Fleeting Film: Using Story to Seek Archival Permanence in the Transitory and Globalized Digital Visual Effects Industry

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Abstract

Archiving is a long-standing vocation, founded on principles such as provenance, original order, truth, evidence, preservation and permanence. A far cry from the visual spectacle and movable feast of film visual effects (VFX)—a transitory and globalized industry of disposable firms, ever-advancing technologies and a roving workforce which craft digital animations and seamless effects for the big screen.

In this paper we utilize the concept of "story" as a premise to bring together the seemingly different vocations of archival science and film VFX. Through an exploration of digital film production and archival practice under the context of storytelling, we aim to highlight the need for archivists to work with the VFX industry to ensure evidence of this culturally significant aspect of filmmaking and cinema discourse is preserved into the future. As well present the argument that archives are more than collections of historical evidence. Archives are story—and archivists are storytellers.

Introduction

In pursuit of guiding audiences into new and exciting audiovisual storytelling domains,

filmmakers utilize a wide range of crafts including cinematography, production design, sound design and editing. In the last two decades, the filmmaking toolkit has become increasingly digitalized with digital cameras, 3D modelling, animation and motion capture now available as standard offerings.

To produce the required digital spectacle, a handful of film studios rely on a large market of visual effects (VFX) companies to produce computer generated imagery (CGI). These companies operate in a transitory state, opening and closing sites across the world, managing a myriad of ever-advancing, short-lived technologies, with a crew that nomadically travels from job to job.

Given the transitory and complex nature of film visual effects production, as well as the short-sighted vision of the studios, preservation and archiving of CGI projects and assets are not currently deemed a priority. It is not uncommon for companies to prioritize valuable online storage space for active projects only and simply move on to the next project once their seamless animation and effects shots have been delivered to the studio.

In addition, while there have been several studies examining the preservation of digital and new media art and computer games,[1] there has been limited research and literature to date concerning the archiving and digital preservation of film animation and VFX records, with the only work of note being from Turner et al. of the International Research on Permanent Authentic Records in Electronic Systems (InterPARES) 2 Project, which over a decade ago, examined an animation studio's approach to archiving (1-21).

This paper examines the current practice of VFX production and archiving in context

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[1] A review of literature reveals that issues surrounding the conservation and preservation of computer games and new media art have been explored for over a decade. Published scholars and practitioners in this area include Bettivia 17-32, Fauduet et al. 1-10, Innocenti 425-430, Laurenson, McDonough and Olendorf 89-108.

of storytelling. The first part of the paper outlines and explains VFX production, its transitory and globalized nature and the motivation of VFX practitioners to help tell cinematic stories. The second part explores archival practice as more than a calling to document, safeguard and provide access to historical evidence, but also as a form of storytelling. This section also describes the various dimensions in which archives can be seen as story. The final part of the paper outlines how archivists can approach appraisal and selection of VFX records for archiving as well as the importance of collaboration with the VFX industry to ensure that stories of VFX projects and practice are preserved for future use and study.

Part 1. Visual Effects: Telling Stories Through Transient and Globalized Pipelines

Film digital visual effects (VFX) are a product of people, code and machinery spread across temporal and spatial dimensions, seamlessly composited together via networked production pipelines to create a unified story for the screen.

VFX are one of the many creative toolsets available to filmmakers to visually represent concepts, themes, environments, characters and performances to audiences via the big (or small) screen. As McClean (p. 5) writes, "The spectacle, imagery and aesthetics afforded by computer-generated imagery has shepherded digital visual effects to the forefront of film production process."

Consequently, VFX has expanded the repertoire of filmmaking practice and now holds an established place within the discourse of cinema. It also yields the power to greatly

support the narrative, aesthetic and style vision of the film Director.

