Managing time-based media/digital art at (an appropriate) scale
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Project Description

Overview

The nature of time-based media art (TBMA)—a term encompassing works which have duration as a dimension and depend on technology to be viewed—poses new challenges in terms of management, preservation and access that are vastly different from those of more traditional media, requiring new processes and skills to steward them successfully. The Minneapolis Institute of Art (Mia) and many of its peer museums have been acquiring increasing numbers of TBMA in recent years and are now appreciating that they do not yet have the institutional capacity to protect these artworks from failure and loss to the same degree they can for paintings, sculptures, and other static mediums.

Although Mia’s time-based media/digital art collection is small, numbering only twenty-two objects, growth is imminent. All of the museum’s curatorial departments are poised to dramatically add to this number, especially both Contemporary Art and Photography & New Media with new curators at the helm. Fortunately, leaders in the field, such as the Matters in Media Art\(^1\) initiative and the Smithsonian Time-Based Media and Digital Art Working Group\(^2\), offer guidance on how to adequately care for TBMA. However, with collections of TBMA numbering into the thousands, their solutions may not be appropriate for smaller organizations.

Mia’s newest time-based media art acquisition: August 2016, Omer Fast | Stereoscopic film in 3D with 5.1 surround sound | 2017.54
LEFT: To exhibit August, Mia worked closely with artist Omer Fast (pictured) to create the waiting room he specified for his complex video installation. RIGHT: After time in the waiting room, visitors view August with 3D glasses. PHOTOS: Minneapolis Institute of Art

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1 Matters in Media Art: [http://mattersinmediaart.org/](http://mattersinmediaart.org/) (also listed in Key Resources under Major Projects)
2 Time Based Media Art at the Smithsonian: [https://www.si.edu/TBMA](https://www.si.edu/TBMA) (also listed in Key Resources under Major Projects)
My NDSR Art residency was designed to adapt the aforementioned solutions to fit the more moderate scale of Mia’s media art collection and resources. The project focused on building a foundational framework to ensure the preservation and viability of Mia’s TBMA into the future, and by extension, advance approaches to TBMA stewardship for smaller museum contexts. It aimed to achieve this in four principal ways:

1. assessing and addressing current and anticipated needs of Mia’s TBMA collection,
2. recommending technical solutions for management and preservation of these works,
3. devising and overseeing initial implementation of the newly established framework, and
4. sharing the results and solutions with Mia staff as well as the wider cultural heritage community.

The work I accomplished during my NDSR Art residency has made a significant contribution to Mia by laying the groundwork for the care of the museum’s TBMA—standardizing processes for future acquisitions and taking steps to improve the preservation of the existing collection. While not all of the original, proposed objectives were fully realized, I have succeeded in the overall project goal to improve Mia’s TBMA stewardship. Through my efforts co-leading the New Media Task Force and my outreach activities, forging connections with colleagues within Mia as well as across the cultural heritage community, I ensured that the foundation I helped develop is based on best practice, a clear understanding of the challenges inherent in TBMA, and an appropriate appreciation of Mia’s needs, abilities and current issues. Mia is now well-placed to take the momentum started by the NDSR Art residency and build on my achievements with the New Media Task Force, continuing to drive this work forward, ensuring the viability and integrity of its TBMA long into the future.

**Background**

Mia’s mission is to enrich the community by collecting, preserving, and making accessible outstanding works of art from the world’s diverse cultures. With over 89,000 artworks, the museum’s collection includes art from six continents, spanning nearly 20,000 years. Visitors at Mia will find world-famous artworks that embody the highest levels of artistic achievement and speak to the enduring power of human creativity to shape our world. And increasingly, these artworks are born-digital.
In August of 2014, a group of Mia curators, registrars, and members of the Media & Technology division met to discuss new media acquisitions after recognizing that the longevity of these works was a growing concern. As an encyclopedic art museum with wide ranging collections in more traditional mediums, Mia had been caring for its media artworks similarly: as though they were purely physical objects, not addressing their variable nature and unique digital needs. Throughout the meeting attendees raised basic questions such as:

*Who asks the questions when a new TBMA acquisition is proposed?*
*Who tracks the display equipment?*
*What happens when the software/hardware running these works fail and are no longer available?*

Mia’s New Media Task Force (NMTF) was born from this conversation. Over the next three years, to address the lack of preservation processes for new media art at the museum, the Task Force began a detailed exploration of both best practices in caring for TBMA as well as the status of Mia’s collection. However, a series of setbacks and delays (including the departure of the curators from both the Contemporary Art and Photography & New Media departments) limited progress. No one on the NMTF was able to devote sufficient time to drive the project forward. When a planned internship focused on addressing the museum’s TBMA fell through, members realized that more impactful steps were required.

Mia’s application to host a resident through the National Digital Stewardship Residency in Art Information (NDSR Art) became an essential part of its effort to professionalize the practices related to the management and preservation of TBMA. The opportunity offered by NDSR Art accommodated all of the Task Force’s goals for improving the stewardship of its TBMA collection and provided an important resource the museum was lacking: someone devoted to this work full-time. Mia submitted its application in late 2016 and, after advancing through the initial selection phase, welcomed a site visit by representatives of the NDSR Art Program Board and the local ARLIS/NA community. Impressed by the museum’s organizational commitment, the judges chose Mia to be one of the four NDSR Art Host Institutions in the inaugural 2017/18 cohort.

In collaboration with Program managers, the hosts widely disseminated the call for NDSR Art Resident applications. Qualified applicants were then vetted by NDSR Art Program managers prior to being reviewed, interviewed, and selected solely by the hosts. As with the other hosts’ candidates, once I was chosen for an interview, I interacted directly with Mia for the remainder of the selection process. The NDSR Art Program kicked things off with a week-long immersive training program in Philadelphia for the chosen Residents and our Host Mentors (also the cohort’s first opportunity to meet in-person). Immediately thereafter, we returned to our home institutions and the actual project work began.
Goals

Mia defined its NDSR Art residency goals using the Library of Congress Digital Preservation Outreach and Education (DPOE)\(^3\) program’s stages of digital preservation, focusing on four of the six identified preservation stages: **Store, Protect, Manage, and Provide**.

Concerning the Store and Protect stages, I was to guide Mia in determining and agreeing on the systems, structures and processes needed to achieve long-term preservation for its media collection; review Mia’s existing digital asset management infrastructure (systems and software) and then recommend storage solutions and update its current metadata structure to accommodate TBMA, all at the proper scale.

Managing Mia’s TBMA requires appropriate organizational policies and procedures for acquisition, display, and preservation. As Co-Lead of Mia’s New Media Task Force, I was to spearhead the formulation of new processes to meet TBMA-specific needs—for example, understanding artist intent and its impact on displaying these artworks over time. I was also to propose roles, responsibilities and workflows for TBMA stewardship, document the agreed upon procedures, and initiate staff training.

I was asked to pay particular attention to the needs of Mia’s digital artworks and to recommend ways to address the impact that technological changes will have on both the artworks and the organization. Furthermore, I was to then undertake testing of the systems, structures, and processes that Mia implemented based on my recommendations, ultimately applying them to Mia’s existing collection.

Finally, Mia aimed for its NDSR Art project to provide a model for other cultural institutions with growing, moderately-sized TBMA collections also facing the challenges inherent in acquiring and preserving these complex works. As such, I was to be sure that project outputs were actively disseminated via conferences, articles, and other appropriate outlets.

Project Partners

Mia’s NDSR Art project relied on a wide range of stakeholders and other contributors. I owe much of the success of my residency to the support of the great many people I partnered with inside and outside the museum during the course of my work this past year.

Host Mentor

The host mentor for my residency was Frances Lloyd-Baynes, Head of Collections Information Management at Mia. In addition to acting as my primary mentor, Frances served as my co-lead on the New Media Task Force and was also my day-to-day supervisor. She was responsible for overseeing and providing guidance in the development, progress, and sustainability of all project efforts. Frances arranged frequent check-in meetings for the two of us to discuss our work and to determine priorities and next steps for the Task Force. We worked

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\(^3\) DPOE: [http://digitalpreservation.gov/education/index.html](http://digitalpreservation.gov/education/index.html)
closely together throughout my residency, collaborating on nearly every aspect of the project. She made herself readily available to me whenever I had questions or concerns and provided timely, constructive feedback. Frances was also very involved in getting me settled into life in Minneapolis and acclimating me into Mia’s workplace culture. Additionally, she was an invaluable resource when navigating the many divisions and departments within the museum. Frances consistently dedicated a significant portion of her time to my training, project supervision, and guidance. I am very grateful for her commitment toward helping ensure the success of the project as well as my success, as both a resident and a new professional.

**New Media Task Force**

One of my major responsibilities as NDSR Art Resident was to co-lead Mia’s New Media Task Force (NMTF), a cross-functional team comprised of key staff from five other departments: Contemporary Art, Photography & New Media, Registration, Interactive Media and the Library & Archives. These individuals were a crucial component in moving things forward and also served as ambassadors for the project. Given our many conflicting schedules, we held meetings as a group approximately bi-monthly, and communicated via email and scheduled smaller meetings with specific Task Force members as needed during the interim. Each NMTF member brought their own unique perspective and expertise to the project, providing the group with invaluable knowledge, guidance, and feedback:

- Meg Black – Assistant Librarian, Library & Archives and ARLIS/NA Mentor
- Joseph Doherty – Departmental Assistant & Collections Coordinator, Photography & New Media
- Camille Erickson – former Curatorial Assistant & Artist Liaison, Department of Contemporary Art
- Ryan Lee – Media Production Lead, Interactive Media
- Leslie Ory Lewellen – Associate Registrar for Acquisitions, Registration
- Yasufumi Nakamori – Curator and Head, Photography & New Media
- Gabe Ritter – Curator and Head, Department of Contemporary Art
- Nicole Soukup – Assistant Curator & MAEP Coordinator, Department of Contemporary Art

**Media & Technology Division**

I was situated in the Media & Technology (MAT) division at Mia. Our division head and Chief Digital Officer, Douglas Hegley, was a key project partner in addition to being its Executive Sponsor. Douglas was an ardent supporter of my efforts. He set the project up for success throughout my residency by advocating for the stewardship of TBMA to the other members of Mia’s Senior Leadership Team, as well as by communicating their priorities and perspectives back to the project partners. Additionally, many of my colleagues in MAT helped further my understanding of Mia’s digital ecosystem and offered guidance on numerous technical aspects of the project that fell outside my own expertise—recommending project management tools, providing advice on choosing software, troubleshooting problematic hardware, or helping me with a myriad of other technical concerns⁴.

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⁴ See Acknowledgements for complete list
ARLIS/NA Host Mentor

In addition to her role on the New Media Task Force, Meg Black also served as my local ARLIS/NA Mentor, connecting me to the Twin Cities chapter (ARLIS/NA-TC) as well as other local professional networks and events. As both employees of Mia, we saw each other frequently and arranged time to talk over lunch every couple of weeks. During these informal meetings, she offered me useful career advice and assistance with my post-NDSR job search. Furthermore, when I was conducting research, Meg helped me obtain resources that were of great benefit to the project. She was also instrumental in planning and organizing the Fall ARLIS/NA-TC Chapter Meeting and member lunch with me, creating the schedule and arranging for the Mia Library to host.

Additional Internal Stakeholders

Mia is a highly collaborative work environment and I was lucky to have contact with staff from every division in the museum during my residency. The Curatorial Division, in particular, played a major part in my work. In addition to those members on the NMTF, I collaborated with a number of colleagues across curatorial departments who shared their valuable time, insights, and expertise with me. Their contributions helped direct the project in a way that was best suited to Mia’s particular needs and resources, ensuring project sustainability:

- Alex Bortolot – Content Strategist
- Ken Krenz – Associate Registrar, Permanent Collection
- Janice Lurie – Head Librarian
- Padma Maitland – Jane Emison Assistant Curator of South & Southeast Asian Art
- Tanya Morrison – Registrar
- Matthew Welch – Deputy Director & Chief Curator

External Partners

From major museums in the US and UK (e.g. MoMA, SFMoMA, Tate) to a local academic library (e.g. University of Minnesota), I engaged with numerous professionals outside Mia and across the cultural heritage sector. These colleagues generously shared their knowledge and advice with me regarding their work related to TBMA, digital preservation, and conservation. Their valuable input enabled us to bridge gaps in Mia’s available expertise, particularly in the area of TBMA conservation.\(^5\)

\[^5\] See Acknowledgements for complete list
**Project Execution**

**Proposed Timeline**

The original timeline for my residency, as outlined in the project proposal, was defined on a broadly quarterly basis. Each of the four phases had clearly defined goals and end points for discreet areas of work. Mia’s intention for the project was that my host mentor and I would work together to develop a specific work plan iteratively, despite this quite formal proposed work plan:

1. **Evaluation & Review:**
   a. assess current state of TBMA care at Mia
   b. investigate digital preservation tools and metadata for recording TBMA process history
   c. propose baseline requirements for acquisition, loan, and ongoing maintenance of TBMA, derived from the established standards and best practices of other institutions

2. **Recommendations & Draft Framework:**
   a. suggest technical and procedural solutions for TBMA acquisition and digital preservation, allowing for scalability
   b. address gaps in existing collection documentation

3. **Proof of Concept & Implementation:**
   a. evaluate feasibility of proposed digital preservation strategies for complex TBMA
   b. use existing collection objects to test and determine methods and systems for acquisition, documentation, display, and preservation

4. **Documentation & Dissemination:**
   a. provide detailed framework and summary of work in reports and technical documentation
   b. verify existing TBMA meets newly established standards and best practices
   c. share project outputs and findings via training with Mia staff as well as distributing to the wider community.

**Methods**

Following MAT’s usual agile approach, we planned to use the Scrum methodology to manage the NDSR Art project. We would be setting regular (e.g. bi-weekly) ‘sprints’ to define specific tasks for each time-period, and deliverable dates were to be negotiated between my host mentor, MAT’s Digital Program Manager, and myself as work progressed. The nature of Scrum is to work iteratively and incrementally, making any necessary course
adjustments on an ongoing basis. This would allow the original outlined work plan to be flexible and responsive to feedback and changing needs as the project moved forward. I discussed implementing Scrum early in my residency with the Digital Program Manager and my host mentor. Because I was the only person committed to the project full-time and the availability of other Task Force Members varied widely from week to week due to conflicting responsibilities (e.g. work travel, installing a major exhibition, new acquisitions), we quickly realized that Scrum’s team model was not a good fit.

Although unable to fully implement Scrum, my host mentor and I adopted many of its practices to help manage the project. We worked iteratively, meeting bi-weekly to check in. We also created a ‘product backlog’ to list, track, and share all work required to meet the proposed project objectives at the suggestion of the Digital Program Manager. She also recommended I borrow the concept of Scrum ‘user stories’ to break down and determine all the tasks required to complete each work item in the backlog.

The halfway point of my residency (January 2018) offered me an opportunity for reflection via a midterm progress report and a performance evaluation with my host mentor. One outcome of our discussion during my performance review was that we began meeting more frequently (weekly at first and eventually daily as deadlines grew closer) in order to help me prioritize short-term goals as well as to ensure that we were staying on track. Given the ambitious scope of the NDSR Art project, we also re-evaluated many of the original proposed outputs, making adjustments when appropriate/necessary, and developed plans to ensure the sustainability and continued improvement of TBMA stewardship beyond my tenure at Mia. For instance, we

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6 The Scrum Product Backlog by Scrum Institute provides a nice overview of product backlogs: https://www.scruminstitute.org/The_Scrum_Product_Backlog.php

7 Mia’s Digital Program Manager referred me to How to Create a User Story Map by Steve Rogalsky for more information on user stories: https://winnipegagilist.blogspot.com/2012/03/how-to-create-user-story-map.html
agreed that the proposed goal to retroactively gather all missing support documentation for the existing TBMA collection would have to be addressed in a future project. With the little time I had left, there were a number of other project outcomes we deemed a higher priority (e.g. setting up a new TBMA workstation, backing up Mia’s digital artworks, keeping our acquisitions test cases moving forward) that demanded more of my attention in order to complete.

