

3D Reconstruction - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2019 - 2029

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Report description:

The 3D Reconstruction Market size is estimated at USD 1.5 billion in 2024, and is expected to reach USD 2.59 billion by 2029, growing at a CAGR of 11.60% during the forecast period (2024-2029).

3D reconstruction can be used across a wide range of applications, including art analysis and restoration, phenotype analysis, film and game graphics, and design, among others. The applications in the end-user and commercial sector have been among the prominent factors prompting vendors to invest in technological developments.

Key Highlights

- The 3D reconstruction market has been gaining significant traction over the past few years due to its increasing applications in the healthcare, manufacturing, and media and entertainment industries. The growing demand from the augmented reality (AR) and virtual reality (VR) industries to provide users with immersive virtual experiences may also drive the demand for the 3D reconstruction market over the forecast period.
- 3D reconstruction of buildings has been an active research topic in computer vision and digital photogrammetry during the past years. 3D building models are gaining increasing popularity in the areas of urban planning, tourism, etc. Owing to these advancements, the market is expected to register promising growth during the forecast period.
- The advent of deep learning techniques and, most importantly, the increased availability of large training data sets led to a new generation of methods that can recover objects' 3D geometry and structure without using any complex camera calibration process. The advent of advanced cameras in the past few years further propelled the 3D reconstruction market.
- The emergence of the Metaverse also creates opportunities for the application of 3D reconstruction, as the Metaverse heavily depends on the 3D recreation of scenes. Businesses are developing their projects to use cutting-edge technology, such as 3D reconstruction, to make the Metaverse more powerful and provide users with an immersive visual experience.

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-3D reconstruction can help preserve cultural artifacts, architecture, biofacts or ecofacts, and cultural landscapes by capturing their shape and appearance. For instance, in March last year, the Cultural Affairs Bureau of Macau announced using 3D technology to reconstruct the city's iconic Ruins of St. Paul's for guided virtual tours for visitors. Following the 3D reconstruction, tourists and residents can enjoy guided tours in the English, Portuguese, Cantonese, and Mandarin after a period of testing and adjustment.

-The COVID-19 pandemic significantly impacted the growth of the 3D reconstruction market due to the closure of the potential end-user industries such as manufacturing, media, and entertainment. However, the demand for 3D reconstruction solutions surged in the healthcare sector to diagnose and manage COVID-19 patients.

3D Reconstruction Technology Market Trends

3D Reconstruction Software Segment is Expected to Gain the Largest Share

- With continuous technological advancements and product innovations, 3D printing technology is being applied in many areas, leading to the adoption of many reconstruction software solutions for multi-view images. The software solutions used in various applications are GIS applications, media and entertainment, cultural heritage, manufacturing, healthcare, etc.

- The 3D reconstruction software segment is witnessing significant demand in the healthcare sector. 3D reconstruction technology helps visualize 3D models representing neuron morphology for fluorescent confocal images, which help provide accurate and complete characterizations. This technology makes it possible to reconstruct a single neuron with sub-micron resolution or a large neuron system with a feature size of millimeters.

- For instance, Philips' XperCT, a 3D reconstruction software CT-like imaging to interventional systems, allows the user to access soft tissue, bone structure, stent deployment, and tumor feeders. It also helps in avoiding structures during procedures.

- The growing digitalization and investments, coupled with the increasing use of advanced technologies such as AI and 3D reconstruction in the healthcare sector, may create opportunities for the adoption of 3D reconstruction software in the coming years. For instance, according to StartUp Health, digital health industry funding increased from USD 11.8 billion in 2017 to USD 44 billion in 2021.

- 3D reconstruction uses various approaches, such as 123D Catch, PhotoScan, photo tourism, VideoTrace, KinectFusion, and ProFORMA, with multiple inputs, like image collections, single images, and video footage. Currently, 3D reconstructions have issues with shiny, textureless, or occluded surfaces. However, introducing advanced 3D reconstruction software with enhanced features is expected to drive the software segment in the coming years.

North America is Expected to Hold the Largest Share in the Market

- North America is expected to dominate the overall 3D reconstruction technology market during the forecast period. Several regional governments have adopted 3D reconstruction technology for site assessments and investigations, crime scene reconstruction using 3D computers, and situational awareness.

- In addition, the US media and entertainment industry is gaining significant traction in terms of 3D construction adoption, which may significantly drive the market over the forecast. The presence of various prominent vendors and the early adoption of advanced technologies in the region would pave the way for the growth of the 3D reconstruction market in the region over the forecast period.

- With the increasing drive in the region to restore historical sites, governments, including various educational institutions and private organizations, are taking part in such restoration initiatives. Initiatives like these are expected to boost the 3D reconstruction market in the region during the forecast period.

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- The market vendors in the region are focusing on product innovations with the integration of advanced technology, which is expected to create growth opportunities for the market. For instance, in December last year, Omron Automation Americas, one of the global leaders in automated optical inspection (AOI), automated x-ray inspection (AXI), and solder paste inspection (SPI), announced the launch of two new AOI systems at IPC Apex 2023 in San Diego: the VT-Z600 and VT-S1040. The VT-S1040 is also intended for pre/post-reflow inspection. It also features MDMC illumination and includes AI-assisted microphase shift (MPS) 3D reconstruction, further improving defect detection and first-pass yields while reducing false calls.

3D Reconstruction Technology Industry Overview

The 3D reconstruction market is consolidated due to a few major players holding significant market shares. Vendors in the 3D reconstruction market focus on continuous product innovation, coupled with involving in mergers, partnerships, and acquisition activities. The ability of these firms to constantly innovate in this field has allowed them to gain a competitive advantage over their competitors.

- October 2022 - RSIP Vision, one of the leaders in driving innovation for medical imaging through computer vision solutions and advanced AI, announced the launch of a new tool for 3D reconstruction of the ureter. The tool transforms 2D fluoroscopic images of the ureter into a medical-grade 3D model. The physician will use the reconstructed model for procedural planning, diagnosis, and real-time navigation during a procedure.

- July 2022 - Skyline Software Systems Inc. announced that Pasco Corporation, a leading engineering and survey company in Japan and a key partner in its Global Reseller Network, launched TerraExplorer in the Japanese market. TerraExplorer is a cutting-edge 3D GIS desktop viewer and creator that provides powerful tools and a high-resolution 3D environment to view, query, analyze, and present geospatial data.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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