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NYU THE INSTITUTE OF FINE ARTS

From Neon Lights to Augmented Reality—Current Research in Time-based Media Art Conservation

IT'S ABOUT TIME—TO SPOTLIGHT OUR TIME-BASED MEDIA (TBM) Art Conservation activities now in full swing since launching in 2018. Our third cohort enrolled in Fall 2020, while our advanced students continue to acquire desperately needed skills in this burgeoning discipline. As we shifted from in-person teaching to the online delivery of various modules, the implementation of the specialized TBM curriculum, along with the coordination of our workshops and public lectures, meant that we can reach even broader audiences.

The conservation of modern and contemporary art and, more specifically, TBM art, expands our academic and professional communities by attracting students who cross the disciplinary boundaries of computer science, material science, media technology, engineering, art history, and conservation. Thanks to their varied knowledge, they are on the cutting edge of technical art history and conservation research and treatment. Even before graduating our students have contributed significantly to the field of TBM art conservation.

Our TBM curriculum, supported by the Andrew W. Mellon Foundation, provides a highly specialized education within art conservation and is unique in the U.S. Several workshops and courses are open to students from other departments within NYU, thus fostering collaborative decision-making early on. Students at NYU majoring in Engineering, Museums Studies, Moving Image Archiving & Preservation, Art Administration, and Art History, enroll alongside conservation students in the class *Technology and Structure of Works of Art III: Time-based Media* for an introduction to the historical development of TBM art. The class, offered in Fall 2020 for the third time, is focusd on the complex conservation challenges associated with various media such as film, slide, video, light, sound, kinetic, interactive installations, as well as born-digital, software-based, and internet art. Students from various backgrounds and expertise contribute to discussions on issues related to the acquisition, examination, documentation, exhibition, installation, and conservation of TBM artworks. In this new and quickly evolving discipline, collaboration and communication are essential to advancing research and best practices.

This Newsgram highlights current and ongoing research carried out by our students in conservation and art history as part of various classes and at different stages of their education. These projects were scheduled for presentation at various venues, but due to the COVID-19 pandemic they have been postponed or cancelled entirely.

Augmented Reality (AR): A Questionnaire as a Prompt Sheet for Acquisition

Samantha Rowe, M.A. in the History of Art and Archeology, Institute of Fine Arts, New York University, Class of 2020, and M.S. in Library and Information Science, Palmer School of Library and Information Science, Long Island University, Class of 2019

Our daily lives have become increasingly digital—whether it be through the reliance on video conferencing systems, utilizing applications to help monitor our health and overall wellbeing, or streaming content directly through personal devices—there is no doubt that the direction we are taking is one that makes the digital evermore ubiquitous. This trend to embrace the digital has also emerged in the collecting behaviors of many museums and cultural institutions. The rise of augmented reality (AR) artworks activated in public exhibitions and site-specific locations is of no exception.

As AR technology develops to augment our reality by establishing innovative ways of creating interactive experiences that superimpose sounds, images, and text on the world we see, the less collectors, museums, and cultural institutions are prepared for effectively acquiring and collecting such time-based media artworks.

In fall 2019, as the final project for Christine Frohnert's *Technology and Structure of Works of Art: Time-based Media* class, I chose to devise a pre-acquisition questionnaire with a focus on AR app-based artworks. Given that there was no existing acquisition template for AR artworks on the market, the methodology relevant to open-access documentation, with a focus on media and software-based art was used, in order to establish a framework tailored to AR app-based artworks.

As a pre-acquisition questionnaire, this template institutes certain procedures and suggests guidelines for what might be required for the acquisition of an AR app-based artwork. The questionnaire was organized into ten sections which pose a series of comprehensive queries to prepare artists, organizations, and collectors for what they might expect during the acquisition process. These sections include general information, copyright and fair use, technical specifications, hardware and display, installation details, preservation considerations, and more.

Bearing in mind that the technology of AR continues to develop, this questionnaire is a living document and a collaborative endeavor that will continue to be adapted as we learn more about the acquisition process for these types of time-based media artworks. I am delighted by the opportunity to share this template with the community and I believe that it will enable us to make well-informed decisions during the acquisition process of AR app-based artworks.

A special thanks to Christine Frohnert, Charles Sainty, Sasha Arden, Savannah Campbell, and Mark Hellar for their feedback, guidance, and support throughout the process of developing this questionnaire.

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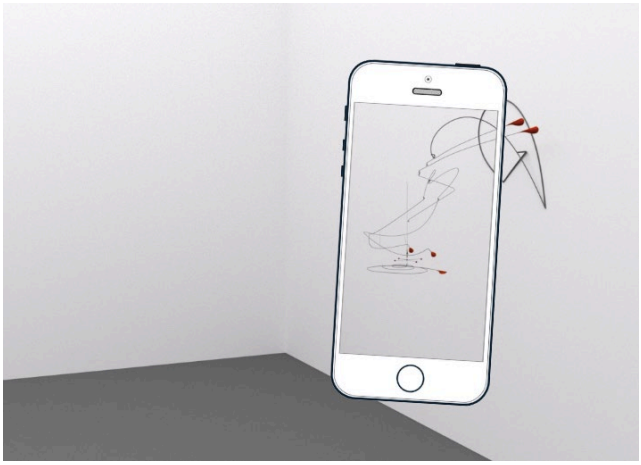
The Potential of Augmented Reality (AR) in the Virtual Performance of Time-based Media Art

Sasha Arden, Rachel and Jonathan Wilf/Andrew W. Mellon Fellow in TBM Art Conservation, Class of 2022

Augmented Reality (AR) is a technology that superimposes digital information on a view of the real world through a device such as a smartphone or tablet. Using an app or web page, one can point a device's camera at a designated object and see video, images, three-dimensional digital renderings, and more, activated as a virtual layer with the real-life object still in view. While AR is popularly known as a game platform, artists also leverage AR as a creative platform for interactivity and hybrid visual fields, introducing the medium to galleries and museums around the world.

