

In Living Color: Museum Uses NEC Projector to Show Classical Artwork as Multicolored Masterpieces

Using a projector allowed a San Francisco art museum to present the unexpectedly colorful past of ancient sculptures and artifacts

The Challenge:

- Present a piece of classical artwork as it looked with its original vibrant coloring – without using paint or physical mediums

Solution:

- A [NEC NP-PA803U](#) projector

Result:

- A captivating museum display juxtaposing what a classical frieze originally looked like, versus how it has aged, using a projector to transition the piece from monochromatic to vividly colored

It can be difficult to make connections with the art of antiquity; how much can modern humanity possibly have in common with people who lived thousands of years ago? This can be especially true of ancient Greek and Roman art, which is largely monochromatic; sculptures are made of hard, impassive marble or bronze, and weathered architecture has faded them to a single dingy shade.

This lack of color can translate into inaccessibility; museum-goers sometimes are less attracted to classical art exhibits, lingering politely for a few moments before moving on to the Impressionists or Japanese woodblock prints – or any exhibit that is more visually appealing, because of its colorful representations.

To help visitors better connect with the works of the ancient Mediterranean, museums are striving to present this art as its contemporaries would have seen it – vibrantly colored and eye-catching – through a combination of technology and painstaking research.

The Challenge

Modern museum-goers tend to think of ancient and classical art as monochromatic, because that's how we see it now – but that is inaccurate. Ancient sculptures were originally painted, but prolonged exposure to the elements faded the dazzling original colors. When the works were discovered, some of them retained the colors on the surface, but subsequent zealous cleaning created further disappearance of color.

Vinzenz Brinkmann, head of the Department of Antiquities at the Liebieghaus Skulpturensammlung in Frankfurt, Germany, has been studying the original painting of antique sculptures for many years, with new techniques using ultraviolet light and raking lighting resulting in important findings on ancient polychromy, or the use of multiple colors in art. These modern methods have allowed scholars to get a better idea of what colors these artworks originally were, using scant traces of pigment and scoring.

Now, numerous color reconstructions of ancient art, produced by Brinkmann and his wife, the archaeologist Ulrike Koch-Brinkmann, are touring the world in an exhibit called "Gods in Color," intended to emphasize how incomplete ancient sculptures are without color. The tour showed the reconstructions by the Brinkmanns, supplemented by original antiquities from ancient Rome and Greece as well as Egypt and the Near East, to introduce visitors to familiar styles in vibrant colors.

The Legion of Honor, an art museum located in San Francisco's Lincoln Park, was one of the stops on the exhibit tour, and the Legion's curator wanted to present the exhibition in a unique way. By using 3D printing to reproduce an exact replica of a relief panel from the Parthenon frieze on the Akropolis in Athens depicting horsemen and a servant boy, the museum wanted to use technology to create an unexpected experience for viewers.



"The show curators approached me and said they wanted to use the same frieze to show the difference between the work as we know it now, as a monochromatic work, and what it would have looked like in color," said Rich Rice, Director of Event and Exhibition Technology at the Fine Arts Museums of San Francisco. "They asked how we could do this, and I suggested an NEC Display Solutions projector."

The Solution

An [NEC PA803U projector](#) would be used to project colors onto a frieze next to an identical reproduction of the original frieze. Lighting treatment projected by the NEC projector onto the replica would fade in and out within a 12-second span, allowing visitors to see the same frieze in its original colors as well as its current monochrome state.

"The idea was, when they'd walk in, both would be white, and when they looked up, one would have color," Rice said.

The museum already had the projector on hand from previous exhibits.

"We do a lot of shows, so it helps when we buy something we can reuse," Rice said. "These projectors are versatile, and they also last, so we can keep them going as long as the tech remains up to date – which is good from a budget perspective."

Rice used a new lens on the projector to accommodate the color mapping on the frieze.

"It's a nice feature to be able to swap out the lens, because a lot of times at this price point, you don't have that option," he added. "With this projector, you do."

The projector also had features that made it easy to adjust the image if needed.

"We can tweak the image with projector features like 3D manipulation and lens shift," Rice said. "It's good to have those features if you don't have a straight shot at the surface or if you need to skew it at an angle. This projector's price point is not in the ultra-high-end, but its features are."

The Installation

The museum began planning for "Gods in Color," and, specifically, how to configure the projection piece, months in advance. Staff typically have a tight timeframe between uninstalling one show and reinstalling the next, giving Rice and his team a limited amount of time to get AV equipment into an exhibition space – in this case, a three-day window to install the projector and perform color mapping to the frieze.

"That's what makes it nice to know I'm not going to run into any unexpected issues with these projectors," he said. "Gear failure happens all the time. You need something reliable, and you get it with this projector, including the software inside and its features. With any piece of gear, you hope that you'll turn it on and see something, but you don't always get that, so it's nice to have reliable equipment – especially when you have a short turnaround, like with this exhibit."

To map the colors in the frieze – which was carved in relief, meaning some portions are raised – Rice used a 3D image file created by artist Grant Diffendaffer that included the various geometries of the different raised and flat areas onto which the projector would project. Between the geometry of the frieze's various surface depths and the variety of colors, the mapping was quite detailed.



"Curators spend a lot of time figuring out the colors and building the image, and we want to be able to reproduce that with the projection, so the colors look as expected," he said. "NEC's products do a great job allowing us to reproduce colors accurately. We don't need to spend a lot of time adjusting color temperatures."

After the projector was mounted in place in the exhibition space, Rice spent some time adjusting the image coordinates to ensure they accurately projected onto the frieze, but there were no real challenges during installation, he said.

"It was pretty cut-and-dried, which was nice, because you always wonder whether installation will go as you hoped – especially on a time constraint," Rice said.

The Results

The exhibition opened on Oct. 28, 2017, and continued through Jan. 7, 2018. The projector ran for approximately nine hours a day during this time with no malfunctions, with Rice able to control and monitor the projector using the NaViSet support system application.

"It's really useful to be able to set a schedule, manage run time, check the temperature and more," he said. "NaViSet has a lot of great features that make it easy to manage the projector."

The exhibition itself drew more than 100,000 guests in 10 weeks, with the projection on the frieze being a special highlight for guests.

"The curator told me many times how much visitors loved it – at first they wouldn't realize what was happening when they would see it one way and then another, and they'd stop to figure it out," Rice said. "It definitely had the expected impact, and it's always nice when people are not only captivated by technology, but also stop to think about it and get the point of why it's happening."

Rice said he expects the museum will continue to incorporate projectors into future exhibitions.

"Once curators see projectors, they want to use them, and it's great to come up with solutions and figure out how to make their ideas happen," he added. "These projectors allow us to switch out the lenses and use them all kinds of ways, so the versatility makes it possible to use them in a variety of exhibits."

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