Real locations transformed into hyper-realistic virtual cityscapes with 3D scanning technology

Virtual Location Sets

In pursuit of hyper-realistic renditions of actual locations, we make high-resolution scans of town and buildings. These are 'relocated' from an open set to a virtual setting. Take a peek at the Virtual Edo Location Set, which seamlessly captures real locations, from outdoors to indoors.

We were able to generate a hyper-realistic virtual Edo location set by scanning real buildings.
Left: Scanned 3D point cloud data
Right: Ultra-high resolution CG created by precisely modeling buildings based on point clouds (not a photograph of the actual location)

Hyper-realistic renditions of streets, interiors, and furnishings using 700 million polygons from real point cloud data

Warp Station Edo (Tsukubamirai City, Ibaraki Prefecture) is one of Japan's leading outdoor filming facilities. Using an ultra-high resolution laser scanner, we seamlessly scanned its Edo period merchant houses in 3D, from outdoors to indoors. This enabled us to create a uniform CG set with the same textures and sense of scale as the real thing, with comprehensive views in a digital space. Generated with more than 700 million polygons, this hyper-realistic set is a world apart from conventional digital representations. In addition, digital props can be freely arranged in a lifelike manner. Take a look at the prototype.

From video production workflow DX to permanent preservation of cultural assets such as historic cityscapes and architectural sites

NEP's site-scanning technology

Our site-scanning technology can capture real-life towns and buildings in ultra-high resolution and reproduce realistic 3D computer graphics. Used in NHK's programs, this technology has been further enhanced and applied to period drama open sets. The result is a virtual CG set with a hyper-realistic feel that is indistinguishable from the real thing. This technology opens up new possibilities in Virtual Production (VP)*, known as the 'DX of workflow' in drama and movie production due to its unprecedented realism.

*Virtual Production (VP)

VP is a video technique that combines physical and virtual elements in real time. Until now, performers were filmed against a green screen, and CG was applied later. With VP, however, CG images projected on LED panels can be rendered in sync with filming operations, thus allowing performers to be shot against virtual backdrops. With a realistic CG set, it is possible to shoot in, for example, Nihonbashi Bridge as it was 300 years ago or an ancient Roman temple without an expensive open set and weather restrictions.

Permanently preserving transient structures

Our site-scanning technology can forever preserve landscapes that may not endure the test of time. Furthermore, historical buildings and cultural assets scheduled for restoration can be digitally captured in advance with our hyper-realistic site-scanning technology, allowing for the permanent preservation of entire structures, including 'time-honored value' before restoration.

The ultra-high definition scanning process ensures realistic texture, even when observed up close.
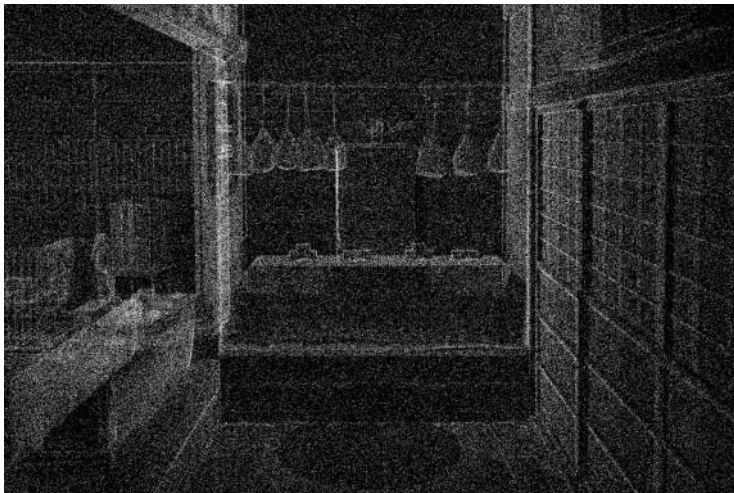
The interior of the building and props are laser scanned to create 3D point cloud data.

CG is created from point cloud data, with texture added to create a high-end, hyper-realistic indoor digital set.

Since all props are also CG, they can be placed in any position on the digital screen.

Details www.nhk-ep.co.jp/nepexpo/