**Timeline as Realized**

**Quarter 1: Data Gathering & Planning Cohort Visit**

The first quarter of my residency was devoted to information gathering. As planned, I spent the initial months at Mia assessing the museum’s current TBMA needs and the potential impact of the anticipated surge in born-digital artworks. In addition to consulting relevant literature, I began conducting preliminary research regarding the technological aspects of the project, seeking to find answers to questions such as:

*Where will Mia’s digital surrogates and supporting TBMA documentation live?*
*How can we make sure it remains accessible and safe?*
*What software solutions do/don’t make sense for Mia?*

However, it was not long before I realized that seeking an answer to one question inevitably raised several more. This eventually led my host mentor and I to create a shared Trello board to categorize and track all of our questions by subject and status (e.g. answered, unanswered, in-progress, paused) as well as to assign specific questions to one another and add comments, when necessary.

Selection from the ever-growing Trello board to capture, track, and address project-related questions, shared with project partners
During this phase I also engaged with colleagues both at Mia and across the sector to seek out information and gain an in-depth understanding of how emerging best practices were being implemented elsewhere. Internally, I conducted one-on-one, in-person interviews with NMTF members as well as some Senior Leadership in order to gauge stakeholder buy-in and determine their priorities and concerns regarding TBMA and my residency. Externally, I reached out and conducted interviews with a number of individuals at major art museums via video and phone calls as well as, when fortunate enough, site visits. Through these interviews I discovered that, although these other institutions differed in policy and procedure, they all had one thing in common: the management and care of TBMA was the responsibility of the conservation department. Following their models thus presented a big challenge for us, as Mia has neither a conservation department nor conservators on staff. Collections care at Mia is a joint responsibility shared by the acquiring curatorial department and Registration. This lack of preventive conservation expertise in-house means that, when a serious conservation issue arises, the museum must call upon external conservators to address it. This presents yet another problem for Mia as there is no one locally with media conservation expertise to call upon. Moreover, there is a serious lack of media conservators in the US working outside of the east and west coasts.

I presented my internal and external interview findings to the Task Force, highlighting my concerns that, without access to media conservation expertise, Mia staff would need to cultivate some basic conservation skills and knowledge in-house to adequately ensure the preservation of TBMA. I also revealed ‘workflows’ as the main, underlying idea tying together many of the concerns and goals of Mia interviewees. At my suggestion, the group agreed our first priority should be to establish workflows for the acquisition and care of TBMA at Mia so that all works acquired henceforth would meet recommended best practice. My host mentor and I would work on creating a desired workflow based on those of other institutions, and then compare it with Mia’s existing workflow to determine how to achieve this. However, first I needed a more complete understanding of Mia’s existing workflow: how the acquisitions process worked, how newly acquired works were brought in and moved around within the museum, what information was being captured when, and who was directly involved. Curatorial and Registration Task Force members began to document their existing workflows in great detail, being sure to gather any forms used, which I then planned to consolidate into a single workflow document (e.g. make a chart or other visualization).

Documenting Mia’s existing acquisitions workflow turned out to be more complicated than anticipated. To assist, I conducted several follow-up interviews to define NMTF members’ day-to-day activities regarding acquisitions in great detail. This allowed me to clarify many of the challenges staff were having in capturing this information. I realized then that acquisitions of TBMA at Mia had to date all been addressed ad hoc; any established processes related to acquisitions had developed organically and were thus rather inconsistent. Armed with this new understanding, I sought to get a more holistic picture of the current acquisitions workflow—from the point at which a curator decides to pursue a work, through to when the newly acquired work is shepherded into the collection—and to capture it as best I could. After several rounds of edits, I was able to document the complete picture of Mia’s existing TBMA acquisitions workflow.

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8 See addendum for examples of interview questions and summary of internal interviews
9 See addendum for examples of interview questions and summary of internal interviews
9 Diagram of existing, pre-NDSR Art workflow available in Appendix
During this phase of my residency, in addition to performing the work previously described, I dedicated substantial time to organizing and hosting a two-day visit by the entire 2017/18 NDSR Art cohort and Program leaders in late October 2017. This included organizing a day-long event incorporating the biannual meeting of the ARLIS/NA-TC community followed by hosting a public panel discussion with local media artists, curators, and archivists.¹⁰

**Quarter 2: Workflow Mapping & Digital Storage Research**

Our process of mapping best practices for TBMA acquisitions to Mia’s existing workflow began in Trello (left), but we quickly moved our work offline, using the walls of my host mentor’s office (right), before it grew too large and we moved to the hallway (bottom).

What followed my initial information gathering was a long period of further research into what leaders in the field were doing with respect to their own collections of TBMA. I continued to speak with conservators, registrars, and other colleagues from art institutions across the country and overseas about their processes.

¹⁰ See addendum for full cohort visit itinerary
pertaining to TBMA. By comparing and contrasting different methodologies and accounting for the opinions of the people actually doing the day-to-day work, I identified gaps in Mia’s current TBMA practices in order to begin developing a new, usable workflow based on this information.

After months of more research, follow-up interviews, numerous rabbit holes, and dozens of Post-It notes, I proposed a new TBMA acquisitions workflow\(^{11}\) which was approved by the New Media Task Force in early January. My key finding was that Mia needed to front load its information gathering. Previously, information related to TBMA was gathered either without enough detail, or gathered too late to understand the full needs and costs of maintaining these works. The new workflow consists of an updated flowchart accompanied by an exhaustive document breaking down the individual steps involved in each phase of the proposed new acquisitions process in great detail. It incorporates best practice as set out by the Matters in Media Art project and the Smithsonian Time-Based Media working group in addition to those adopted by colleagues at other institutions. Although these new documents set out WHAT needs to be done and WHEN (i.e. in what order) in Mia’s TBMA acquisitions process, the decisions regarding WHO would be responsible for these activities and HOW they should accomplish them still needed to be determined.

At this point I also initiated more in-depth research into storage and hardware/software preservation solutions for the museum’s TBMA, for eventual purchase and implementation within the approved workflow. This involved meetings with IT and other MAT staff to introduce the project and survey the museum’s technical and time-based media art-dependent needs as well as to analyze how my proposed solutions would fit into the museum’s current digital ecosystem.\(^{12}\) Given the relatively small collection of TBMA, the frequency at which new works would likely be acquired (roughly two to four, twice per year) and the limited bandwidth of current staff, I determined that Mia would likely end up choosing some combination of on-site and cloud storage. I then began researching the major considerations and criteria necessary in selecting a service provider, speaking with several vendors (e.g. Preservica, Duracloud) about their offerings.

However, in order to ascertain the most appropriate digital art storage solution and associated costs, I first needed an estimation of how much storage Mia actually needed and would need in the near future. Unfortunately, the TBMA object records in the collection management system and the registration and curatorial maintained object files had not sufficiently captured the information necessary to determine this. Consequently, with the assistance of the Registration department, I visited Mia’s art storage facility to examine and document all of the physical components of the existing TBMA collection to get a better understanding of its approximate size as well as other details critical to the preservation of these works.

Part of the proposed project plan specified that I would set up and help implement a TBMA digital preservation system before my departure. However, due to some extenuating circumstances, I learned that the funds allocated for digital storage would no longer be available until after my residency, forcing me to shift my focus to thoroughly documenting my research and findings. This documentation included creating cost models for

\(^{11}\) See addendum for proposed new TBMA acquisitions flowchart and workflow document

\(^{12}\) One such meeting involved creating a Steps for Digital Preservation spreadsheet for MAT staff (available in Appendix)
digital preservation and storage for Mia’s CDO to present to members of the leadership team to secure funding as soon as it became available, allowing them to pick up where I left off.

### Quarter 3: Addressing Existing Collection & Initiating Test Cases

While researching the complete, overall technical preservation picture—from capability to perform initial assessment to delivering geographically dispersed preservation—I began to focus on Mia’s existing collection and establishing a baseline preservation solution on which to build upon. I defined this baseline with reference to the [NDSA Levels of Digital Preservation](https://ndsa.org/documents/NDSA_Levels_Archiving_2013.pdf), adjusting it to create a Mia-specific standard that combined elements of levels one, two, and three of the NDSA levels, accounting for the particular needs and risks of TBMA.

This work resulted in my recommending Mia first protect all of its file-based TBMA from imminent loss, creating backups of its existing works as soon as possible as an interim solution. In order to accomplish this I recommended that Mia establish a dedicated TBMA workstation for these preservation activities as well as for future condition assessment, quality control, transcoding, and preservation of TBMA, which was not part of the original project proposal. I conducted a survey and analysis of functionality requirements and hardware/software options as well as the technological dependencies of the existing collection in order to determine what was most suitable for Mia. My proposed workstation was approved. However, budget restrictions delayed procurement for several months.

It was during this period of time that the NMTF began testing the new acquisitions workflow for TBMA. We selected two works being considered for acquisition in Fall 2018, one by the Contemporary Art curator and the other by the Photography & New Media curator, to use as test cases. Because these curatorial departments differ in operations and staff size, running simultaneous test cases would allow us to develop TBMA acquisitions procedures appropriate for all collecting departments.

We felt the most effective and realistic approach for testing was to form small TBMA acquisition teams, consisting only of key members: the Associate Registrar for Acquisitions, the Media Production Lead, and two representatives from the curatorial department proposing the work (Curator and curatorial assistant), with oversight by my host mentor. Although not an official team member, I worked with both teams to offer guidance throughout the process, and was careful to avoid becoming an active participant in workflow activities as I would not be a part of TBMA acquisition teams in the future.

Shortly after initiating the NMTF acquisitions test cases, we became aware that another curator (of South & Southeast Asian Art) was also pursuing a TBMA acquisition within the same timeframe. Thus, a third TBMA acquisition test case was established. Having an additional test case in a department with no involvement in the NMTF benefited our efforts to ensure that the final workflows will be usable for all curatorial departments. Coincidentally, around this time Mia also received a loan request for a TBMA work in the Department of Contemporary Art. Although we had not planned to address a workflow for outgoing TBMA loans at this point,
we felt this was a test case opportunity we could not afford to pass up, as loan requests for Mia's TBMA have historically been infrequent. We approached this in the same way as the other test cases: forming a small team, except instead of the Associate Registrar for Acquisitions, we included the Registrar in charge of all of Mia's outgoing loans.

**Quarter 4: Workstation Setup & Project Documentation**

By the beginning of the final quarter of my residency all of the components for the new TBMA workstation had finally arrived, and I devoted the bulk of this phase to setting up and optimizing it—testing, investigating, and learning all of the new software and hardware to prepare it for future users—which I accomplished by creating backup copies of test TBMA on a variety of different media. After a significant amount of trial and error and other troubleshooting, I became comfortable enough with all of the workstation tools and preservation processes to begin creating backups of some of Mia's actual TBMA rather than just test objects.

The first, non-test, TBMA work I addressed was the requested outgoing loan. Although it was not one of Mia's most vulnerable works, I recommended we prioritize creating a disk image backup since it would soon be leaving the museum and there was only one copy. At a minimum, this would ensure that the work would remain accessible even if something were to happen to it while on loan. Similarly, the second and final TBMA object I was able to address in the remainder of my residency was one of Mia's most complex—and therefore one of its most vulnerable—works of art. This particular software-based artwork was deemed highest-priority because, after years of being on display, some of the technology powering the piece was failing. Prior to creating disk image backups, I thoroughly researched and examined the work and its dependencies as well as the best practices for conserving software-based artworks developed by conservators at institutions with substantial numbers of software-based TBMA. During this process, I also began to fill in the gaps in the documentation of both works: photographing and noting all components, recording technical and preservation metadata, noting concerns and recommendations for future staff, etc.

Before taking any actions, in both cases I was careful to consider the benefits and risks of all possible options in order to guide my decision-making process. However, this proved quite difficult because, as with all of Mia's TBMA, there were significant gaps in their documentation. In order to develop long-term conservation plans, I would have needed a more complete understanding of the identity of both works (e.g. their relationship to display equipment, the artist's intent, installation parameters), which would have required substantial research to gather all of the necessary information. Unfortunately, with the end of my residency drawing near, there simply was not enough time to address this critical underlying issue. Although simply creating backups of both TBMA works is not adequate for long-term preservation, it will serve as an interim solution until more in-depth research can be undertaken.

Prior to my departure from Mia, I focused on ensuring my efforts were well-documented so that staff could continue to drive this work forward in my absence. Although the materials I gathered and created during the first half of my residency (e.g. my initial research, New Media Task Force notes, and proposed new workflows) were more than sufficient, a substantial amount of work was still required in order to capture my activities during the latter half of the NDSR Art project. I spent a significant amount of time documenting the TBMA
workstation setup\textsuperscript{14} (e.g. hardware, software, and file/folder organization) and my efforts beginning to back up Mia’s existing TBMA. In order to detail these preservation activities and inform future conservation efforts, I created exhaustive conservation treatment reports for my work with both artworks as well as drafted a template for TBMA treatment reports to assist staff and ensure the consistency of future reporting.\textsuperscript{15}

**Outreach & Dissemination**

![Selection of my #NDSRArt tweets shared throughout the year](image)

In addition to activities taking place as part of my project work with collaborators (e.g. interviews, meetings), I also promoted my NDSR Art work and advocated for media art conservation and digital stewardship more broadly across Mia (via museum events, staff meetings, internal presentations) in order to increase awareness and understanding of its importance, risks, and needs. In doing so, I aimed to help facilitate my colleagues’ efforts to slowly create the structural change necessary (i.e. taking a more proactive approach to preserving TBMA and digital content) to ensure the long-term preservation of Mia’s TBMA and of its digital collections in general.

Externally, I shared my project efforts, promoted the NDSR Art program, and advocated for TBMA stewardship across the cultural heritage sector locally and internationally. For instance, while traveling in the UK in January I had the opportunity to meet with colleagues at both the V&A and the Tate to discuss my work at Mia and to learn how these institutions have approached media preservation of their collections. Throughout the year I also gave numerous presentations at conferences and professional events about my work, digital preservation, and media conservation whenever possible. Moreover, in addition to in-person outreach I also actively disseminated my NDSR Art project and the program virtually via blogs, professional organization listservs, and social media (e.g. Twitter).