As "ever more talent and resources are devoted to making artifice seem natural, the nonvisible made visible, and the realm of the imaginary come across as convincing and credible" (Black p. 10), the importance, reliance (and spending) on VFX in modern filmmaking has risen considerably in recent years. This is especially the case for summer blockbuster films and the popular superhero genre productions. As Dittmer notes:

> From the production perspective, the increased intermeshing of
>
> the superhero genre with Hollywood appears to be driven by the
>
> demands of the increasing financialisation of summer
>
> blockbusters alongside audience expectations for the
>
> increasingly "unreal" special effects that define the summer
>
> blockbuster (p. 120).

Thus, it is now commonplace for digital VFX production to consume up to thirty or forty per cent of total production spending (Curtin and Vanderhoef 200, Rüling and Duymedjian 100).

Globalized Economy and Dispersion of the VFX Workforce

> If people sit in the theater and watch the credits roll to the end, you will notice
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> the number of people involved in visual effects can often be several times
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> larger than the number of people involved in the rest of production (Bill
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> Westenhofer, visual-effects supervisor, quoted in Dubner).

The act of bringing CGI to the screen is no small feat. A significant number of skilled digital artists (not to mention technological infrastructure—more on this soon) are required to

generate and consolidate layers of footage, 3D models, animations, matte paintings, environmental and lighting effects together into coherent and seamless film shots.

Jean Chung ("Media Heterotopia," pp. 88-9) describes this phenomenon of synthetically compositing work across space and time as *media heterotopia.* She coins this term to draw attention to the trope of "seamlessness" when conceptualizing VFX as well as highlight the real-life conditions of the industry as a networked pipeline of geographically dispersed places and bodies.

The dispersion and volume of VFX artists and firms employed on most studio films can be demonstrated by examining the Internet Movie Database (IMDB) credits of the recent blockbuster film *Wonder Woman* (2017). 865 CGI artists, in thirteen different firms located in Canada, Czech Republic, England, India, New Zealand, Poland and the United States produced VFX for the film, see Figure 1 below.

VFX Firms	Locations
Clear Angle Studios	Shepparton, UK
Double Negative	London, UK Mumbai, IND Vancouver, CAN
Encore	Los Angeles, USA
Gener8	Sunnydale, USA
MPC	Montréal, CAN
Pixomondo	Toronto, CAN
Platige Image	Warsaw, POL
Prime Focus	Mumbai, IND
Proof Inc.	Los Angeles, USA
The Third Floor	London, UK
UPP	Prague, CZE
Warner Bros.	Los Angeles, USA
Weta Digital	Wellington, NZ

Figure 1. VFX firm dispersion on the film *Wonder Woman* (2017).[2]

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[2] See this Google map for an interactive version:
https://drive.google.com/open?id=1m4t0fr5mAYuzy1k8hZ7egE0Qe8tgnxGN&usp=sharing.

This transnational displacement of VFX production is an outcome of the globalization of the media and film industries, characterized by a fragmented, international workforce (no longer tied to local production locations), and facilitated by tax incentives, advancements in digital technologies and communications (Visual Effects Society 9-24, Rüling and Duymedjian 99) As VFX artist Dave Rand describes:

> Today, visual effects work is arguably the most geographically dispersed aspect of film and television production. Los Angeles was once the world's leading VFX hub, but has been completely hollowed out by the migration of firms and artists to a growing number of worldwide locations. Once a metaphorical fringe city of Hollywood, the business has now scattered to literal fringe cities around the globe (Curtin and Sanson, "Fringe City," p. 202).

As revealed in an interview with Hannes Ricklefs, Head of Pipeline at the Motion Picture Company (MPC), globalization is very attractive to VFX firms as having offices in various locations around the world provides benefits such as tax breaks, subsidies, a pool of skilled workers to draw upon, lower operational costs, local client bases and options to distribute work (Jean Chung, "Global Visual Effects Pipelines," p. 3).