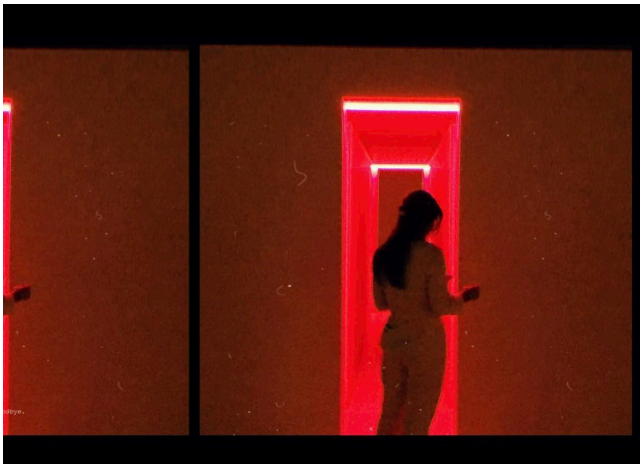
The research project explored the potential of AR as a tool to preserve the experience of time-based artworks no longer able to function in their original iteration due to damage, obsolescence, or other barriers. Elements such as moving image or kinetic motion could exist as virtual visual layers integrated with the original object, or alongside it. As an alternative to an exhibition copy or displaying an object with documentation of its past function, AR offers a unique method to connect time-based, work-defining elements to their physical anchors and keep such artworks accessible to viewers. By proposing the application of AR technology through case studies, some limitations were identified, as well as questions around ethics and authenticity.



Simulation of AR used to view a digital replica of an artwork. Image created by Sasha Arden.

I See What I See: Spectral Measurements of "Neon" Lights in Artworks for the Identification of Gas Composition and Color Characterization

Taylor Healy, Andrew W. Mellon Fellow in TBM Art Conservation, Current Intern at the Hirshhorn Museum and Sculpture Garden, Washington, DC, Class of 2021



Taylor Healy taking measurements at the Met Breuer's 2019 installation of Lucio Fontana's *Ambiente Spaziale a Luce Rossa* (1967/2019)
Photo credit: Hongzheng Han

Gas-discharge tubes—more commonly known as "neon" lights—have been used in signage since the early 20th century, and in artworks soon after. Modern and contemporary artists including Joseph Kosuth, Tracy Emin, Bruce Nauman, and Lucio Fontana valued this medium for the variety of colors of light the tubes could produce as a result of different combinations of noble gases and glass tubing. These artists often relied on trained fabricators to create their designs, restore, and replace components over the lifetime of the work. Aging units and their electronics present condition issues such as color shifting, sputtering, and failure. Currently, it is a common and accepted conservation practice to replace both the tubing units and electronics as needed, but documentation of the intended appearance of light or material composition of the gas-discharge tubes is rarely available. This makes it difficult for collections care professionals to identify original materials and subsequent condition issues, which perpetuates the dependency on fabricators and restorers. They, in turn, depend on their extensive training and knowledge of workshop practices to replicate these components, but it has been observed that replicated components are not visually faithful to the original intended aesthetic qualities sanctioned by the artist. The need for identifying gas composition is especially crucial for gas-discharge tubes in artworks that require replication to authentically reproduce the aesthetic qualities of the tubes and the composition of the original materials.

An experimental technique was developed for the identification of gas-composition of gas-discharge tube units used in works of art and cultural heritage. It involves the use of a handheld spectrometer to measure the spectral power distribution of the emitted light and matches the characteristic peaks to that of known noble gases. In addition to the identification of the gas-fill, the spectrometer can

measure chromaticity, which locates the color of light within an international color-space standard, CIELAB 1976. The initial experiment was designed to document these parameters used in an artwork fabricated by Precision Neon, a neon fabrication studio in Brooklyn. This information can be used to document the color of light produced and identify gas compositions of newly fabricated and aged artworks, and in turn, assist fabricators for future replacements.

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Thanks to the Andrew W. Mellon Foundation, the Conservation Center is a leader in the education and training of future TBM art conservators. With our growing dependency on technologies, especially during this unprecedented period, the study and research of time-based media art conservation anticipates the challenges posed by our digital future. Inspired by our development of new online teaching modalities, there will be no slowing down as we transform the classroom to create a truly global discussion. We are currently revising the TBM art conservation teaching modalities to integrate advances in equity and inclusion. Stay tuned!

Christine Frohnert

Christine Frohnert is Research Scholar and Time-Based Media Program Coordinator for the NYU conservation program

Header Image: Pipilotti Rist, International Liquid Finger Prayer, 2019 (still). Augmented reality. [AR]T Walk: Augmented Realities. Image courtesy of Apple.

The implementation of the TBM curriculum at the Conservation Center is supported by the Andrew W. Mellon Foundation.