\textsuperscript{14} See addendum for more information on Mia’s TBMA Workstation

\textsuperscript{15} See addendum for Draft TBMA Treatment Report Template
## Local Outreach

<table>
<thead>
<tr>
<th>Role</th>
<th>Title/Event</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Presenter</td>
<td>National Digital Stewardship Residency Art @ Mia</td>
<td>All staff meeting, Mia</td>
<td>8/27/2017</td>
</tr>
<tr>
<td>Guest Speaker</td>
<td>Media &amp; Technology Division discussion &amp; walkthrough</td>
<td>Minneapolis College of Art &amp; Design (MCAD) Class in Residence special topics course, Mia</td>
<td>9/20/2017</td>
</tr>
<tr>
<td>Co-presenter</td>
<td>NDSR Art: An Introduction</td>
<td>ARLIS/NA-TC Fall Chapter Meeting, Mia</td>
<td>10/30/2017</td>
</tr>
<tr>
<td>Organizer &amp; Moderator</td>
<td>From Creation to Preservation: Collaboratively Addressing the Stewardship of Time-based Media Art</td>
<td>Public panel discussion in conjunction with NDSR Art cohort visit, Mia</td>
<td>10/30/2017</td>
</tr>
<tr>
<td>Guest Lecturer</td>
<td>Time-based Media Art Preservation @ Mia</td>
<td>Working with the Collection undergraduate course, MCAD</td>
<td>4/27/2018</td>
</tr>
<tr>
<td>Presenter</td>
<td>ARLIS/NA 2018: NDSR Art at Mia</td>
<td>MAT Division Meeting, Mia</td>
<td>5/1/2018</td>
</tr>
<tr>
<td>Host &amp; Presenter</td>
<td>‘Permanent Impermanence’: Caring for Mia’s most vulnerable works of art</td>
<td>Brown Bag Lunch for Mia and Midwest Art Conservation Center staff, Mia</td>
<td>7/17/2018</td>
</tr>
<tr>
<td>Co-presenter</td>
<td>NDSR Art @ Mia: A Case Study in Time-based Media Art Preservation and the Cross-pollination of Museums, Libraries, and Archives (forthcoming)</td>
<td>2018 Upper Midwest Digital Collections Conference, St. Catherine University</td>
<td>11/9/2018</td>
</tr>
</tbody>
</table>

16 See addendum for panel discussion description
17 [https://www.slideshare.net/secret/QNv4xJgL8Iuit](https://www.slideshare.net/secret/QNv4xJgL8Iuit)
18 Conference proposal available in Appendix
### Other Efforts

<table>
<thead>
<tr>
<th>Role</th>
<th>Title/Event</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panelist</td>
<td>Digital Preservation for All: Networking Communities to Save our Digital Heritage</td>
<td>Museum Computer Network (MCN) Conference Pittsburgh, PA</td>
<td>11/9/2017</td>
</tr>
<tr>
<td>Interviewee</td>
<td>A Success Story: An Interview with Erin Barsan, NDSR Art Fellow at the Minneapolis Institute of Art</td>
<td>ARLISNAP: Art Library Students &amp; New ARLIS Professionals blog</td>
<td>12/11/2017</td>
</tr>
<tr>
<td>Co-presenter</td>
<td>NDSR Art: Developing Cross-Institutional Strategies for Sustained Access to GLAM Assets</td>
<td>ARLIS/NA Annual Conference New York, NY</td>
<td>10/30/2017</td>
</tr>
<tr>
<td>Panelist</td>
<td>Starting at the Beginning: Time-Based Media Conservation Projects at Six Institutions</td>
<td>American Institute for Conservation Annual Meeting Houston, TX</td>
<td>4/27/2018</td>
</tr>
<tr>
<td>Moderator, morning sessions</td>
<td>Is this Permanence? Preservation of Born-digital Artists’ Archives symposium</td>
<td>Yale Center for British Art New Haven, CT</td>
<td>5/11/2018</td>
</tr>
<tr>
<td>Presenter</td>
<td>Managing Time-based Media/Digital Art at (an appropriate) Scale or: Tackling Time-based Media Art Conservation Without a Conservator</td>
<td>NDSR Art Capstone: Preserving Media Art &amp; Digital Art Information Philadelphia, PA</td>
<td>6/29/2018</td>
</tr>
<tr>
<td>Recipient, EMG Individual Travel Grant</td>
<td>AIC 2018: Reflections from a new EMG member</td>
<td>American Institute for Conservation (AIC) Blog</td>
<td>8/11/2018</td>
</tr>
</tbody>
</table>


20 https://www.slideshare.net/secret/FkVPYxpRbDG06y
21 https://britishart.yale.edu/research/research-programs/symposium-permanence-preservation-born-digital-artists-archives
22 https://www.slideshare.net/secret/D8dg8vmMRbEha5
Analysis & Evaluation

Results

I succeeded in meeting the overall expectations of my residency to:

1. explore and develop solutions for TBMA stewardship based on Mia's specific needs;
2. collaborate and continue to learn with Mia staff; and
3. share project results both internally and externally.

Although I was unable to complete all of the ambitious outputs defined in the original project proposal, I made significant progress toward improving the management and care of Mia’s current and future TBMA, creating a foundation on which Mia can continue to build. 24

Project Outcomes

Standardized Workflows & Improved Interdepartmental Communication

The new acquisitions workflow created as part of my NDSR Art residency, as well as the TBMA outgoing loan workflow I helped initiate, will ensure consistency and accuracy in the processes, documentation, and stewardship of TBMA across Mia regardless of curatorial department. By standardizing procedures and language, Mia will avoid “reinventing the wheel” every time they acquire a new work. Furthermore, by involving the cross-departmental NMTF in this process—bringing all key stakeholders together—I have helped break down institutional silos, which previously hindered the standardization of loans and acquisitions.

Increased Institutional Knowledge & Empowered Staff

My efforts have resulted in a greater shared understanding across Mia of the implications of both acquiring and loaning TBMA, and the importance of working together. Whether considering TBMA for loan or acquisition, NMTF members now know who should be involved in the process, what questions to ask, and how to better estimate and account for ongoing costs of display and maintenance. This collaborative approach has also put staff in a better position to advocate for necessary resources and to effectively negotiate the conditions of TBMA acquisitions with artists/gallerists moving forward.

24 See addendum for complete breakdown of progress made towards proposed project outputs.
Offered Peace of Mind

The knowledge gained through these experiences has helped give museum staff members, particularly the NMTF, confidence in their abilities to safeguard Mia’s TBMA. These efforts will also demonstrate to members of the Acquisitions Committee, who may be reticent to acquire more TBMA, that Mia has already thoroughly considered the risks, costs, and needs of any TBMA being acquired. Moreover, it will give artists/donors assurance that Mia can and will work hard to ensure that the integrity of their valuable artworks is maintained over time and that they will be able to be experienced by audiences now and well into the future.

Raised Awareness of Digital Preservation

In addition to my work with the NMTF, my advocacy and outreach efforts while at Mia have helped lay the foundation for the stewardship of all museum digital collections going forward. Throughout the year I leapt at any available opportunity to engage with staff about digital preservation in the museum, which I accomplished via several internal presentations at Mia, and frequently, also as part of my day-to-day interactions with Mia colleagues. This has helped create a greater shared understanding, both with project partners and across the institution more broadly, of the work involved in caring for digital artworks as well as an awareness of the risks and potential costs of inaction.

Improved TBMA & Digital Stewardship

My NDSR Art residency has left MAT in a position to establish Mia’s first digital preservation system. By ensuring all of the digital preservation solutions I’ve recommended are appropriately sized and scalable, it will hopefully grow to benefit the library and archives as well by being able to incorporate their valuable digital materials. Furthermore, the project has paved the way for NMTF members and others to continue to drive this work forward—refining workflows via the test cases and improving the care of the existing collection.

Takeaways & Lessons Learned

Discovery is Ongoing

Although only the first quarter of the project was intended to be dedicated to discovery, this phase never truly ended. TBMA stewardship is new and complex territory for me and for Mia, and it was critical that any solutions and recommendations I proposed were the right ones. Moreover, given the breadth of media already available, and that technology is constantly changing while new standards and best practices continue to emerge, as long as I continue to work with TBMA collections, I will never truly stop learning.

It Takes a Village

This was a common theme among project partners, fellow residents, and other colleagues. No one person has all the knowledge and skills necessary to adequately care for TBMA on their own; the accumulated expertise of our diverse field of professionals is substantial, and sharing this knowledge is the best way forward.
Flexibility is Key
All large projects demand change, and this was no different. The needs of TBMA did not always conform to project timelines, some plans were derailed by factors outside of our control, and processes didn’t always play out as intended. Remaining open and flexible to any change that arose was critical to making progress.

Every Step Forward is an Improvement
Although I was unable to complete everything planned in the original project proposal, and many phases took longer than anticipated, no time was truly wasted. Mia is now 100% better able to steward its TBMA as a direct results of the steps I made towards improving the collections care of TBMA.

Think Beyond Current Limitations
Instead of looking at existing limitations (e.g. staffing, resources) as strict parameters to work within, it has been helpful to look at them as problems to solve—determining the ‘ideal’ solution and and then aiming for that.

Recommendations & Next Steps

Establish More Permanent Group & Continue Advocating for Preventive Conservation
Although my residency has ended, the needs of Mia’s TBMA remain. Given the success of the NMTF, I recommend transitioning to a working group dedicated to the ongoing care of Mia’s collection. Establishing a more permanent group will ensure that the needs of TBMA remain visible. Furthermore, it will present a unified front when advocating for structural change—moving from a reactive to a more proactive approach.

Finalize Documentation Standards
Continue working to create forms and templates (e.g. iteration reports, installation instructions) for documenting the information specified in the new acquisitions workflow. Determine where these materials should live (e.g. TMS, intranet) and who will be responsible for capturing this information.

Purchase & Implement Digital Art Storage
Continue where my residency left off, selecting and implementing Mia’s first digital preservation system, as the interim solution to back up and storage of TBMA is not suitable for the long-term.

Address Existing Collection
This could warrant another grant-funded project on its own. In addition to continuing to back up the existing TBMA collection, work to fill gaps in the documentation of these works so that they meet the standards we’ve specified for all future TBMA acquisitions (e.g. identity reports, risk assessments). Research and gather information on the technical specifications of the works, evaluate each piece for sustainability, develop conservation plans, and perform any necessary immediate treatment.
One of the greatest strengths of the NDSR model is the range of opportunities provided for support and cooperative work. In addition to programming arranged as part of our NDSR Art requirements, I also participated in numerous other professional development activities, both in-person and virtually, which were supported by the NDSR Art program.

### NDSR Art Programming

<table>
<thead>
<tr>
<th>Activity</th>
<th>Organizer/Instructor</th>
<th>Location</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>2017/18 NDSR Art Immersion Week</td>
<td>NDSR Art Program Administrators</td>
<td>Philadelphia Museum of Art</td>
<td>7/24-28 2017</td>
</tr>
<tr>
<td>NDSR Art Cohort Visit: Minneapolis Institute of Art</td>
<td>Erin Barsan</td>
<td>Minneapolis, MN</td>
<td>10/30-31 2017</td>
</tr>
<tr>
<td>NDSR Art Learning Enrichment Session: Designing, building, and maintaining the smart home for art/information</td>
<td>Ben Fino-Radin</td>
<td>Webinar</td>
<td>12/17/2017</td>
</tr>
<tr>
<td>NDSR Art Learning Enrichment Session: New Media Archiving</td>
<td>Cornell University Library</td>
<td>Webinar</td>
<td>2/12/2018</td>
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<tr>
<td>NDSR Art &amp; ARLIS/NA Learning Enrichment Session</td>
<td>David Newbury</td>
<td>Webinar</td>
<td>2/20/2018</td>
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<tr>
<td>2018 ARLIS/NA Annual Conference</td>
<td>ARLIS/NA</td>
<td>New York, NY</td>
<td>2/26-28 2018</td>
</tr>
<tr>
<td>NDSR Art Learning Enrichment Session on the Academic Job Search</td>
<td>Hannah Bennett and Nicole Gabrielle Finzer</td>
<td>Webinar</td>
<td>4/12/2018</td>
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<tr>
<td>NDSR Art Cohort Visit: Yale Center for British Art</td>
<td>Cate Peebles</td>
<td>New Haven, CT</td>
<td>5/9-11 2018</td>
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<tr>
<td>NDSR Art Capstone: Preserving Media Art &amp; Digital Art Information</td>
<td>Coral Salomón and Elise Tanner</td>
<td>University of Pennsylvania</td>
<td>6/29/2018</td>
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## Other Professional Engagement

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<th>Activity/Event</th>
<th>Organizer/Instructor</th>
<th>Location</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>Art Librarians Summer Book Club: <em>The Complete Stories of Leonora Carrington</em></td>
<td>ARLIS/NA Twin Cities Chapter</td>
<td>Minneapolis, MN</td>
<td>8/24/2017</td>
</tr>
<tr>
<td>Museum Computer Network Conference (MCN)</td>
<td>MCN</td>
<td>Pittsburgh, PA</td>
<td>11/7-10 2017</td>
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<td><em>Content Description for Time-based Material</em> pre-conference workshop</td>
<td>AMIA</td>
<td>New Orleans, LA</td>
<td>11/29/2017</td>
</tr>
<tr>
<td>Association of Moving Image Archivists (AMIA) Conference</td>
<td>AMIA</td>
<td>New Orleans, LA</td>
<td>11/30 – 12/2 2017</td>
</tr>
<tr>
<td><em>Consulting with Artists: Creating, Describing, and Disseminating the Visual Arts</em> workshop</td>
<td>Visual Resources Division of ARLIS/NA</td>
<td>ARLIS/NA Annual Conference New York, NY</td>
<td>2/25/2018</td>
</tr>
<tr>
<td>Panel co-organizer &amp; moderator, <em>Thinking Outside the Bounds of the Typical Library: A Spotlight on 3 NYC Libraries &amp; Archives</em></td>
<td>ARLIS/NA LGBTQ Special Interest Group</td>
<td>ARLIS/NA Annual Conference New York, NY</td>
<td>2/28/2018</td>
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<td><em>Copyright and the Archives</em> workshop</td>
<td>Twin Cities Archivists Roundtable</td>
<td>Minneapolis, MN</td>
<td>4/9/2018</td>
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<td>#PresTC Preservation Week 2018 Twitter Conference</td>
<td>SAA Preservation Section</td>
<td>Twitter</td>
<td>4/26/2018</td>
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<td>American Institute for Conservation of Historic &amp; Artistic Works (AIC) Annual Meeting</td>
<td>AIC</td>
<td>Houston, TX</td>
<td>5/30 – 6/2 2018</td>
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<tr>
<td>Reviewer, <em>Brooklyn Academy of Music Leon Levy Digital Archives</em>²⁵</td>
<td>ARLIS/NA Research &amp; Information Services Section</td>
<td>ARLIS/NA Multimedia &amp; Technology Reviews</td>
<td>June 2018 Issue</td>
</tr>
<tr>
<td><em>Introduction to editing with Adobe Premiere Pro CC</em> course</td>
<td>FilmNorth</td>
<td>St. Paul, MN</td>
<td>6/9-10 2018</td>
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</tbody>
</table>

Acknowledgements

NDSR Art

Being a member of the NDSR Art cohort made it possible to seek out advice and critical feedback on the project throughout my residency. One of the most valuable aspects was the relationships I formed with my fellow residents, who were a significant resource. We communicated almost daily, arranged to travel together to conferences, and collaborated on presentations and papers. The encouragement, insights, and support I received from them throughout the year was integral to the completion of my work. The NDSR Art program leaders offered additional support throughout our residencies via bi-weekly resident group calls, scheduled enrichment sessions, as well as letters of recommendation:

- Cate Peebles – Resident at Yale Center for British Art
- Coral Salomón – Resident at University of Pennsylvania
- Elise Tanner – Resident at Philadelphia Museum of Art (PMA)
- Kristen Regina – NDSR Art Program Director; Arcadia Director of the Library and Archives, PMA
- Karina Wratschko – NDSR Art Program Manager; Digital Initiatives Librarian, PMA

I would also like to thank the Philadelphia Museum of Art and ARLIS/NA for providing me this opportunity, and the IMLS for making it possible by providing generous funding.

