

Cutting-edge technologies to spin up future media

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In anticipation of the media environment in the period of 2030–2040, the Japan Broadcasting Corporation (Nippon Hoso Kyokai (NHK)) Science & Technical Research Laboratories (STRL) announced the “Future Vision 2030–2040” agenda in 2021, describing the goals and direction for the public service media research division. To address the requirements outlined in this agenda, we aim to provide a novel user experience that expands beyond the television, with viewing modalities incorporating a variety of devices and a content production environment evolved into a three-dimensional (3D) space (Fig. 1). At NHK STRL, three key R&D focal points required to realize our future vision have been identified (Fig. 2): immersive media, to offer new adventures and emotional journeys beyond the TV; universal services, delivered anytime, anywhere, and to anyone; and frontier science, featuring cutting-edge scientific research for both future media creation and sustainable societies.



Fig. 1. Wide variety of viewing styles

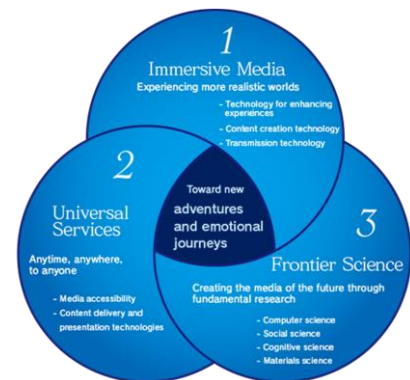


Fig. 2. Primary R&D strategy

Currently, we are conducting research on technologies that provide a realistic immersive content experience; among these, virtual-reality (VR) devices for reproducing natural 3D images are attracting considerable research interest. Our VR device¹ is a head-mounted display unit that utilizes light field technology to reproduce light rays from an object, similar to the real-world phenomenon. In addition to providing natural 3D display, the proposed solution is expected to reduce visual fatigue. Additionally, a portable interactive 3D display capable of displaying 3D images based on viewer position and device operation has been developed². By adopting integral imaging technology, this display enables 3D image viewing with full parallax without requiring specific hardware, e.g., glasses. To research on flexible displays, a prototype 30-in 4K organic light-emitting diode (OLED) display with a panel thickness of approximately 0.5 mm was fabricated in cooperation with a device manufacturer³. Subsequently, a large display tiling multiple panels and a display with variable curvature that exploits display flexibility were prototyped and exhibited at the NHK STRL Open House in May 2022. Current research now concerns thinner OLEDs capable of prolonged light emission, regardless of the presence of moisture.

Through R&D efforts advancing development in this domain, our research will continue to address the challenges of future eras.

References

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