

Application Story

Jiao Tong University - China



Christie's first rear-projected, curved screen, 3D advanced visualization solution installed in China helps students experience immersive maritime environments while training for careers on the seas.

Christie expands into China with state-of-the-art simulation lab

An important milestone in the emerging 3D and advanced visualization market in China recently occurred at Shanghai's Jiao Tong University (SJTU). Home to the School of Naval Architecture, Ocean and Civil Engineering, which trains students on communication and transportation needs, the SJTU is one of China's leading universities for maritime studies and engineering. It was a natural progression, then, to build a lab that would allow students to experience an immersive, 3D, maritime environment as well as accommodate lectures and presentations. Christie®, a world-leader in visual solutions, answered the call and made the high tech installation their first in China.

Maritime environments are very difficult to simulate, given the demands of waves, water pressure, light, sound, temperature and the ongoing changes caused by weather. Jinsong Xu, professor of naval architecture and ocean engineering at SJTU said, "Ocean engineering and training is so environmentally dependant. We definitely had a need for virtual reality training. I felt the best solution would be to set up this kind of lab here."

To complete this challenging environment, the lecture hall employs a curved screen 2.5m high by 8m wide and capable of displaying a blended, seamless image on a 90-degree field of view. Three rear positioned Christie Mirage HD12 stereographic projectors produce full 1920 x 1080 HD resolution 3D active stereo content with higher brightness and pixel count than previously available systems. Two Christie Spyder X20 video processors supply the advanced 3D visuals with simultaneous, real-time, full frame rate monitoring of all inputs. They also provide up to 20-megapixel bandwidth to blend, window, mix and scale any source format that is then routed to the projectors. The room's blue screen and carpet, meant to further simulate an ocean setting, also add to the immersive experience. Wave-like architectural ceiling elements mimic sea movement overhead.

To undertake such a project, teams from Christie in Canada and China collaborated with school officials in Shanghai to arrange the minute details. Professor Xu and

Customer:

Shanghai Jiao Tong University - School of Naval Architecture, Ocean and Civil Engineering

Location:

Shanghai, China

Industry/Market:

Education

Partners:

- Chess Computers
- EON Reality (software)

Requirements:

An integrated 3D visualization solution was required to provide stereoscopic displays for students in the maritime studies program at this leading university. The solution had to be compact, given the tight space restrictions of the room. The lab had to seat up to 40 students and augment ocean engineering lectures with advanced 3D visuals that would give the feeling of being immersed in ocean studies.

Summary:

The lecture hall installation features a 1x3 curved screen, 2.5 meters tall by 8 meters wide that displays a blended, seamless image on a 90-degree field of view. It is the first site in China to use three Christie Mirage HD12 stereographic projectors along with two Christie Spyder X20 video processors. It is also the first rear-projected curved screen installation in China.

Products:

- Three Christie Mirage HD12 projectors
- Two Christie Spyder X20 video processors
- A 1 x 3 curved screen

Results:

Students and staff at the university are extremely pleased with the results. The Lab meets their requirements while serving as a reference site for other disciplines interested in 3D and advanced visualization applications.

other team members outlined their unique requirements to Christie partner, Chess Computers, which sourced the global market for the best equipment. "This project was not only supported by local engineers," continued Professor Xu. "Christie representatives in Canada and China were very supportive. The whole system was set up in Canada before shipping it to China. I had a chance to visit there to see the system and how it worked," he said.

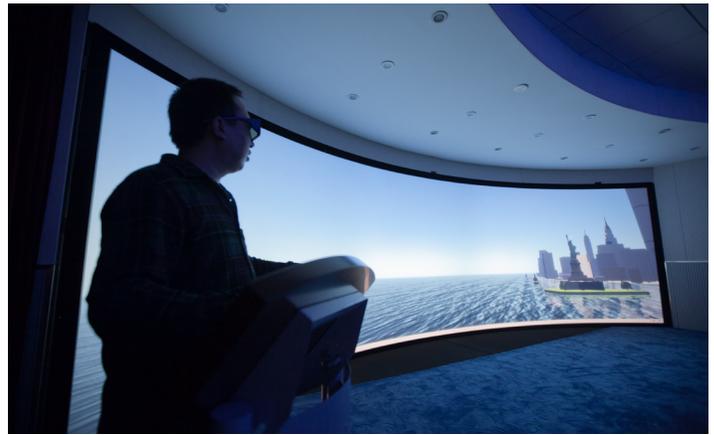
Despite the best laid plans, the installation was not without challenges. After first testing the lab at Christie's production headquarters in Canada, shipping it to China and re-configuring it in a room with tight space restrictions was not easy. The curved screen was damaged during shipping, and an innovative repair had to be made. Clear film was applied to the acrylic, leaving a seamless matte finish on which to project images. Humidity and room temperature were also issues with the

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Jinsong Xu, Professor of Naval Architecture & Ocean Engineering, Jiao Tong University

project, and were solved by the engineering staff upon installation. The room temperature and humidity are controlled between the auditorium and projection room to prevent air pressure putting undo stress on the screen. As well, the physical requirements for running up to 10 inputs via the two Spyder X20 processors were a challenge. To accommodate, all inputs were routed underground to the projection room located behind the auditorium screen, avoiding unsightly cables in the auditorium.

The entire collaboration between the University and Christie was a successful venture that gave faculty and staff exactly what they needed to enhance their studies. "I have to say I appreciated the engineering support from Christie, both in Canada and China. I'm very satisfied with our collaboration," continued Professor Xu. "In Chinese universities, students spend too much time reading books but not enough time on actual (hands-on) work. This system allows them to get some sense of actual work on a seaway. That's so important. Christie offered the best solution for simulating the maritime environments that our students need to experience," he concluded.

Barry Lewine, Christie's director of sales for visual environments in Asia, hopes to build on the success his team has seen in



The lecture hall employs a curved, screen 2.5m x 8m capable of displaying a blended, seamless image on a 90-degree field of view.

the emerging Chinese market. "This particular installation was notable in that it was the first multi-channel rear-projected cylindrical stereo display system deployed by Christie in China. It was the first installation in the world of our Mirage HD12 projectors, and it marked the beginning of a collaborative approach to solutions architecting and project fulfillment between our Christie Asia and Christie North America Visual Environment teams. We especially appreciate that Professor Xu has allowed us to bring other Christie customers to see his beautiful lab," he concluded.

Contact Christie

Contact us today to find out how you can benefit from Christie's expertise in integrated simulation solutions.



Two Christie Spyder X20 video processors supply the advanced 3D visuals with simultaneous, real-time, full frame rate monitoring of all inputs.

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