Minneapolis Institute of Art

The assistance I received from the following Media & Technology Division staff supported the realization of a number of significant project objectives:

- Andrew David – Webmaster/Lead Developer
- Dan Dennehy – Head of Visual Resources
- Mike Dust – Head of Interactive Media and Senior Producer
- Gretchen Halverson – Digital Program Coordinator, Digital Strategy Implementation
- Ryan Jensen – Systems Support Technician
- Josh Lynn – Digital Production Assistant
- Heidi Raatz – Collections Information Specialist
- Steve Scidmore – Manager of Information Systems
- Mike Tibbetts – Systems Engineer
- Meaghan Tongen – Digital Program Manager
External Colleagues

The following individuals graciously shared their knowledge and advice with me regarding their work related to time-based media art, digital preservation, and conservation. Their valuable input enabled me to help bridge the gaps in Mia’s available expertise, particularly in the area of media art conservation:

- Colin Turner – Executive Director, MACC
- Nicole Grabow – Senior Objects Conservator & Preservation Conservator, MACC
- Amber Kehoe – NEH Graduate Fellow, Winterthur/University of Delaware Program in Art Conservation
- Valerie Collins – Digital Repositories and Records Archivist, University of Minnesota Libraries; NDSR DC 2015/16 alum
- Carol Kussmann – Digital Preservation Analyst, University of Minnesota Libraries
- Ruth Hodgins – Benton Archivist/Assistant Curator, Moving Image, Walker Art Center
- Jehra Patrick – Director & Curator, Law Warschaw Gallery, Macalester College
- Cameron Gainer – Visual artist; Publisher & Executive Editor of Third Rail Quarterly
- Kevin Obsatz – Filmmaker and Video Artist; Founder of Cellular Cinema
- Joey Heinen – Collection Information Specialist, LACMA
- Peter Oleksik – Associate Media Conservator, MoMA
- Joanna Phillips – Senior Conservator, Time-based Media, Guggenheim
- Jonathan Farbowitz – Fellow in the Conservation of Computer-based Art, Guggenheim
- Tali Han – Archivist and Acting Manager, Library & Archives, Guggenheim; Host Mentor, 2018/19 NDSR Art Cohort
- Martina Haidvogl – Media Conservator, SFMoMA
- Grace Weiss – Media Arts Registrar, SFMoMA
- Sasha Arden – Exhibitions Technical Assistant, SFMoMA
- Dan Finn – Media Conservator, Smithsonian American Art Museum
- Patricia Falcão – Time-based Media Conservator, Tate
- Louise Lawson – Time-based Media Conservation Manager, Tate
- Marion Crick – Head of Collections Management, V&A
- Corinna Gardener – Senior Curator of Design and Digital, V&A
- Juhee Park – Data Research Fellow, V&A
- Anouska Samms – Community Research Fellow, V&A
- George Blood – Founder, George Blood LP
- Shu-Wen Lin – Research Fellow for Digital Preservation, National Library of Medicine

I would also like to gratefully acknowledge the Foundation of the American Institute for Conservation of Historic & Artistic Works (FAIC) and the AIC Electronic Media Group for supporting my professional development via an individual travel grant generously funded by Small Data Industries, helping make it possible for me to attend and participate in the 2018 AIC Annual Meeting.
Mia Host Application Extract: Project Proposal

Summary

Mia’s mission is to enrich the community by collecting, preserving, and making accessible outstanding works of art from the world’s diverse cultures. With over 89,000 artworks, Mia’s collection includes art from six continents, spanning about 20,000 years. Here you will find world-famous artworks that embody the highest levels of artistic achievement and speak to the enduring power of human creativity to shape our world. And increasingly, these artworks are born digital.

The nature of digital art creates new challenges for museums in terms of care, preservation and access that are vastly different from those of more traditional media art such as paintings, works on paper or ceramics. New processes and skills are required to steward our born digital creations successfully. We (museums) need to think outside our traditional ‘boxes’ and can benefit hugely from tapping into the knowledge and experience of other fields, such as library science. The National Digital Stewardship Residency (NDSR) Art residency will support the museum’s efforts to make its collections accessible by enhancing its capacity to share time-based media/digital artworks to users inside and outside the building while safeguarding the art for future generations.

Though Mia’s current collection of time-based media/digital art numbers only twenty (20) objects, all our curatorial departments (especially Contemporary and Photography & New Media) are poised to dramatically add to that number. Mia is not as prepared as we would like to be for this inevitability. For example, we currently treat our digital collections as purely physical objects (DVDs, videotape, etc.), not addressing their unique needs as digital works.

We are looking to leaders in the field for guidance on time-based media/digital art management, particularly (1) the Matters in Media Art project, a collaboration between the New Art Trust, the Museum of Modern Art (MoMA), Tate, and the San Francisco Museum of Modern Art (SFMoMA), and (2) the Smithsonian’s Time-Based Media and Digital Art (TBMA) Working Group, with members from the Smithsonian American Art Museum, Hirshhorn Museum and Sculpture Garden, and National Portrait Gallery. But Mia requires solutions that fit our more moderate scale of digital content and annual budget expenditures. MoMA, for example, numbers its time-based media and digital art collections in the tens of thousands. Over 2000 object records for ‘video’ alone are available via their online collection site. The solutions Mia puts into practice must solve our comparatively modest near-term needs while simultaneously positioning the museum for ongoing collection
growth. What works for MoMA may prove unachievable and even unnecessary for Mia, but exactly where and how our approaches should diverge is an open question.

The NDSR Art Resident will help the museum effectively assess and address our current needs, and the anticipated surge in digital collections. The Resident will help Mia enhance our capacity to acquire, manage, preserve and provide access to the digital art collections over time; recommend technical solutions for management and preservation; and oversee the initial implementation of the new policies, procedures and systems. In the final stage of their residency, the Resident will train Mia staff to carry forward what they have helped put in place. By developing Mia’s capabilities to preserve and manage its digital collections, the residency’s outputs will facilitate our users’ exploration of these complex artworks, addressing the expectations of today’s audiences to engage with rich digital content and the latest artistic creations. The foundational framework created during the residency will also ensure the preservation and viability of these art works into the future.

**Project Goals and Objectives**

During Mia’s recent Enterprise Content Management Project (2012 - 2015), the museum had the opportunity to work with its digital assets and develop systems and metadata structures to support their integrated management. The scope of that project did not address the specific needs of time-based media/digital art, however, so a New Media Task Force was recently established to focus on improving our methods of acquisition, management and preservation of new media art.

Mia’s NDSR Art Resident will serve as co-lead for the New Media Task Force (along with Frances Lloyd-Baynes, Host Mentor) and will focus on four of the six stages of digital preservation identified by the Library of Congress Digital Preservation Outreach and Education (DPOE) program: Store, Protect, Manage and Provide. These stages pose the following questions:

+ Store - what issues are there for long term storage?
+ Protect - what steps are needed to protect your digital content?
+ Manage - what provisions are needed for long-term management?
+ Provide - what considerations are there for long-term access?

Re: STORAGE and PROTECTION, the NDSR Resident will guide Mia in determining and agreeing upon the systems, structures and processes needed to achieve long-term archival viability of our time-based media/digital art collections. They will review Mia’s existing infrastructure for managing digital assets (systems and software) and recommend both storage solutions and adjustments to the Mia Core metadata structure required to accommodate digital artworks. This can (and should) be guided by work done by other organizations/projects (e.g. Matters in Media Art) but must also be scaled to Mia’s comparatively modest current needs while at the same time anticipating its projected needs for a growing collection.

MANAGING Mia’s digital art collections requires the provision of organizational policies and procedures around acquisition, ongoing care and conservation. The Resident will take the lead in formulating new processes and
workflows to meet the specific needs of time-based media/digital art, for example, understanding artist intent and its impact on displaying the works over time. They should also address the differences in approach that may be required by works acquired by Mia and those displayed while on loan to - but not owned by - the museum. The Resident will propose roles and responsibilities as well as workflows for the activities of time-based media/digital art collections management. They will document the agreed policies, procedures and workflows, and plan and initiate the training of Mia staff in these new ways of working.

The Resident will pay particular attention to the needs around PROVIDING ongoing access to and display of Mia’s digital art. They will develop recommendations on how Mia should address technological changes and the impact of those changes on both the artworks and the organization, e.g. budgeting for change and working proactively rather than reactively to address it. The Resident will undertake testing/proof of concept for the systems, structures and processes that Mia implements based on their recommendations. Once refined, the Resident will apply the new approaches to Mia’s existing time-based media/digital artworks.

Throughout the project year, the Resident will work closely and collaboratively with the project Core and Extended Teams, especially members of the New Media Task Force. They will also have open access to all their colleagues in the Media and Technology Division and across the museum. They will

- Learn Mia’s digital ecosystem
- Investigate how time-based media/digital art exists in this ecosystem (or not)
- Build on the products of the ECM project, and
- Push the boundaries of our digital tool sets.

The Resident will develop a specific work plan for the residency in agreement with their Mia Mentor. Our expectation is not that the Resident will come to us with all the answers, but that they will work with Mia to explore our needs, develop solutions, continue learning with us throughout the residency and share the results. Their work will provide the foundations and framework for Mia’s ongoing time-based media/digital art management. We aim for our efforts with the Resident to be an exemplar for other cultural institutions with moderately-sized digital collections facing the challenges inherent in acquiring and preserving them and will actively disseminate the residency’s outcomes via conferences, GitHub, and other appropriate outlets. The Resident will also have opportunities to host their fellow residents and local ARLIS/NA colleagues at Mia.

**Deliverables and Due Dates**

Project deliverables will be scheduled for completion on a broadly quarterly basis. Working with an Agile/Scrum methodology will involve setting regular (e.g. bi-weekly) ‘sprints’ to define the specific tasks for that time-period. Deliverable dates will be negotiated between the Resident, Host Mentor and Digital Program Manager as work progresses. The very nature of Agile/Scrum is to work iteratively and to make any necessary course adjustments on an ongoing basis - this will allow the plan that is outlined below to be flexible and responsive to feedback or changing needs over time. The Resident will begin meeting with the core project team from the start of the residency period and review Mia’s efforts to date as the initial step towards developing the following deliverables.
Project outputs

1st Quarter: Evaluation and Review
- Review and evaluate current Mia systems and practices for managing time-based media/digital art
- Review and evaluate software tools available for digital art storage and access
- Research and make recommendations for digital collections object metadata (for use within systems designated for storage/archiving of digital artwork)
- Analyze requirements for loan and permanent collection time-based media/digital art processes

2nd Quarter: Recommendations and Draft Framework
- Draft policies and procedures for digital collections acquisition (based on those works already in Mia's collections)
- Recommend improved digital art storage solutions/technology and ongoing management at current scale and allowing for growth
- Investigate and collect any support documentation that is currently missing for existing time-based media/digital art objects at Mia (e.g. from artists, galleries, etc.)

3rd Quarter: Proof of Concept and Implementation
- Test proofs of concept for reformatting, migration, and/or emulation of complex digital objects
- Define, test and agree upon workflows for intake, documentation, management and preservation storage of digital collections and their supporting materials

4th Quarter: Documentation and Dissemination
- Deliver a final, documented framework for time-based media/digital art management appropriate for moderately scaled collections/budgets documented and shared with cultural sector
- Apply new standards, process and procedures to (20) existing Mia time-based media and digital art objects
- Train Mia staff on digital stewardship and processes (e.g. Curatorial; Registration; Media & Technology)
- Deliver ARLIS/NA paper and conference presentation

Context
The NDSR Art residency offers a natural extension to Mia’s recent Enterprise Content Management Project. This IMLS-funded project allowed Mia to create an ecosystem of integrated, predominantly open-source tools (an extensive API; Elasticsearch indexing; a new Mia Core metadata structure), systems (two digital asset management systems), and a browser-based interface for working with collections-related digital content across all our platforms. With this ecosystem in place, the Resident, along with the existing New Media Task
Force, will lead Mia on the next steps towards true digital preservation and the creation of an infrastructure to support it.

The New Media Task Force came together in late 2014 to address the needs of time-based media/digital art collections at the museum. To date, Mia’s digital collections have been treated like all other collections, i.e. as physical objects (e.g. a DVD physically-numbered and placed in a storage cabinet alongside other collections objects). Their unique digital nature and requirements for ongoing access and preservation have not been addressed. As the software, hardware and multi-media presentation equipment ages, it becomes increasingly important that we address these needs, or we will not be able to ensure the viability of these artworks into the future.

During 2016, two new curators/department heads -- Gabriel Ritter, Contemporary and Yasufumi Nakamori, Photography & New Media -- arrived at Mia to fill staffing gaps that had left the Task Force undermanned and unable to pursue its work for a year. Upon their arrival both joined the Task Force, breathing new life into its efforts. Mr. Ritter and Mr. Nakamori are contributing their experience working with digital art in museums with more preservation-minded systems already in place. Both curators are increasing the numbers of digital artworks acquired as they expand Mia’s contemporary art collections, thus collection growth is imminent and the need for improved processes and systems is becoming more urgent.

The Task Force is currently assessing the situation of existing time-based media/digital artworks, undertaking an inventory of works and supporting documentation (with the help of an intern), and is developing an understanding of the issues facing long-term preservation of digital content. However, it remains difficult for the group to make progress given other work pressures. The leadership and contributions of an NDSR Art Resident will enable Mia to succeed in creating the necessary framework and systems for stewarding its digital art collections.
## Progress of Individual Proposed Project Outputs

### 1st Quarter: Evaluation & Review (August - October 2017)

<table>
<thead>
<tr>
<th>Proposed project output</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Review and evaluate current Mia systems and practices for managing time-based media/digital art</td>
<td>100%</td>
<td>Complete</td>
</tr>
<tr>
<td>Review and evaluate software tools available for digital art storage and access</td>
<td>100%</td>
<td>Complete</td>
</tr>
<tr>
<td>Research and make recommendations for digital collections object metadata (for use within systems designated for storage/archiving of digital artwork)</td>
<td>50%</td>
<td>Complete Metadata recommendations based on Mia’s specific needs and limitations remain forthcoming, as they are dependent on how this information will be captured in TMS and what systems are chosen. This work will be carried forward by New Media Task Force.</td>
</tr>
<tr>
<td>Analyze requirements for loan and permanent collection time-based media/digital art processes / treatment</td>
<td>100%</td>
<td>Complete</td>
</tr>
</tbody>
</table>

### 2nd Quarter: Recommendations & Draft Framework (November 2017 - January 2018)

<table>
<thead>
<tr>
<th>Proposed project output</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Draft policies and procedures for acquisition of digital works of art (based on those works already in Mia’s collection)</td>
<td>50%</td>
<td>Complete Test-cases for TBMA Acquisition and Outgoing Loan workflows are underway. Draft of TBMA-specific collections management policies to be addressed by Mia staff after all aspects of new workflows have been fully fleshed out and approved (e.g. determining roles and responsibilities for activities, agreeing upon systems and standards for information capture)</td>
</tr>
<tr>
<td>Recommend improved solutions for digital art storage/technology and ongoing management at current scale and allowing for growth</td>
<td>100%</td>
<td>Complete</td>
</tr>
<tr>
<td>Investigate and collect any support documentation that is currently missing for existing time-based media/digital art objects at Mia (e.g. from artists, galleries, etc.)</td>
<td>30%</td>
<td>Complete Work on existing collection postponed to focus on workflows and procedures. Overall support documentation needs for existing collection are well-understood. More investigation is still needed into the distinct needs of each artwork, to be addressed by Mia staff in future.</td>
</tr>
</tbody>
</table>
### 3rd Quarter: Proof of Concept & Implementation (February - April 2018)

<table>
<thead>
<tr>
<th>Proposed project output</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver ARLIS/NA paper and conference presentation</td>
<td>50%</td>
<td>Complete Presentation delivered during ARLIS/NA 2018 Conference. Paper forthcoming (post-residency); planning to co-author with fellow resident Elise Tanner and submit for inclusion in Fall 2019 issue of <em>Art Documentation</em></td>
</tr>
<tr>
<td>Test proofs of concept for reformatting, migration, and/or emulation of complex digital objects</td>
<td>Postponed</td>
<td>On hold until new standards are finalized. Instead, acquired and assembled TBMA workstation and focused on getting Mia’s existing collection to meet digital preservation baseline so that testing can happen in the future</td>
</tr>
<tr>
<td>Define, test and agree upon workflows for intake, documentation, management and preservation storage of digital collections and their supporting materials</td>
<td>65%</td>
<td>Complete Documentation of workflows in process of being finalized. Final digital preservation workflows delayed until long-term digital storage solution is selected.</td>
</tr>
</tbody>
</table>

### 4th Quarter: Documentation & Dissemination (May - July 2018)

<table>
<thead>
<tr>
<th>Proposed project output</th>
<th>Status</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deliver a final, documented framework for time-based media/digital art management appropriate for moderately scaled collections/budgets, documented and shared with the cultural sector</td>
<td>100%</td>
<td>Complete, with adjustments Delivered final documented framework detailing efforts to Mia and NDSR Art. Project outcomes will continue to be shared post-residency.</td>
</tr>
<tr>
<td>Apply new standards, process and procedures to (22) existing Mia time-based media and digital art objects</td>
<td>10%</td>
<td>Complete Work begun to address needs of TBMA deemed most vulnerable. Filling gaps in existing collection was significantly more time consuming than anticipated and will be the focus of a future preservation project.</td>
</tr>
<tr>
<td>Deliver a final, documented framework for time-based media/digital art management appropriate for moderately scaled collections/budgets, documented and shared with the cultural sector</td>
<td>100%</td>
<td>Complete, with adjustments Delivering final documented framework detailing efforts to Mia and NDSR Art. Project outcomes will continue to be shared post-residency.</td>
</tr>
<tr>
<td>Train Mia staff on digital stewardship and processes (e.g., Curatorial, Registration, Media and Technology)</td>
<td>60%</td>
<td>Complete, with reservations Although no formal training took place, I educated staff on digital stewardship and processes (e.g. at Systems Meeting, in numerous discussions with NMTF) and shared resources. I also created documentation to leave behind for staff future reference.</td>
</tr>
</tbody>
</table>
Stakeholder Interviews

Stakeholder Interview Format & Questions
Conducted by Erin Barsan, August-November 2017

Internal: New Media Task Force

Information/items to go over before beginning interviews

- These interviews are part of 1st quarter [Evaluation and Review] activities
- GOAL: “…better understanding of you and what you bring to the NMTF so I can manage this project successfully.”
- Eventually aiming to get a good grasp on the lifecycle of works of art @ Mia (e.g., acquisitions, accessions, in/out loans) + understand how exactly TBMA has been retrofitted into Mia’s existing systems in order to figure out how to incorporate new policies/procedures without completely disrupting the ‘status quo’
- To begin, must find the common ground [w/ traditional art], and then define the differences [w/ TBMA]
- “I have a list of questions to help me stay on track, but I’m NOT thinking of this as a formal interview. Feel free to ask questions, interrupt, and tell me anything you feel would be good for me to know.”
- Get consent to record: “Rather than taking copious notes while we chat, I’d rather we have a fluid conversation; then, later I can refer back to this recording to type up my notes.”
- “Any questions for me before we begin?”

