

Immersive Technologies Bulldozes the Competition with Vortex

◆ The Company

Immersive Technologies is the world's leading supplier of operator training simulators used in the mining and earth-moving industries.

◆ The Situation

Immersive needed to accurately simulate vehicle behaviour in a highly interactive environment for their operator training solutions. They sought a mature commercial solution that provided extensive physics-based capabilities and tools, and would allow them to leverage development efforts across multiple projects.

◆ The Solution

After considering an in-house solution and open-source tools, Immersive selected the feature-filled Vortex. With modules for vehicles, cables, grasping, particles and more, Vortex delivers the most realistic physical simulations attainable, while accelerating development and ensuring a wide range of applications.

◆ The Results

Immersive has reaped numerous competitive advantages by selecting Vortex as their development platform for construction and mining simulators. Bottom-line benefits include proven, engineering-grade behaviour, reusable models, faster-to-market products, and working with the Vortex team – the leading experts in equipment and vehicle simulation for operator training.



With demanding customers in the mining, earth-moving, defence and other heavy-equipment-intensive industries, Australia-based **Immersive Technologies** needed to produce the most realistic and effective simulators attainable. Using OEM specifications, controls and equipment, plus motion platforms and multiple HD panels was an excellent start. Next stop was to identify a robust simulation solution to achieve the necessary realism, such as accurate machine behaviour and high-fidelity machine-environment interactions.

Immersive evaluated numerous possibilities, including in-house development and open-source tools. However, they soon realized that building their own heavy-equipment simulation solution was not an option, nor were they impressed with other products they evaluated. In particular, they required a fully fledged commercial solution that included multiple modules, documentation and on-call professional technical expertise.

Development Flexibility and Cutting-Edge Results

After an initial search they identified **Vortex** – the industry-leading toolkit for high-fidelity vehicle simulation – as the perfect solution because it made considerable programming and financial sense. “Incorporating Vortex into our own simulation software removed the burden of having to create our own solution, and frees our developers to focus on domain-specific aspects of the simulators,” acknowledged Immersive’s Bradley Eatt.

Vortex provides Immersive with a mature and comprehensive development platform. Its fully stocked C++ library includes rigid-body dynamics, dozens of constraints and advanced collision detection, plus the specialized VxVehicles module for rapid and reusable vehicle assembly – which is crucial for Immersive, as they model myriad machines for numerous training applications and customers.

To date, Immersive has integrated the flexible Vortex into mining and earth-moving vehicle simulators such as an Electric Rope Shovel, Track Dozer, Wheel Loader, and Light Vehicle Landcruiser.

“Having analyzed what was involved in building our own reusable physics engine, we understood the requirements and complexities involved. From the moment we evaluated Vortex, it was obvious that many man-years of development and testing had gone into the software.”

Bradley Eatt, Acting Software Manager, Immersive Technologies

About Vortex

Vortex expertise and technology put high-fidelity behaviour in motion in applications for training simulators, mission rehearsal, serious games, virtual prototyping and testing. Vortex customers include Honda, John Deere, L-3, Lockheed Martin, NASA, Carnegie Mellon University, and over 100 other leading companies and academic institutions.

Vortex Delivers Important Benefits and Reliable Support

Since first deploying Vortex, the Immersive team has been equipped to quickly and efficiently build physically accurate vehicle dynamics and interactive behaviours of many different machines. Immersive’s Bradley Eatt states, “Over the course of our development, Vortex has proven itself as a reliable foundation upon which we can build our complex simulation systems.”

Vortex allows Immersive’s simulation developers to deliver the highest man-machine and machine-environment fidelity attainable, while accelerating development and ensuring a wide range of possible applications – all while saving them man-years of development time.

And when creating their renowned training simulators, Immersive developers know that if they encounter roadblocks they can depend on the responsive and committed Vortex team to clear the path with timely and effective simulation solutions.



Immersive uses Vortex to simulate bulldozers, track-type tractors, wheel loaders and more.



Vortex helped Immersive jump-start its ultra-realistic heavy-equipment simulations.



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