

**REPORT OF TOPIC CHAIRMAN
PRODUCTION TOPIC AREA**

Topic Chairman : Kazim PEKTAS – TRT-Türkiye
Period of Report : April 2024 to October 2024
Date of Report : 20 October, 2024

Reports from Project Managers in Topic on Production

A total of four projects are under the Production Topic Area, as below.

1. **Ultra High Definition TV and Advanced Immersive Sensory Media Systems P/UHDAISM**
2. **Systems for people with special needs P/SN**
3. **IT -based Production System and file-based workflows P/ITPS**
4. **Big Data, Personalisation and Artificial Intelligence P/BD AI**

For this reporting period we received one contribution from Mr. Tomiyama, project manager of **Ultra High Definition TV and Advanced Immersive Sensory Media Systems P/UHDAISM** from NHK STRL.

Ultra High Definition TV and Advanced Immersive Sensory Media Systems (P/UHDAISM)

1. Volumetric Data Acquisition by Meta Studio

To have the viewers watch contents from arbitrary viewpoints on various displays including 3D and/or head-mounted displays, NHK STRL is making studies on acquiring/rendering 3D models of subjects.

The depth of the subject from multiple viewpoints are estimated using the subject's silhouette in the images. By integrating the depths, the system reconstructs the 3D model which can be viewed from any viewpoint. The consequent errors and defects were compensated by the AI. Various visual effects can be applied to the created 3D model, such as lighting variations and properties of reflection, resulting in a high-quality, heterogeneous footage that can be viewed from any viewpoint. For example, the model was moved to an outdoor setting and blended with an evening scenic backdrop.