Questions for guidance

- Could you talk to me a bit about your work here in general? (Length of employment? Responsibilities? Day2day? Other things to note?)
- What would you say are some of the issues/problems you run into in your work? (not necessarily in regards to TBMA)
- Anything you’d love to be able to accomplish while here at Mia (regardless of likelihood)?
- With your experience working on projects in the past, what has worked well for you? What hasn’t? What are your preferences for communicating with a project team? Any preferred tools?
- [Reiterate what I know about how TBMA relates to their work] Are there any other ways TBMA comes into play in your work here? Anything I’m missing?
- Thinking about that, what are the biggest concerns YOU have about Mia’s TBMA?
Managing time-based media/digital art at (an appropriate) scale
Barsan, 2017/18 NDSR Art Final Report: Mia

- What would you like to see come out of this project?
- What do you see as your role on the NMTF? What do you think you will contribute to this project?
- [Seeing as digital preservation is ongoing, the “threat of the unknown” (i.e. new tech), etc...]
  So what are your thoughts for caring for Mia’s TBMA after my residency wraps up?

- [Important that we have a shared common language]
  This is how others have defined TBMA at their institutions? Do you agree with either definition?
  (Too specific? Too general? Anything you’d change/remove/add?)

Smithsonian’s definition of TBMA:
Artworks that:
  - Exhibit an intentionally changing observable state
  - Require a power source
  - Utilize 20th & 21st century technologies as inherent components affecting content, functionality and appearance

Tate’s definition
Time-based media refers to works of art which:
  - Depend on technology, and
  - Have duration as a dimension.

- What is your familiarity with issues re: TBMA stewardship? Also, what is your familiarity with the work that has already been done in the field addressing it (e.g., Matters in Media Art)?
- You previously worked at ________, do you know how they’re managing their TBMA? If so, would you be willing to introduce me to some those involved in TBMA care there?

External: Acquisitions-related TBMA questions for other institutions
When are they committed to acquiring an object? (vs. “Rubber Stamp”)?
  - And how committed when approved by (1) Director, (2) Deputy Director/Chief Curator, (3) BoT?
  - Have objects approved for acquisition ever NOT ended up being acquired? Why? How common?

What is MVP for information in order to decide “Yes” for acquisition?
  - Who has input into decision to commit to acquisition? Is this good/bad?

When do “negotiations” begin and end? Who is doing the negotiating?

How do they bring potential acquisitions (not just viewing copy) into institution?
  - Loan like Mia? Any other contracts signed?
  - Before decision to acquire? After? When is money changing hands?

When do they get purchase agreements?
  - Who signs off when?

Are their workflows/policies/procedures based off of other institutions? Why/why not?
  - If yes, how do they differ? Why?
Summary of Internal Stakeholder Interviews

Top concerns/goals gleaned from one-on-ones:

1. Establishment of best practices & standards for TBMA
2. Improved cross-departmental communication
   - Institutional mindset change (and more knowledge and awareness around TBMA)
   - Digital preservation activities (preservation copies, access copies, migration, etc.)
3. Flexible, adaptable (can handle TBMA we haven’t thought of yet)
   - Quality assurance & integrity of TBMA (i.e., we’re exhibiting works the way artist intended, that we are able to know if there’s a degradation in quality - sitting down and evaluating new acquisitions)
4. Equipment (life, allotment, tracking, documentation)
   - Access to supporting documentation (digitally and in a central location) - ties in w/ communication
   - Improved access to TBMA (in TMS, arts mia.org, Mediabin)

Main underlying idea tying together a lot of the concerns and goals raised revolved around the idea of workflows (e.g., implementing standards, streamlining processes, improving communication and access to info, etc.)

Next Step: determine and then document existing workflows. Then establish what is desired and how to get there.
Cohort Visit Materials

Itinerary

**NDSR Art Minneapolis Cohort Visit Itinerary**
*Monday & Tuesday, October 30-31, 2017*

**Sunday, October 29, 2017**
- 5:30pm Dinner at Frances’ Apartment in Uptown

**Monday, October 30, 2017**
- 9:00am Arrive at Mia (See Important Info section below for arrival instructions)

  - 9:00am-12:00pm ARLIS/NA-TC Fall Meeting at Mia in 3rd Floor Reception Hall, Target Wing.
    
    Chapter Meeting Agenda:
    - 9:00 - 9:25am - Light refreshments & networking. Welcome from Mia Library.
    - 9:30 - 10:30am - Business Meeting
    - 10:40 - 10:55am - Yasufumi Nakamori, Head Curator of Photography & New Media will give a talk on his new exhibition, *New Pictures: Omer Fast* which features a recent acquisition of time-based media art at Mia: Omer Fast’s 3-D stereoscopic film, *August*.
    - 11:00 - 11:40 am - Introduction to NDSR Art
      - Kristen Regina (former ARLIS/NA president) and Karina Wratschko from the Philadelphia Museum of Art (PMA) will introduce the National Digital Stewardship Residency (NDSR) Art program, a partnership between ARLIS/NA and PMA funded by the IMLS.
      - The four 2017 NDSR Art residents will then briefly introduce themselves and discuss the digital stewardship projects they are working on at their host institutions (PMA, Mia, Yale Center for British Art, and University of Pennsylvania).
    - 11:45am - 12:00pm - Mia Library tour

  - 12:00 - 2:00pm Lunch at Wedge Table with ARLIS/NA-TC

  - 2:30 - 4:30pm Panel discussion, *From Creation to Preservation: Collaboratively addressing the stewardship of time-based media art* in Mia 3rd Floor Reception Hall (open to the public)

  - 5:00pm Drinking About Museums happy hour, followed by dinner for NDSR
    - Happy hour with local museum community at Icehouse, 2528 Nicollet Ave S
    - Dinner TBD, possibly Black Sheep Pizza on Nicollet or another Fat Street restaurant
Tuesday, October 31, 2017

- **9:00am Arrive at Mia** drop off luggage, drive to University of Minnesota (EB and FLB will drive)

- **9:30 - 10:30am Visit to Andersen Library at University of MN, Room 308**
  - NDSR alum, Valerie Collins (Digital Repositories and Records Archivist, UofM) will give lightning talk on divergent workflows for digital records in the University Archives
  - Carol Kussmann (Digital Preservation Analyst, UofM) will talk about digital preservation at the U and their efforts with the Electronic Records Task Force
  - Tour of the U’s digital processing workstation

- **10:30am - 1:00pm Cohort check-in meeting / Lunch / Return to Mia**
  - 30min - 1 hr cohort check-in meeting with Kristen and Karina, location TBD (options include the U, coffee shop, Mia, etc.)
  - Lunch TBD

- **1:00 - 2:00pm Douglas Hegley (CDO, Mia) on museums, digital, strategy & leadership in Newsroom**
  - 30 min presentation followed by 30 minutes discussion time

- **2:00 - 2:30pm Mia New Media Task Force Meet & Greet in Mia Lobby**
  - BYOCoffee (will be available for purchase from cafe)

- **2:30 - 5:00pm Get-to-know Mia Flex Time. Options include:**
  - View Omer Fast installation, Mia’s most recent TBMA acquisition
  - View Anne Collier slideshow, current TBMA piece on loan
  - Behind-the-scenes Mia tour of MAT and possibly also Visual Resources and Interactive Media

- **~5:30pm Depart for airport (EB and FLB can drive)**

### Important Info

Minneapolis Institute of Art  
2400 3rd Ave S  
Minneapolis, Minnesota 55404

When you arrive at Mia, please enter through the **Target Wing Entrance**, accessible from Stephens Avenue via the cut between two buildings, or from 3rd Avenue through the two sets of glass doors and straight across the courtyard. Once inside, you will need to provide a photo ID to Security. Frances and/or Erin will meet you in the Target Wing.
Panel Discussion Invitation

From Creation to Preservation:
Collaboratively addressing the stewardship of time-based media art

Monday, October 30th, 2017 | 2:30pm - 4:30pm | Reception Hall, Minneapolis Institute of Art

A public panel discussion at the Minneapolis Institute of Art, organized in conjunction with a visit by the National Digital Stewardship Residency for Art Information 2017/18 cohort (http://ndsr-pma.ildiv.org/)

ABOUT:
Time-based media art—a term that encompasses film, video, audio, and computer-based work—is frequently unstable, unique, and complex. It may depend on rapidly obsolescent technology or rely on audiences interacting with it in specific and temporary environments. Consequently, over time, vital aspects of the work, such as the artist’s original intent, can get lost if documentation is lacking. Yet artists and those collecting and preserving their works often lack a common language to communicate their disparate wants and needs. The goal of this panel is to explore the practical and philosophical considerations involved in creating, exhibiting, and preserving time-based media art. Our panelists represent both sides of the art creation / collection divide. They will describe their challenges in working with time-based media art as well as the opportunities it presents for collaboration between its makers and subsequent caretakers.

WE HOPE TO ANSWER:
What role do artists play in ensuring the future of their artworks? How can artists and archivists work together to address the many issues around preserving time-based media art?
What new competencies can curators develop to best work with time-based media art? How do collection strategies change when the art “objects” being collected are ephemeral, replicable, or intangible?
How are time-based media works affecting the relationship between artists, institutions, and the public?
What can we look forward to as time-based media art continues to grow in prominence and scope within the art world?

CONFIRMED PARTICIPANTS:
- Cameron Gainer - Visual Artist
- Kevin Obsatz - Filmmaker and Founder, Cellular Cinema
- Jehra Patrick - Director and Curator, Law Warschaw Gallery, Macalester College
- Yasufumi Nakamori - Curator and Head, Department of Photography & New Media, Minneapolis Institute of Art
- Ruth Hodgins - Bentson Archivist/Assistant Curator, Moving Image, Walker Art Center

Moderated by Erin L. Barsan, NDSR Art Resident at the Minneapolis Institute of Art.
TBMA Acquisitions Workflows

Existing Workflow (pre-NDSR Art)

Current acquisitions workflow for TBMA purchases at Mia

- **Selection**
  - Object selected
  - Loan/acquisition potential discussed with DDCC & Director
  - Decision to pursue for acquisition is made
  - Proposal for acquisition drafted

- **Pre-Acquisition**
  - Incoming Loan Proposal completed and approved
  - Loan Agreement prepared, signed, and returned
  - Shipping of object arranged
  - Object record created in TMS

- **Arrival/Review/Acceptance**
  - *Denotes only performed when "actual" object received by Mia*
  - Object arrives*
  - Object's physical condition assessed*
  - Any digital files checked*
  - Object cataloged in TMS
  - *Incoming Receipt created and sent to lender*

- **Acquisition**
  - Trustees approve object for acquisition
  - Object photographed
  - Invoice, Certificate of Authenticity, installation requirements, and other conditions for object requested from seller, if not already received.
  - Payment for object released
  - Rights holder asked to sign non-exclusive license agreement, when applicable

- **Maintenance**
  - Curatorial object file maintained
  - Object assigned physical location
  - Conservation needs addressed ad hoc

*Note: Does not apply to most digital TBMA as "viewing copy" is often obtained

*Decision made to send object to Accessions Committee

Red boxes indicate key decision-making points.
Proposed New TBMA Acquisitions Workflow

Flowchart
Mia Time-based Media/Digital Art Acquisitions Workflow

Prepared by Erin Barsan and Frances Lloyd-Baynes based on materials from Matters in Media Art and the Smithsonian TBMA Working Group | 01/18/2018

This proposed workflow incorporates recommendations by the Matters in Media Art project and the Smithsonian Time-Based Media working group. It sets out **WHAT** needs to be done and **WHEN** (i.e. in what order). The questions of ‘Who’ and ‘How’ it will be done will be determined once the basic approach is agreed.

### 1. OBJECT SELECTION

Curator selects work to propose for acquisition.

<table>
<thead>
<tr>
<th>1.1 Research Artwork</th>
<th>What is it? Understand <strong>key qualities</strong> of the work and prepare a description of the <strong>elements</strong> necessary to maintain the integrity of the artwork.</th>
<th>DOCUMENTATION</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Start with information on: artist, title, date, medium, duration, edition details, format, provenance, artist's dates, credit line, display dimensions.</td>
<td>• Artist statement about the work (from artist, gallery or seller)</td>
</tr>
<tr>
<td></td>
<td>• <strong>Artist statement</strong> about the work (from artist, gallery or seller)</td>
<td>• Curatorial/collector statement for importance in collection</td>
</tr>
<tr>
<td></td>
<td>• <strong>Non-technical description</strong> of what the viewer experiences</td>
<td>• Non-technical description of what the viewer experiences</td>
</tr>
<tr>
<td></td>
<td>• <strong>Basic installation specifications</strong></td>
<td>• Basic installation specifications</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.2 Explore deeper</th>
<th>Based on the artist’s statement and installation instructions, determine the following:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• What are the <strong>essential vs. desirable</strong> exhibition conditions, including space requirements?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>What can and cannot be changed</strong> in the display?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Can you physically display the work in your exhibition space?</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Original master</strong>: Where is it? What format? Where does it reside? Who owns it?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Copyright</strong>: Who owns the copyright to the work?</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Reference Documentation</strong>: Acquire reference images/documentation that will facilitate the acquisition process</td>
<td>• <strong>Stills or screen grabs, exhibition copy, etc.</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Documentation (info, images, video) of ALL previous installations of piece (for future reference)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>1.3 Assemble Expertise</th>
<th>Gather more detailed information relying on the expertise of a larger group of people.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>• <strong>Assemble a team</strong> comprising the following expertise: curatorial, registration, technical/media/audio-visual, IT, legal/intellectual property.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• <strong>Conservation</strong> expertise may need to be brought in/ consulted.</td>
<td></td>
</tr>
</tbody>
</table>
### 1.4 Get the Details

**View the work:**
Acquire a copy of the work for review (e.g. viewing copy or DropBox link). Arrange a viewing with the team.

