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**THE ART  
CHALLENGES THE  
TECHNOLOGY, AND  
THE TECHNOLOGY  
INSPIRES THE ART.**

**JOHN LASSETER**

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*juXtaped*

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**PROJECTION-  
MAPPED  
INSTALLATION:  
THE MIXING  
OF REAL AND  
VIRTUAL IN AN  
IMMERSIVE  
SPACE**

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### Abstract

Emerging technologies offer innovative ways for artists to manipulate physical space in real time. The developing of digital technology has become substantial in nowadays art practice. It gives the artists a range of possibilities to craft their current artistic expression. With the development of AR and VR system, artists have begun to explore the computer's potential to extend virtual content to real objects which holds the concept of immersive space to enhance the audience experience. Lee et al. (2015) stated the employ of digital technology in artistic performance and the manipulation of virtual and physical space – their functions are combined in real time - let the artists create immersive environments that enable the audience to experience alternative realities. This essay explores the concept of arts and design when they are met (merged) with technology, to create new forms of interaction in physical space. In this paper, we highlight the work of Andrien M & Claire B *Hakanai* and Joanie Lemercier's *Fuji*. Both artworks engage digital technology to mix physical and virtual art forms through digital installations - using projection application as part of their art performances. The immersive art installations employ projection system for artistic expressions in pushing the boundaries between technology and the arts.

**Keywords:** Spatial augmented reality; projection mapping; immersive experience; audiovisual installation; immersive space; performance art

### Introduction

*"Technology, like art, is a soaring exercise of the human imagination."*

*- Daniel Bell*

Modern technology has a significant role in shaping modern culture. It changes the way we communicate, commute and it has influenced most of our modern lifestyle. Artists too are beginning to engage new technologies in their artistic works. It creates innovative possibilities for endless artistic expression and for the artists to build a new aesthetic. In recent years, more artists have started to venture into the modern aesthetic of technology in their art practice - by using any form of digital technology as part of their artistic process - to develop their voices further. Sollit (2017) posits affordable technology such as software and hardware like projections system and motion capture and their potential in creative and commercial contexts, making them excellent tools for creative exploration. As audience interest and demand for new art is rising, more artists - as well as directors - started to explore the experiential

and expressive potential of new technologies in the art making such as the application of projection mapping. According to Cho and Lee (2015), projection mapping has made it possible to combine the real and virtual worlds and allows the viewer to experience spatial augmented reality or known as SAR. The idea of projection mapping is to establish a physical illusion of images and turn any surface into a dynamic video (Ekim, 2011). Research by Beira, Carvalho, and Kox (2013) stated that recent development in the video projection system, such as 3D Video Mapping, has made it possible to merge the virtual content to three-dimensional physical space. A project such as "Daydream" by Nonotak (2013) exhibited in Japan is an audiovisual installation art employed projection application which aimed to establish a physical connection between the virtual and the real space (see Figure 3.1).



**Figure 3.1:**  
Daydream V.02  
by Nonotak  
exhibited in 2013.  
Image courtesy of  
Nonotak.

The work blurs the boundaries between the physical and virtual realities. It allows the audience to be immersed in both realities and somehow influences the viewer's perception through the extension of digital to physical form. This phenomenon is something that we can experience in our daily activities – e.g. digital commercial board in a mall. Projection mapping unique quality enables to warp digital content onto any physical architecture hence gives space a meaning that can be experienced by the audience. May (2016) stated that the relationship between human interactivity, the arts, and digital technology in real-time still requires extensive exploration in order to see its abilities in creating a new experience.