Artec 3D

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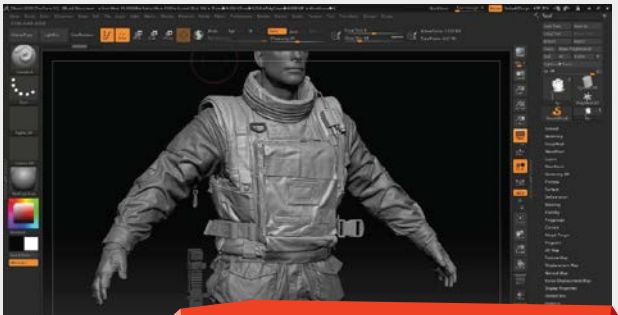
3D SCANNING WITH ARTEC LEO & SPACE SPIDER FOR CGI

Ultra-precise 3D models of a rifle scope and an HK P30L pistol made with Artec Space Spider scanner. The resolution is perfect for CGI use.

Ultra-realistic high-poly 3D models with Artec 3D scanners

For World War 3, after reviewing all the latest available digital capture technology on the market, video game developer The Farm 51 went with handheld structured-light 3D scanners, as these gave them the requisite balance of speed, stunning resolution, and simple processing.

In the words of Kamil Bilczyński, creative director and co-founder of The Farm 51, *"To put it bluntly, you can point a scanner at an object and move around it (or move the object) to create its virtual equivalent. Structured light helps the process by projecting a grid pattern on an object, telling the scanner how far or close it is from it. That way you can reconstruct that object and preserve its shape and all its tiny imperfections and dents, as well as its colors, that make it look and feel realistic."*



Character development in ZBrush following 3D scanning with Artec Leo & Space Spider

The Farm 51 chose Artec 3D's handheld structured-light scanners Artec Space Spider and Artec Leo.

Space Spider is an extremely-high-resolution scanner (up to 0.05mm accuracy), brilliant for digitally capturing small objects, especially those with high volumes of detail, such as electronic circuit boards, jewelry, tiny gears, etc.

Artec Leo, the newest addition to the Artec scanner family, is the first 3D scanner to offer automatic onboard processing. Fully wireless, with a point accuracy up to 0.1mm and up to 80 fps capture rate, Leo gives the digitalization team the power to scan everything: character faces and bodies, pistols, machine guns, and rocket launchers, even scanning objects as big as entire cars.

Following scanning and post-processing, the initial 3D model gets handed off to a character artist. The Farm 51's character creation team described the following crucial steps they take post-scanning:

"Our 3D artists, using specialized 3D sculpting software, create a high poly model from the post-processed 3D model."

They continued, "The next step is to create a simplified model, which means 'the fewer polygons, the better,' when it comes to overall game performance. Such a model doesn't include all the details captured during the scanning process, rather, it's a simplified form of the original, but by using the high poly model as a reference and source, the artist is able to 'bake' normal textures onto the low poly version, so finally it looks like all the details are still there, even though they're actually not."

Following this, the model is essentially ready for texturing, aka coloring. The texturing process, which refers to painting colors onto a weapon, character, or other object used in the game, helps by defining the look of the surface of the model.

Previewing an early stage character development scan with Artec Leo

As a testament to the technology and how well it works within the game development industry, World War 3 has received a nomination in the Visual Art category for the 2019 CEEGA, which is the annual awards for Central and Eastern European games.