<table>
<thead>
<tr>
<th>Equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>- What equipment is required? What is desirable?</td>
</tr>
<tr>
<td>- What equipment is provided? what must be purchased (and what are the costs)?</td>
</tr>
</tbody>
</table>
| - Relationship of equipment to the work:  
  - How specific is the equipment to the work? Is it rare / modified by the artist / essential to the realization or experience of the work? is this going to present challenges in the future?  
  - Must the equipment be dedicated to this work (e.g. as req’d by the artist or for reasons above)? Or can you use non-dedicated equipment (from Mia’s pool)? |
| - What is the minimum level of technical expertise necessary to operate the equipment? |

| Equipment list for artwork |
| Mia equipment inventory |
| Criteria to determine type of equipment? (e.g., SAAM’s unique v. dedicated v. historic v. non-dedicated) |

| Installation specifications |
| How large a space is required? |
| Does the installation require construction of a specific space? |
| What specialist skills are required to install and keep the work running? |
| What are the costs of installation and operation of the work? |

Review the installation specifications and determine if there is enough detailed information to properly install the work.

If necessary, prepare additional questions for the artist/studio or gallery to get the information that you need.

### 1.5 Condition Pre-Assessment

The goal at this point is to begin the process of assessment that will eventually lead to completion of structure and condition reports during the post-acquisition phase. At this stage, here are some core things to think about:

| - Is this work currently ‘exhibitable’ and can this be sustained? |
| - From an exhibition history of the artwork, determine duration of previous display. Make recommendations for preferred media format if different from what is being offered. |
| - Assess the condition of display equipment offered with the work: how old is the equipment? How many times has it been used/ displayed? Has it ever been serviced? |
| - Assess the condition of the sculptural elements in the installation. |

| Condition Report? (Incorporate info gathered here into final checks and condition report after work is acquired, as appropriate). |
### 1.6 Determine Costs

**Acquisition Costs:**
- Will *new equipment* or *servicing for existing equipment* be required for the installation?
- Will *sculptural elements* of the installation need to be repaired/replaced?

**Exhibition Costs:**
Use *essential conditions for display* established above to determine costs, including *extraordinary requirements* such as:
- Artist/studio involvement
- Extended installation time
- Rented installation equipment
- Construction costs

**Continuing costs:**
- *Physical components:* Estimate lifetime and replaceability of physical components. Are there consumable elements that must be continually replaced?
- *Essential equipment/consumables:* Understand equipment or consumables that are designated by the artist to be essential to the realization of their work. Consider purchasing back-ups for future preservation.
- *Outside contractors*

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### 2. PROPOSE ACQUISITION

Summarize findings and make recommendations to the Director for the acquisition. Include:
- Recommendations to incorporate into the purchase agreement.
- Issues for negotiation.
- Preferred preservation and exhibition material required, e.g. master, sub-master, exhibition copy, and what is currently being provided/offered by the seller or donor. *(If the work is being donated, know whether Mia needs to go back to the artist to ask for access to master material.)*
- A final equipment list necessary for acquisition and display: what is provided by the seller? What must be additionally purchased?

Based on the Curator's proposal, the Director will decide whether Mia should pursue the acquisition.

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### Decision to Pursue Acquisition

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### 3. Acquisition Prep

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### 3.1 Documentation

Contractual documents are required to acquire an artwork. Because of the complexities attached to the bundle of rights being conferred with the transfer of ownership of media artworks, legal documents take on a greater significance than is the case with more traditional works.

They specify the terms and conditions of the acquisition and help ensure that all parties understand their respective rights and obligations. Depending, of course, on the terms of each transaction, they may be used as a starting point in negotiations.

Determine:
- What rights do we need to secure as part of the acquisition of the work?
- Do we have what we need for the future conservation and display of the work?
- Can we make copies for exhibition and preservation?
- Does this acquisition warrant the need for formal legal documents?

| Contract/Agreement (w/artist/studio) |
| Deed of Gift |
| Copyright license |
| Draft of Certificate of Authenticity |
| Draft Invoice |
| Master list of artwork elements & equipment |

### 3.2 Negotiations

The Deputy Director/Chief Curator (DDCC) undertakes negotiations with the artist/studio as needed to ensure Mia can viably acquire, preserve and display the artwork going forwards.

The outcomes of the negotiation will be laid out in the contract.

The outcome of any negotiations will determine whether the proposed acquisition goes forward to the Trustee Accessions Committee for approval.

Finalize agreements re: responsibility for creating/providing preservation material (and any additional copies, e.g. for exhibition and access):
- Will the vendor / donor supply archival material as part of the purchase?
- Will Mia oversee/undertake the production and pay for the material(s) needed?

If the work is being donated, Mia may need to go back to the artist to ask for access to master material.

Specify any subsequent access that might be needed in (a legal document such as) a contract.

| Contract/Agreement (w/artist/studio) |

### 3.3 Object Review

Generally a viewing copy of TBMA is used for assessment/review prior to the acquisition being made. The TBMA copy may take the form of a hyperlink or be shared on physical media, e.g. a DVD or flash drive. The actual object should be delivered immediately after the Accession Committee approves the acquisition and a purchase agreement has been signed.

If the actual work will be delivered before the accession is agreed by the Trustees (rather than a viewing copy or viewable link), prepare the Incoming Loan Proposal.

| Certificate of Authenticity? (arrives with actual work) |
| Incoming Loan Proposal |
### 3.4 Accession Proposal

**finalized**

Curator drafts Accession Proposal, including

- Artist, style, and explanation of proposed object
- Condition
- Provenance
- Related objects
- How it complements existing collection
- Plans for exhibition
- Comparable prices
- Label text
- Cost *(build installation and immediate conservation needs into cost of acquisition)*

- Accession Proposal

### Preparation for the Trustee Accession Committee

- **Accession Proposal**

  Preparation for the Trustee Accession Committee takes **approximately six (6) weeks** and follows these steps, in order:

  - Curatorial Affairs Admin (CurAdmin) forwards approved accessions to registrar (ARA) [Day 1]
  - Curators submit proposals to their Dept. Heads for review [Day 14]
  - Pre-accessions mtg. [Day 17]
  - Dept. Heads forward vetted proposals to DDCC (cc: CurAdmin) [Day 27]
  - DDCC returns proposals to Curators for necessary changes [Day 34]
  - Completed proposals to DDCC by noon [Day 39]

- **Condensed accessions proposal list**

### PROPOSAL OK’d FOR TRUSTEES

- **Deed of Gift or Invoice**

  **TRUSTEE ACCESSIONS COMMITTEE AGREES ACQ**

  - Proposals mailed to Trustees [Day 49]
  - Accessions Rehearsal (curators/DDCC) [Day 59]
  - Accessions Committee mtg [Day 60]

  [Note: This day count is based on period over Dec/Jan holidays and includes weekend days.]

  The Registrar (ARA) will request Deed of Gift or Invoice for the pieces from the donor/seller, as appropriate. A Purchase Agreement and/or contract will be signed for the work.

### 4. ASSESSMENT & ACCEPTANCE

Notify the vendor / donor immediately once the decision to acquire has been made.

For objects being purchased, **DO NOT** arrange payment until the object is **on site** and reviewed to ensure all contracted elements are in place and in working order.

Once the payment is made and the acquisition completed, it can be very difficult to go back and (1) ask for access to masters, (2) request the rights to make copies for preservation, or
(3) address any technical issues with the files provided (e.g., incorrect format, frame rate, etc.).

<table>
<thead>
<tr>
<th>4.1 Copyright / Licensing agreement</th>
<th>Visual Resources Liaison contacts rights holder and asks them to sign Mia’s grant of non-exclusive license agreement (if applicable).</th>
</tr>
</thead>
<tbody>
<tr>
<td>• License agreement</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.2 Object Arrival</th>
<th>If the <em>actual/master copy</em> of the work is not yet on site, ensure a Purchase Agreement is signed and prepare the shipping and incoming receipt. The Certificate of Authenticity should arrive with the artwork.</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Incoming Receipt</td>
<td>If a <em>viewing copy</em> of the artwork on a physical storage format (e.g. DVD, Flash drive) was used for assessment/review prior to acquisition approval, treat the copy as agreed with the artist or donor, e.g. destroy or kept as supplementary material. This item will NOT require the level of preservation given the acquired/master copy of the work.</td>
</tr>
<tr>
<td>• Purchase Agreement</td>
<td>• Pre-arrival Master List (of object components, equipment, etc.)</td>
</tr>
<tr>
<td>• Certificate of Authenticity</td>
<td>• Certificate of Authenticity</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.3 Confirm Content</th>
<th>Once the artwork elements are delivered, cross-check items received against the Master List of agreed elements (per Contract/Agreement). Undertake an Inventory and visual inspection and confirm:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Pre-arrival Master List</td>
<td>• Correct artwork(s) received</td>
</tr>
<tr>
<td>• Equipment warranties</td>
<td>• All promised equipment received</td>
</tr>
<tr>
<td></td>
<td>• All sculptural elements received</td>
</tr>
<tr>
<td></td>
<td>• Digital file sizes/formats/codecs are as agreed</td>
</tr>
<tr>
<td>Write a brief description of items received</td>
<td></td>
</tr>
<tr>
<td>If equipment has been provided as part of a purchase, check situation regarding warranty.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>4.4 Confirm Functionality</th>
<th>View the material received to check that its condition is as expected and agreed upon (per contract/agreement). Test artwork elements and equipment to confirm that</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Condition report</td>
<td>• equipment works</td>
</tr>
<tr>
<td>• Technical analysis</td>
<td>• digital files can be opened and quality of file verified</td>
</tr>
</tbody>
</table>

Assessing digital media is a crucial step on entering the collection. Not only will it help Mia to understand the technical characteristics and anomalies of the file(s), it will help us create a baseline against which future examinations can be compared, and generally gain a better understanding of each artwork and our collection as a whole.

For example, Video files are assessed and condition checked both visually and aurally with the appropriate tools.
### 4.5 Document installed artwork

Fully understanding the artwork’s condition and operation as it enters the collection may involve a complete or partial installation. If so, be sure to

- Photograph the installation and its individual components
- Videotape the initial installation

This documentation and records of all previous installations that can be gathered should be archived for ongoing reference.

#### 5. AQUISITION

The goal of the acquisition phase is to prepare the artwork for long-term preservation and future installation. This includes organizing information about the work in digital and hard-copy format.

The work is catalogued and documented during this phase, images/versions are created for public release and for internal use, and preservation masters created for digital files.

#### 5.1 Digital File Storage

Copies of digital artworks are required for the preservation and use of these objects. Follow agreed procedures and use designated preservation systems.

For each artwork, Mia requires a **Preservation Master** and **Access** copy(s). **Exhibition** copies will be generated as needed for use in time-limited displays/loans.

The Artist/Studio will be asked to provide all of the files needed (preservation, access & exhibition) as part of the acquisition. When only an **Artist Master** or **Preservation Master** has been delivered, Mia will maintain it and generate the other required versions from it.

**Artist Master:**

Material on physical media as provided by the artist, gallery, or donor. This may be a digital file, tape, film reel, disc or other format.

**Preservation Master:**

Clones or derivatives of the artist’s master material made by Mia or a gallery for preservation purposes. This includes master files made through tape to file transfers.

**Exhibition, Access, and other copies:**

Derivatives of the master material created/supervised either by the artist or by Mia for access, exhibition or loan.

The following information will be generated / held with the digital files, so that even if other information is lost, we will still know what artwork it is and that the digital file itself has not changed.

- **Core descriptive information** *(including artwork Title, Artist’s Name, TMS ObjectID)*
### 5.2 Complete Documentation

Media artworks often require complex, cross-disciplinary documentation, challenging traditional cataloging systems. Curators, registrars, exhibition technicians, IT specialists, intellectual property managers, conservators, outside experts and artists contribute to compiling a multi-voice record for each work of art.

- **Fixity** *(checksum, generated when the object enters Mia’s collections and regularly reviewed)*
- **Technical Information** *(metadata embedded in the digital object)*

Take every opportunity to reassess the documentation of existing TBMA and digital art objects at the point of exhibition or loan. Review the documentation and be sure it is sufficient for current needs. Carefully document every iteration (i.e. installation/exhibition) of a TBMA/digital art work.

- **TMS Object record**
- **Identity report?**
- **Object file?**

The artist may be interviewed after acquiring the work to answer remaining questions about future conservation and display.

Answer the following questions:

- What information do we need to have in place to establish a baseline record and for future record-keeping?
- What is needed to prepare for the future life of the work as part of our Collection?
- How do I prepare for interviewing the artist about the installation and conservation of the work?

Documentation should (ideally) include a detailed technical analysis of each work.

- **Technical analysis**

### 5.3 Physical storage

The media, display equipment, and sculptural components are packed and stored in archival housing in favorable environments for long-term preservation.

### 5.4 Conservation planning

Technical and conceptual knowledge about the work is used to create a long-term conservation plan that anticipates

- Installation equipment: maintenance requirements and future equipment replacement
- Media migration cycle
- Storage specifications
- Future conservation strategies and costs

- **Long-term Conservation plan**

### Risk assessment:

Note the greatest risks the object may face going forward including:

- Disassociation of information

- **Risk assessment**
<table>
<thead>
<tr>
<th><strong>Managing time-based media/digital art at (an appropriate) scale</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Barsan, 2017/18 NDSR Art Final Report: Mia</td>
</tr>
</tbody>
</table>

- Risk of obsolescence of key display equipment or technologies
- Risks associated with poor management of media elements & display equipment
- Risks associated with the deterioration or sculptural elements

### 6. ONGOING MAINTENANCE

Digital collections require active maintenance and will not survive passive storage. Electronic or digital media art is especially vulnerable to deterioration. Obsolescence is built into all electronic media: storage formats are constantly being upgraded, as are computer hardware and software. The survival of digital media art depends on proactive preservation based on a clear understanding of the origins of the medium and its specific preservation challenges.

#### 6.1 Fixity Checks

When creating a secure storage environment for our data, we must make sure the data itself stays safe and does not change without our knowledge. This process is known as fixity. In digital preservation, this is achieved by generating checksums for files, which are monitored by re-checking on a regular basis. ("A checksum is a small-sized datum derived from a block of digital data for the purpose of detecting errors which may have been introduced during its transmission or storage." – Wikipedia @ 01/05/2018)

#### 6.2 Obsolescence checks

Trends in storage technology should be monitored to assess when migration to new storage media will be necessary.

#### 6.3 Emulation / Migration as appropriate

Mia aims to maintain the viability of any artwork in its collection over time. This may require the migration of works from their original hardware or software and/or the emulation of a work using alternative technology. Each object will require careful consideration and a unique approach to its ongoing preservation, determined by agreements made with the artist at the point of acquisition, an understanding of the artist’s intent, and available technology. Mia will always work to protect the integrity of the work.

