell you that he made my life much easier! E-Fest Digital has a lot of moving parts and launching this new competition was a smoother process than I anticipated. Likewise support and technical expertise from Chris and Jiming was fantastic. I'm sure I'm missing others from your team that were more behind the scenes. Thanks again to you all for your leadership, support and professionalism.

**Brandy Smith** - Senior Program Manager, Student Programs at ASME



I just wanted to send a big thank you for all your support and work to make the inaugural XRC competition successful. Our chief strategy officer was on the call with us for the finals and we have gotten some amazing feedback overall. We appreciate your partnership and look forward to continuing and building on top of what we have started with XRC.”

**Serosh Shahid** - Director, Student & Early Career Development, ASME