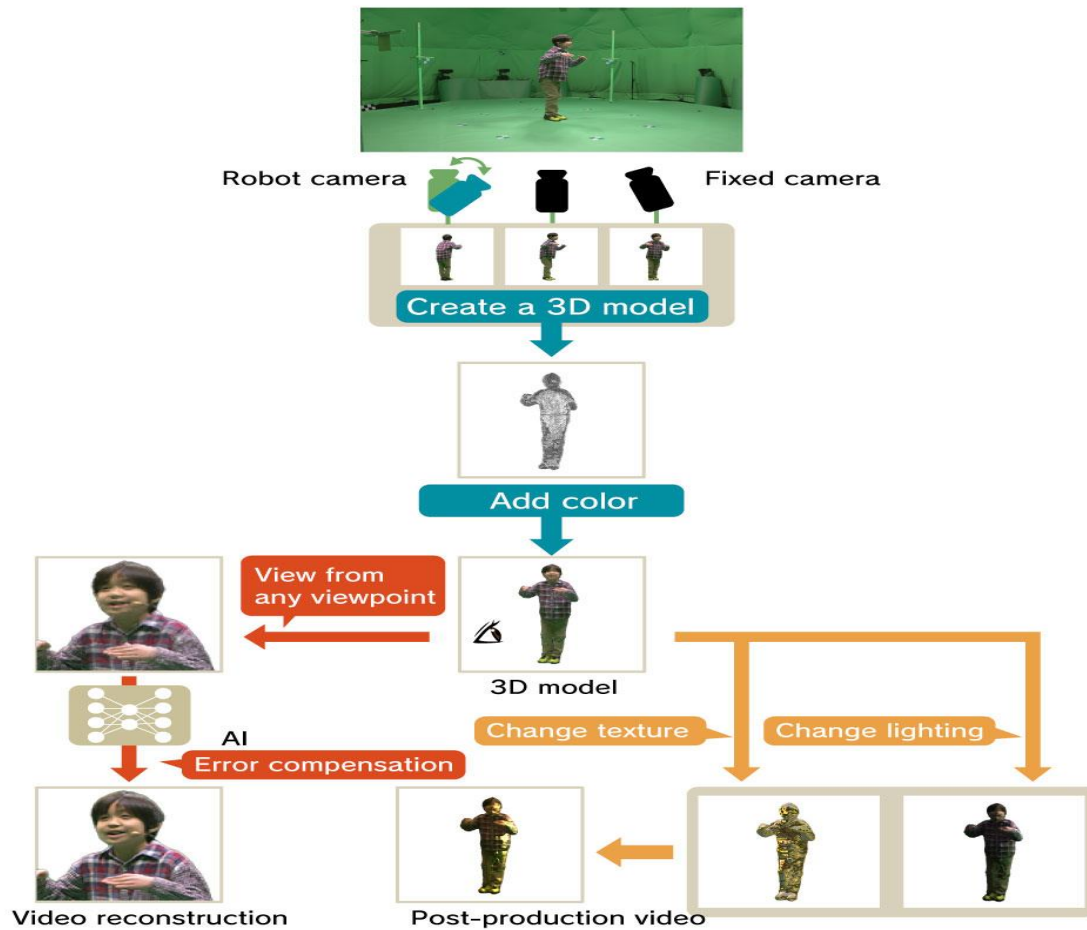


Figure 1. How does the Meta Studio work?

2. Volumetric Video Production Support System

The development of Meta Studio, which produces photorealistic volumetric videos using multi-viewpoint cameras to acquire the 3D shape and reflection properties of the subject, is conducted. Here is the introduction of volumetric monitors and a technology that renders videos in real time.

- Volumetric monitor that presents visual information to support the performers

For easier cooperation of performers in different place or time, a send-back monitor has been developed. It displays co-performers' images in real time, while switching the viewpoint of the images based on the pose information of the (co-)performers appropriately.

- Interactive display of volumetric videos by real-time rendering processing

A high-speed processing technology that renders a variety of information, such as shapes and reflection properties, in real time has been developed so that it is possible to render and display images depending on virtual viewpoints on a variety of devices.

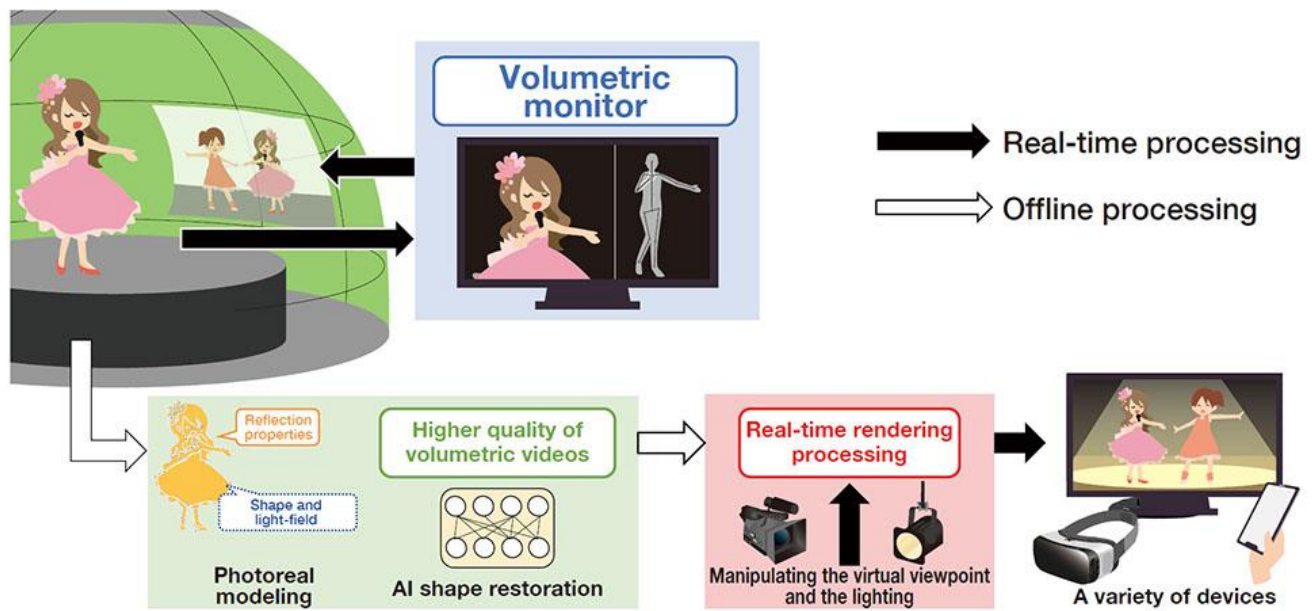


Figure 2. Volumetric video production system, Meta Studio