- Fixity check (semi-annual)
### Steps for Digital Preservation

Spreadsheet prepared by Erin Barsan for Mia Systems Meeting with Media and Technology Division supervisors and other key MAT staff in order to (a) make sure everyone is on the same page with regards to digital preservation best practices, (b) determine what technology and capabilities Mia currently has and what needs to be purchased, and (c) answer any questions and discuss any concerns raised.\(^\text{26}\)

<table>
<thead>
<tr>
<th>Phase</th>
<th>Requirements /Functionality</th>
<th>Priority*</th>
<th>Hardware</th>
<th>Software</th>
<th>Notes/Description</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Establish Workstation (not ongoing)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Dedicated Computer</td>
<td>1</td>
<td>x</td>
<td>Ability to run both Mac and PC operating systems with drives/ports for a variety of common media. NOT for online activities that may introduce viruses, nor for work that might be affected by viruses introduced when accessing media.</td>
<td>Ideally, a Mac computer. At a minimum, we need the capacity to play Mac-based media as it is common with artists.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Calibrated HD monitor</td>
<td>1</td>
<td>x</td>
<td>Ensures accurate display. Ideally, capable of checking digital and analog outputs, including audio monitoring.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Antivirus Software</td>
<td>1</td>
<td>x</td>
<td>For dedicated computer. Should be regularly scanned and up-to-date.</td>
<td>Important to have capability to scan specific volumes/directories (see “Ingest” section below)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Write Blocker(s)</td>
<td>1</td>
<td>x</td>
<td>For dedicated computer when working with original media. Ensures integrity of original disk.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Partition / Virtual Machine</td>
<td>1</td>
<td>x</td>
<td>Virtual machine for running Linux on Mac/PC operating system. Alternative would be to partition computer.</td>
<td>Some open source software (e.g. BitCurator) runs on Linux Ubuntu.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Interim (“Staging Area”) storage</td>
<td>1</td>
<td>x</td>
<td>Place for incoming content (off of original media) to live in the short-term while being evaluated and prepared for long-term preservation. Hard disk, spinning disk, or solid state.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Navigate/analyze disks</td>
<td>1</td>
<td>x</td>
<td>Analyze disk space. View info on files, file formats, and/or folders in various environments (Windows, Mac, Linux), regardless of file length (i.e. even if over 256 characters). Could also visualize contents of selected drives to learn more about the properties of the content.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Managing time-based media/digital art at (an appropriate) scale
Barsan, 2017/18 NDSR Art Final Report: Mia

<table>
<thead>
<tr>
<th>Video playback and editing software</th>
<th>1</th>
<th>x</th>
<th>For accessing and assessing video as well as transcoding. Wide variety of solutions available. At a minimum, need ability to view videos and technical metadata, and transcode. More complex (e.g., editing) programs help with a deeper assessment, which is very important but not quite as crucial.</th>
</tr>
</thead>
</table>

### Ingest

| Complete preservation copies (Artist-provided Master and Preservation Master) | 1 | x | Minimum of 3, not collocated, stored on at least 2 different storage media. Artist Master should be used to create Preservation Master. Any subsequent copies should always be made from Preservation Master. |
| Create and read disk images | 2 | x | For TBMA, it's often best practice to create a backup of the original media where the digital assets are stored. May not be necessary for ALL works. We should eventually define when disk imaging is appropriate and when it is not as well as preferred file formats (.E01) and other related processes. |
| Virus-check content | 1 | x | In addition to anti-virus software already installed on dedicated computer, all incoming works need virus check. |
| Fixity check | 1 | x | Ability to create file fixity info and check file fixity. |
| Auto Unique ID | 1 | x | Ability to generate a unique identifier for a single object. |
| File Dedupe | 3 | x | Checks for and ignores duplicate files. Likely not much of an issue since we are not working with large digital archival collections. |
| Exhibition copy | 2 | x | A Mia exhibition-ready version on hand. Ideally supplied by artist, otherwise created in house upon arrival. It's very likely additional exhibition copies will have to be made later on. Could also be created in future if not part of the initial processing or need different format for loan. |
| Lower-res Access copy | 2 | x | For internal use (in TMS, Mediabin) and possibly also externally (on website). Could include a watermark, if deemed necessary. Could be created at any time in the future on an as-needed basis, and not part of the initial processing. |

### Processing

<table>
<thead>
<tr>
<th>Auto metadata creation &amp; harvest</th>
<th>2</th>
<th>x</th>
<th>Automatically creates information about the object based on data that is embedded within the object. Automatically harvests information about the object that is located in an external repository, catalog, etc. Although priority 2, auto creation/capture is a good idea as it has the ability to substantially improve processing time.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feature</td>
<td>Level</td>
<td>Required</td>
<td>Description</td>
</tr>
<tr>
<td>---------------------------------</td>
<td>-------</td>
<td>----------</td>
<td>---------------------------------------------------------------------------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Manual metadata</td>
<td>1</td>
<td>x</td>
<td>Allows for manual addition of information including descriptive metadata, at record or batch level.</td>
</tr>
<tr>
<td>Rights management</td>
<td>1</td>
<td>x</td>
<td>Allows for establishment of an object’s access, use, and alteration rights.</td>
</tr>
<tr>
<td>Package metadata</td>
<td>1</td>
<td>x</td>
<td>Packages metadata in a standards-based format.</td>
</tr>
<tr>
<td>Auto SIP creation</td>
<td>2</td>
<td>x</td>
<td>Automatically generates an OAIS (Open Archive Information System) compliant Submission Information Packet (SIP)</td>
</tr>
<tr>
<td>Access</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Public interface</td>
<td>2</td>
<td>x</td>
<td>Provides end-user access and functionality to objects.</td>
</tr>
<tr>
<td>Auto DIP creation</td>
<td>2</td>
<td>x</td>
<td>Automatically generates an OAIS (Open Archive Information System) compliant Dissemination Information Packet (DIP)</td>
</tr>
<tr>
<td>Storage</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Storage management</td>
<td>1</td>
<td></td>
<td>Either internally managed, hosted, or a hybrid of the two.</td>
</tr>
<tr>
<td>Geographically dispersed storage model</td>
<td>1</td>
<td></td>
<td>At least 1 backup stored in a different geographic location that also has a different disaster threat. Ideally all 3 backups in geographic locations with different disaster threats.</td>
</tr>
<tr>
<td>Redundancy</td>
<td>1</td>
<td>x</td>
<td>Should be at the bit-level.</td>
</tr>
<tr>
<td>Data exit strategy</td>
<td>1</td>
<td></td>
<td>Ability to retrieve archival data and metadata from the storage system. Should be able to be easily migrated to a new storage environment without vendor lock-in or any other hardware/software dependencies.</td>
</tr>
<tr>
<td>Preservation (“Dark”) storage</td>
<td>1</td>
<td>x</td>
<td>Reliable, long-term bit preservation. Accessed very infrequently. Should be either inaccessible to human users (e.g., requiring software to transfer or access data) or minimally accessible to select group of authenticated users.</td>
</tr>
<tr>
<td>Auto AIP Creation</td>
<td>2</td>
<td>x</td>
<td>Automatically generates an OAIS (Open Archive Information System) compliant Archival Information Packet (AIP)</td>
</tr>
<tr>
<td>Maintenance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Regular checksums (monitoring)</td>
<td>1</td>
<td>x</td>
<td>Checked at fixed intervals, possibly automated. Ideally, also maintain logs of fixity info, supply audit on demand, and have ability to detect corrupt data.</td>
</tr>
</tbody>
</table>
### Migration

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
</table>
| **Migration** | 2 | x | x | Set of organized tasks designed to achieve the periodic transfer of digital materials from one hardware/software configuration to another, or from one generation of computer technology to subsequent generation in order to preserve the integrity of digital objects and retain ability to retrieve, display, and otherwise use in face of constantly changing technology.

### Auto recovery

<p>| | | | |</p>
<table>
<thead>
<tr>
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</tr>
</thead>
</table>
| **Auto recovery** | 2 | x |   | Automatically overwrites the corrupted object with an uncorrupted redundant copy.

### Digital forensics tool(s)

<p>| | | | |</p>
<table>
<thead>
<tr>
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</thead>
</table>
| **Digital forensics tool(s)** | 1 | x |   | Ability to manually replace (and possibly also repair) corrupted data.

### Obsolescence monitoring

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
</table>
| **Obsolescence monitoring** | 2 | x |   | Includes monitoring of file formats, media, storage system(s), and display equipment.

### Emulation

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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</tr>
</thead>
</table>
| **Emulation** | 2 | x | x | Combining software & hardware to reproduce in all essential characteristics the performance of another computer of a different design, allowing programs or media designed for a particular environment to operate in a different environment.

### Security

#### Access control

<p>| | | | |</p>
<table>
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<tr>
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</tr>
</thead>
</table>
| **Access control** | 1 |   |   | Identify who has read, write, move, and delete authorization to individual files. Restrict who has those authorizations to individual files. Ideally, no one person should have full access permissions to all copies.

#### Encryption

<p>| | | | |</p>
<table>
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<tr>
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</tr>
</thead>
</table>
| **Encryption** | 2 | x |   | Ability to encrypt files during transfer to help prevent unauthorized users from accessing data.

#### Activity logs

<p>| | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activity logs</strong></td>
<td>1</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Mia TBMA Workstation Setup & Navigation

## Hardware

<table>
<thead>
<tr>
<th>Item</th>
<th>Property of</th>
<th>Name &amp; Model #</th>
<th>Use</th>
<th>Accessories Included (e.g. cables)</th>
<th>Additional needs in order to run?</th>
<th>Support Documentation Downloaded to Documents?</th>
<th>Notes</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Computer (Mac workstation)</strong></td>
<td>TBMA Workstation</td>
<td>27-inch iMac w/ Retina 5K display: 4.2GHz quad-core 7th-generation Intel Core i7 processor, Turbo Boost up to 4.5GHz; 32GB 2400MHz DDR4; 512GB SSD; Radeon Pro 580 with 8GB video memory</td>
<td>All TBMA processing</td>
<td>Wireless mouse &amp; keyboard. Lightning USB cord. Power cord.</td>
<td>tbma-admin login info</td>
<td>No</td>
<td>Under warranty (AppleCare). See RJ/HelpDesk for any problems.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Drobo</strong></td>
<td>TBMA Workstation</td>
<td>Drobo 5D3 (with 5 available storage bays)</td>
<td>External storage. Also acts as a production server for files too-big to download to computer.</td>
<td>6 ft power cord w/ power supply; 3.3 ft Thunderbolt 3 cable</td>
<td>Needs HDs (see Drobo HDs)</td>
<td>No</td>
<td>Under warranty (DroboCare). See RJ/HelpDesk for any problems. Purchase of Drobo (instead of RAID) recommended by AD. Also used by Media Production team.</td>
<td><a href="http://www.drobo.com/storage-products/5d3/">http://www.drobo.com/storage-products/5d3/</a></td>
</tr>
<tr>
<td><strong>Drobo HDs</strong></td>
<td>TBMA Workstation</td>
<td>4TB Seagate SATA hard drive (x 5)</td>
<td>Storage for Drobo.</td>
<td>-</td>
<td>Needs Drobo (see row above)</td>
<td>No</td>
<td>Can be 'hot swapped' if any of the drives fail. See Drobo notes for other info.</td>
<td><a href="https://www.govconnection.com/shop/seagate-4tb-sata-12gb-s-7.2k-rpm-internal-hard-drive-128mb-cache/31882405">https://www.govconnection.com/shop/seagate-4tb-sata-12gb-s-7.2k-rpm-internal-hard-drive-128mb-cache/31882405</a></td>
</tr>
<tr>
<td><strong>Headphones</strong></td>
<td>TBMA Workstation</td>
<td>Sony MDR7506 Professional Large Diaphragm Headphone</td>
<td>Assessing audio at workstation</td>
<td>1/4-inch adapter and black cloth drawstring Sony bag for storage</td>
<td>-</td>
<td>No</td>
<td>Recommended by Media Production department.</td>
<td><a href="https://www.amazon.com/Sony-MDR7506-Professional-Diaphragm-Headphone/dp/B000AJIF4E">https://www.amazon.com/Sony-MDR7506-Professional-Diaphragm-Headphone/dp/B000AJIF4E</a></td>
</tr>
<tr>
<td><strong>Media writeblocker</strong></td>
<td><strong>TBMA Workstation</strong></td>
<td><strong>WiebeTech Media WriteBlocker</strong></td>
<td>Portable forensic tool that supports write-blocked imaging of USB and flash media devices, such as thumb drives, SD cards, and CF cards.</td>
<td><strong>USB cable (type A to micro-B); MicroSD adapter</strong></td>
<td>-</td>
<td>Yes</td>
<td>Under warranty. Contact CRU for help.</td>
<td>[<a href="https://www.cru-inc.com/products/wieb">https://www.cru-inc.com/products/wieb</a> etech/media_writeblocker/](<a href="https://www.cru-inc.com/products/wieb">https://www.cru-inc.com/products/wieb</a> etech/media_writeblocker/)</td>
</tr>
<tr>
<td><strong>HD forensic writeblocker &amp; dock</strong></td>
<td><strong>TBMA Workstation</strong></td>
<td><strong>WiebeTech Forensic ComboDock FCDv5.5</strong></td>
<td>Portable professional hard drive write blocker with read/write capabilities</td>
<td><strong>AC adapter &amp; power cord; USB 3.0 cable; eSATA cable; FireWire 800 cable; SATA drive cable; IDE drive cable; Molex MiniFit to legacy power cable; Metal drive plate (for optional use) w/ jacket of screws and bumpers</strong></td>
<td>-</td>
<td>Yes</td>
<td>Under warranty. Contact CRU for help.</td>
<td>[<a href="https://www.cru-inc.com/products/wieb">https://www.cru-inc.com/products/wieb</a> etech/forensic-combodock-v5-5/](<a href="https://www.cru-inc.com/products/wieb">https://www.cru-inc.com/products/wieb</a> etech/forensic-combodock-v5-5/)</td>
</tr>
<tr>
<td><strong>USB Mouse</strong></td>
<td><strong>IT (borrowed from MT)</strong></td>
<td><strong>HP mouse</strong></td>
<td>When using BitCurator (b/c Bluetooth mouse stops working)</td>
<td>-</td>
<td>-</td>
<td>No</td>
<td>Needs to be plugged in BEFORE launching VirtualBox (usually just leave it plugged in). MT said we could hang onto this indefinitely.</td>
<td>-</td>
</tr>
<tr>
<td><strong>USB Keyboard</strong></td>
<td><strong>IT (borrowed from MT)</strong></td>
<td><strong>HP keyboard</strong></td>
<td>When wanting to look at contents of another computer.</td>
<td>-</td>
<td>-</td>
<td>No</td>
<td>MT said we could hang onto this indefinitely.</td>
<td>-</td>
</tr>
<tr>
<td><strong>External disk drive</strong></td>
<td><strong>IM (borrowed from RL)</strong></td>
<td><strong>Pioneer Blu-ray Burner BDR-XD05B</strong></td>
<td>For opening DVDs and CDs</td>
<td><strong>USB Bus Powered (3.0)</strong></td>
<td>-</td>
<td>Yes</td>
<td>Suggest purchasing one for workstation.</td>
<td><a href="https://pioneerelectronics.com/PUSA/Computer+Drives/BDR-XD05B">https://pioneerelectronics.com/PUSA/Computer+Drives/BDR-XD05B</a></td>
</tr>
<tr>
<td><strong>Monitor</strong></td>
<td><strong>IT (borrowed from MT)</strong></td>
<td><strong>HP Compaq LA2045X Monitor</strong></td>
<td>When wanting to look at contents of another computer.</td>
<td><strong>Power cord; VGA &gt; HDMI cable</strong></td>
<td>-</td>
<td>No</td>
<td>MT said we could hang onto these indefinitely.</td>
<td>-</td>
</tr>
<tr>
<td><strong>Self-powered USB Hub</strong></td>
<td><strong>IM (borrowed from RL)</strong></td>
<td><strong>Plugable USB 3.0 7-port hub with dual charging ports</strong></td>
<td>More USB3 ports with sufficient power</td>
<td><strong>Power cord &amp; USB 3.0 cord to connect hub to computer</strong></td>
<td>-</td>
<td>No</td>
<td>Suggest purchasing similar one for workstation.</td>
<td><a href="https://plugable.com/">https://plugable.com/</a></td>
</tr>
</tbody>
</table>
## Software

<table>
<thead>
<tr>
<th>Name</th>
<th>Function(s)/Description</th>
<th>Accessible via</th>
<th>Support Docs Downloaded to Documents?</th>
<th>Notes</th>
<th>Login info?</th>
<th>URL</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>AVI MetaEdit</strong></td>
<td>tool that supports embedding, validating, and exporting of metadata in AVI (Standard and OpenDML) files. This tool can also enforce file structure and metadata</td>
<td>Applications</td>
<td>No</td>
<td>Downloaded from Mac App Store (free)</td>
<td>False</td>
<td><a href="https://mediaarea.net/AVIMetaEdit">https://mediaarea.net/AVIMetaEdit</a></td>
</tr>
<tr>
<td><strong>BitCurator (suite of digital forensics and data analysis tools)</strong></td>
<td>DISK IMAGING. PKG/FIXITY. QC. For help processing born-digital materials: create disk image, explore &amp; analyze its contents, and extract metadata</td>
<td>Dock (or Applications) &gt; VirtualBox &gt; BitCurator-1.8.26</td>
<td>Yes</td>
<td>Wireless mouse won’t work when running. See BitCurator-Quickstart.pdf for help getting started. BitCurator runs in Ubuntu inside VirtualBox. For info on applications in BitCurator suite, see BitCurator website which has a wiki with lots of support documentation. Also a very good Google Group for troubleshooting.</td>
<td>False</td>
<td><a href="https://bitcurator.net/">https://bitcurator.net/</a></td>
</tr>
<tr>
<td><strong>BWF MetaEdit</strong></td>
<td>This tool permits embedding, editing, and exporting of metadata in Broadcast WAVE Format (BWF) files.</td>
<td>Applications</td>
<td>No</td>
<td>Downloaded from Mac App Store (free).</td>
<td>False</td>
<td><a href="https://mediaarea.net/BWFMetaEdit">https://mediaarea.net/BWFMetaEdit</a></td>
</tr>
<tr>
<td><strong>DaVinci Resolve 14</strong></td>
<td>Video editing software that can also capture media.</td>
<td>Dock + Applications</td>
<td>Yes</td>
<td>Free version, not studio. Version 15 still in beta.</td>
<td>False</td>
<td><a href="https://www.blackmagicedesign.com/products/davinciresolve/">https://www.blackmagicedesign.com/products/davinciresolve/</a></td>
</tr>
<tr>
<td><strong>Drobo Dashboard</strong></td>
<td>Dashboard utility to check status of Drobo, manage storage, check for updates, get more info.</td>
<td>Drobo Icon in menu bar</td>
<td>No</td>
<td>RJ set up Drobo and registered it. Contact him for access to Drobo account for support (also, see Drobo in Hardware tab for more info).</td>
<td>False</td>
<td><a href="https://supportportal.drobo.com/cc/cpSignin.html">https://supportportal.drobo.com/cc/cpSignin.html</a></td>
</tr>
<tr>
<td><strong>DV Analyzer</strong></td>
<td>QC. technical quality control and reporting tool that examples DV streams in order to report errors in the tape-to-file transfer process. also reports on technical metadata and patterns w/in DV streams.</td>
<td>Applications</td>
<td>No</td>
<td>Downloaded from Mac App Store (free).</td>
<td>False</td>
<td><a href="https://mediaarea.net/DVAnalyzer">https://mediaarea.net/DVAnalyzer</a></td>
</tr>
<tr>
<td>Software</td>
<td>Description</td>
<td>Dock + Applications</td>
<td>Applications</td>
<td>Notes</td>
<td>Support Site</td>
<td></td>
</tr>
<tr>
<td>------------------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------------------</td>
<td>--------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td>--------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>exactly</td>
<td>PKG/FIXITY. FTP. Free desktop app for creating valid bagit bags. It supports profile creation w/o need to know json. It also supports package delivery within a network, or outside a network via FTP or SFTP.</td>
<td>Yes</td>
<td>Yes</td>
<td>Didn’t get a chance to test this out with RL, as hoped. Might be a good way to send files from Mac to a local PC that is on the network (e.g. to get things into Mediabin). Also for sending outgoing loan files (free version to something like Resilio, which RL had used in the past).</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>FileZilla</td>
<td>FTP. Free software, cross-platform FTP application, consisting of FileZilla Client and FileZilla Server.</td>
<td>Applications</td>
<td>No</td>
<td>Used this to get files off one of the old TBMA projectors.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Fixity</td>
<td>PKG/FIXITY. free &amp; open source tool that enables the user to identify 7 directories that it can check automatically on a monthly, weekly or daily basis, also calculates and verify checksums</td>
<td>Dock + Applications</td>
<td>No</td>
<td>Have been told by colleagues that they’ve had trouble w/ this because it won’t run when their workstation computer is sleeping, backing up the scheduler. If Mia adopts Fixity, will want to make sure to account for this issue.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>FTKImager</td>
<td>DISK IMAGING. Free disk imaging software</td>
<td>Terminal.</td>
<td>Yes</td>
<td>Good alternative to Guymager (in BitCurator) when having trouble, e.g. worked for one software-based artwork after issues with BitCurator. If looking on Access Data’s website, it’s under Command Line Versions of FTK Imager.</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>Handbrake</td>
<td>free and open-source transcoder for digital video files</td>
<td>Applications</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Hard Disk Manager</td>
<td>System and data management program:</td>
<td>Dock + Applications</td>
<td>Yes</td>
<td>Purchased from Paragon software.</td>
<td>tbma-admin login info</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Snapshot-driven backup &amp; recovery features</td>
<td></td>
<td></td>
<td></td>
<td><a href="https://my.paragon-software.com/#/login">https://my.paragon-software.com/#/login</a></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Resizing partitions &amp; redistributing unused space</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Recovering lost or accidentally deleted partitions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Disk copying &amp; secure data wiping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>- APFS container resizing</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MediaInfo</td>
<td>QC. Free tool for identifying technical characteristics of a file</td>
<td>Terminal.</td>
<td>Yes</td>
<td>Should really buy GUI version. Only 99 cents in Mac App Store!</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Command: mediainfo</td>
<td></td>
<td></td>
<td></td>
<td><a href="https://mediaarea.net/en/MediaInfo/Download/Mac_OS">https://mediaarea.net/en/MediaInfo/Download/Mac_OS</a></td>
<td></td>
</tr>
<tr>
<td><strong>Namechanger</strong></td>
<td>Designed for the sole purpose of renaming a list of files.</td>
<td>Dock + Applications</td>
<td>No</td>
<td>-</td>
<td>None</td>
<td><a href="https://mrrsoftware.com/namechanger/">https://mrrsoftware.com/namechanger/</a></td>
</tr>
<tr>
<td><strong>NTFS for Mac</strong></td>
<td>Mount, unmount, verify, format or set any of your Microsoft NTFS volumes as a startup drive.</td>
<td>Dock + Applications</td>
<td>Yes</td>
<td>Purchased from Paragon software.</td>
<td>tbma-admin login info</td>
<td><a href="https://my.paragon-software.com/#/login">https://my.paragon-software.com/#/login</a></td>
</tr>
<tr>
<td><strong>QCTools</strong></td>
<td>QC. Free tool for analyzing video file properties and characteristics. Utilizes audiovisual analytics and filtering.</td>
<td>Applications</td>
<td>No</td>
<td>Downloaded from Mac App Store (free).</td>
<td>None</td>
<td><a href="https://mediaarea.net/QCTools">https://mediaarea.net/QCTools</a></td>
</tr>
<tr>
<td><strong>VirtualBox</strong></td>
<td>To run BitCurator Virtual Machine</td>
<td>Dock + Applications</td>
<td>Yes</td>
<td>See also: BitCurator</td>
<td>None</td>
<td><a href="https://www.virtualbox.org/">https://www.virtualbox.org/</a></td>
</tr>
<tr>
<td><strong>VLC</strong></td>
<td>QC. PLAYBACK. Free media player to play a variety of video and audio codecs/formats.</td>
<td>Applications</td>
<td>No</td>
<td>-</td>
<td>None</td>
<td><a href="https://www.videolan.org/vlc/index.html">https://www.videolan.org/vlc/index.html</a></td>
</tr>
</tbody>
</table>
Draft TBMA Treatment Report Template

**Conservation Treatment Report** | Time-Based Media Art  
**PLEASE RETAIN FOR YOUR RECORDS**

---

**Prepared by:** Name, Title, Affiliation  
**Date:** Day Month Year  
**Report/file #:** XXXX? (ID tbd)

---

**Object identification**

- **Accession #:** XXXX.XX  
- **Title, Date:** Title, Year  
- **Artist:** First name Last name  
- **TBMA type:** See TMS for list of terms. Single-channel video?; Software-based art? (can have more than 1)  
- **Material(s) addressed:** List all components interacted with as part of this treatment. Include as much detail as possible (e.g. make and model numbers, file sizes, etc.)  
- **Department:** Curatorial Department Name

---

**Reason for treatment**

Introductory sentence or two stating the “presenting complaint” to establish context. Describe the major factors motivating this treatment. Do not go into detail here; **do not include technical jargon**. Should be able to be easily understood by anyone reading (not just conservators).

---

**Condition before treatment**

Examination (i.e. pre-treatment) findings **without technical terminology** (or at least as little as required to get the necessary information across). Describe the state of object for non-conservators to understand. PRO TIP: diagrams may help (provided they aren’t too detailed/technical in nature).  
This section establishes what terms will be used later in the report (consistency is important). Also, it may help to include a glossary of any terms likely to be unknown by non-conservators attached to report, if necessary. Otherwise, be sure to define these specialized terms that will be used moving forward here.

---

**Treatment goal(s) and rationale**

Description of realistic treatment goal and why it was chosen. Still use **non-technical language** with clear reference to non-material aspects of object. Include preservation-related goals of durability and permanence; this may seem like stating the obvious, however non-conservators are seldom aware of all of the professional responsibilities of this work. Parameters should be stated (e.g. effects of treatment on object’s future, limitations).  
The rationale for the goal(s) confirms the values important to the object’s custodian are honored. Should be a values-based statement of treatment goal rationale, which helps to **avoid the common unanswered questions related to treatment: not of WHAT was done, but of WHY, and which also helps to avoid future speculation and unnecessary testing/treatment**.

---

**Treatment**

Should be a narrative describing the treatment that was carried out for non-conservators. **Do not include technical details here, still avoiding jargon**. Report on the routine aspects in addition to particulars of treatment at hand. Some examples of common phrases found in this section are:

- “We first _____ in order to prevent further damage to the object”  
- “In order to protect the object from changes, we _____”

---

*Based on “Creating Treatment Documentation.” Conservation Treatment Methodology, by Barbara Appelbaum, s. n., 2010, pp. 395–417.*
Technical details

THIS IS THE PART FOR FUTURE CONSERVATORS. Detail treatment methods and materials, and also include analytical results. Should still be short and usually comprised of a bulleted list that footnotes the treatment narrative above (i.e. includes details not included in previous section).

EB FORMATTING NOTE:
Depending on how in-depth this section is, I have made styles for consistent formatting across all reports -

[Heading 2]

[Heading 3]

[Heading 4]

I also created a 6th heading (below) for easy identification of file/folder paths. In this case:

folder > subfolder > filename.extension [H6]

Recommendations for care

Tailor this to Mia’s specific environment and resources. Give feasible ways to improve an object’s environment. Be as specific as possible (e.g. include names of supplies). If recommending ongoing treatment—which will almost certainly be the case for digital works—describe:

- when, how often, and how it should be done,
- what exactly to look for; and
- what to do based on the results.

Essentially, you want to give custodians as much as possible to maintain post-treatment state of an object. If possible, figure out how to give them reminders for ongoing care. It’s recommended to make contact periodically with the object’s custodian to ensure they are following up.

Resources

If there is anything specifically related to treated object which will be useful to future conservators, include it here. Such as:

- Refer consultants experienced in specific needs of object
- Name & contact info of other colleagues with specialized knowledge/skills related to object’s care
- Websites/publications that may help custodian or future conservators address needs of object
- etc.
Accepted Conference Proposals

2018 AIC Annual Meeting

LOOKING FORWARDS AND BACKWARDS: PRACTICAL APPROACHES TO THE STEWARDSHIP OF TIME-BASED MEDIA ART

ERIN BARSAN AND ELISE TANNER

ABSTRACT

While time-based media art (TBMA) is defined by how it unfolds to the viewer over time, this increasingly popular artistic medium is also uniquely complex in its physical, technical, and conceptual structures. In many cases, artists are explicit about the media they choose, the way in which their work is installed, and the technology used to display it. As a result, museums need to adapt their installation and preservation practices in equally complex ways, pushing the boundaries of traditional practice. Nevertheless, many institutions have been acquiring ever-increasing numbers of TBMA without proper documentation or systems in place to ensure that the integrity of these works is preserved over time. Leaders in the field have laid much of the groundwork for the stewardship of TBMA. However, these large institutions number their collections of TBMA in the hundreds to thousands, and what might be a good solution for them might not be appropriate for museums with more modest collections and resources.

This presentation introduces two projects from the National Digital Stewardship Residency for Art Information (NDSR Art) at the Philadelphia Museum of Art and the Minneapolis Institute of Art, which are building on the existing work related to the care and preservation of TBMA. The NDSR Art Residents will detail their efforts towards creating frameworks for the acquisition, documentation, installation, display, and preservation of TBMA at their institutions. They will highlight how they are tackling the challenge of simultaneously developing best practices for future loans and acquisitions while retroactively applying these standards to their existing TBMA collections. By juxtaposing these two projects and opening the conversation in a panel discussion, the Residents aim for these cases to serve as a practical model for art institutions of varying sizes, backgrounds, and needs on how to begin taking steps to ensure the viability of their complex media artworks now and into the future.

Erin Barsan
2017/2018 NDSR Art Resident, Minneapolis Institute of Art
erinleebarsan@gmail.com

Elise Tanner
2017/2018 NDSR Art Resident, Philadelphia Museum of Art
elisemtanner@gmail.com
2018 Upper Midwest Digital Collections Conference

Session Title

NDSR Art @ Mia: A Case Study in Time-Based Media Art Preservation and the Cross-pollination of Museums, Libraries and Archives

Session Description

In 2017 the Minneapolis Institute of Art (Mia) was one of four US institutions awarded a place in the inaugural cohort of the National Digital Stewardship Residency for Art Information (NDSR Art). As a host institution, Mia selected an emerging information professional as its Resident to take a lead role in building the foundation for the management, care, and long-term preservation of its growing time-based media/digital art collection.

This session will use the recently completed NDSR Art 2017-18 project at Mia as a Case Study to explore the overlaps and divergences between museum, library and archival approaches to digital preservation and digital stewardship. Members of Mia’s library, its Collections Information Management department, and the NDSR Art Resident will each share a unique perspective on the project, reflecting on the impact and overlap of our varied professional practices.

The presenters will include:
- Erin Barsan, NDSR Art Resident 2017-18, Minneapolis Institute of Art
- Meg Black, Assistant Librarian, Mia
- Frances Lloyd-Baynes, Head of Collections Information Management, Mia
- Heidi Raatz, Collections Information Specialist, Mia

Learning Outcomes & Audience Engagement

1. An introduction to the NDSR Art program and the larger NDSR model of cross-institutionally addressing the challenges of digital stewardship while also building a dedicated community of professionals
2. The practical and philosophical considerations involved in creating, exhibiting, and preserving time-based media art as well as the unique challenges and opportunities these artworks present to digital collection managers in museums, libraries, and archives
3. How the best practices and standards developed in related fields, e.g. guidelines used by digital archivists to manage and preserve electronic records, can be interpreted and applied in the context of time-based media art preservation

The session will take the form of brief presentations by each speaker followed by a question and answer period.
Key Resources

The following bibliography, loosely arranged by subject, lists resources related to TBMA that I consulted during my residency, and which I found most beneficial. Additionally, I have added bullet points beneath many of the citations in order to draw attention to particular aspects of these resources that I wanted to highlight.

Major Projects


- The Electronic Media Review: http://resources.conservation-us.org/emg-review/
- TechFocus workshops: http://resources.conservation-us.org/techfocus/


- “The preservation of installations” by Pip Laurenson (pp. 40-45)


Time-Based Media and Digital Art Working Group. TBMA: Time Based Media Art at the Smithsonian. Smithsonian Institution. 2016. https://www.si.edu/tbma

- “Smithsonian American Art Museum Time-Based Media Art Acquisition Workflow”: https://www.si.edu/tbma/saam_registrar_workflow/

Voices in Contemporary Art (VoCA). http://www.voca.network/

- Artist Interview Workshops: http://www.voca.network/programs/voca-workshops/
Conservation Ethics & Approaches


http://www.vam.ac.uk/content/journals/conservation-journal/issue-56/practical-ethics/


Documentation

- Chapter 5: “Digital preservation metadata practice for audio-visual materials” by Kara Van Malssen


Optical & Complex Media


Film & Video


Digital Preservation


Cloud Storage