Presently there are over 500 visual effects firms worldwide servicing a small number of film studios (Curtin and Sanson 201) with the main locations or "VFX hubs" located in cities in Canada, Australia, India, New Zealand and the United Kingdom and the United States. As the Visual Effects Society (p. 11) indicate, "This oligopoly gives the six major

studios—Disney, Fox, Paramount, Sony, Universal and Warner Bros.—enormous leverage in controlling prices from its suppliers."

Under this globalized business model, VFX work is awarded through a cutthroat process of bidding for jobs, where by VFX firms offer their work using fixed prices, and studio producers take advantage of the competition to reduce their production costs. To keep afloat and save costs, VFX firms generally hire artists on short fixed-term contracts for a particular project then terminate the employment as soon as the work ends. As Rand says, "Nobody in our business these days is on anything but an at-will contract. It's become an American standard" ("Dave Rand: VFX Artist," p. 225). The firms that cannot compete under the volatile system, unfortunately often end up closing down and filing for bankruptcy. In recent years, this has included the closure of prominent companies Digital Domain, Rhythm & Hues, Asylum Visual Effects, Modus FX and Australia's Fuel VFX (Burrowes; Lang).

Thus, the VFX industry can be considered as a movable feast, where companies are set up, dispersed and shut down and the nomadic VFX artist is recruited on a project-by-project basis, "fac[ing] an endless cycle of displacement, bouncing from one firm to another, and often one city to another" (Curtin and Sanson, "Fringe City," p. 201).

Pipelines: Workflow, Technology (and Archiving?)
VFX work spans from pre to post production and includes such tasks as pre-visualization, modelling, rigging, texturing, surfacing, lighting, matte painting and digital compositing (Jean Chung, "Global Visual Effects Pipelines," 1) It is a laborious and time-pressured undertaking involving the coordination and networking of people, code and machinery.

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At the core of VFX is the pipeline—a production workflow, which shepherds the work of artists together across spatial and temporal dimensions. Rüling and Duymedjian (99-100) describe VFX production pipeline as a collective *digital bricolage*, where by work is creatively coordinated through the convergence of specialist disciplines and the process of assembling, reusing, adjusting and experimenting with a range of digital resources. Green et. al. ("Introduction," p. 3) indicate that the pipeline is like an assembly line, it is "the glue that holds the work of each artist involved in a production" and the ultimate pipeline is one that supports revisions at any stage of production.

Technology utilized in the pipeline changes rapidly, with most firms devoting considerable resources to making use of the latest hardware and software to improve processes and keep up to date with emerging trends (Dodgson, Patterson and Willis 93) Technological considerations must be regularly made concerning what systems, software, solutions and vendors will be utilized and/or improved to manage the network, assets, storage, software distribution, user authentication and rendering required for production (Green et al., "Systems Infrastructure," p. 276-277) Key challenges in globalized pipeline management include asset management, automation, and the sharing and synchronization of data (Jean Chung, "Global Visual Effects Pipelines," 4-5).

Another key challenge is archiving. In a UK based study, Dodgson, Patterson and Willis (93) highlight that archiving and cataloguing is a significant issue for VFX companies, one that is difficult to resolve due to the volumes of digital assets and objects produced during film projects. They illustrate this by noting that a feature film with 1700 effects shots could have upwards of 4 million assets, with variations of the assets producing up to 10 million objects to manage. Dodgson, Patterson and Willis (93) also highlight that

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the issue of how to archive these volumes, leads to more questions around how original

imagery and models should be archived (if at all) and whether it is necessary for descriptive

information about the processes to be captured as well.

Green et al. describe current film VFX archival practice as an expensive process of

migrating records onto passive Linear Tape Open (LTO) formats, which is generally

relegated to the end of a project:

> Archiving is normally a one-off operation once a project has
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> finished—or, for large projects, once a shot or sequence is
>
> complete—and can involve sending a copy of the data to the
>
> client [studio]. Normally two copies of a tape are kept, one on
>
> site and one off-site. Both of these processes have a high
>
> "opex" cost (short for "Operational Expenditure" or "Operating
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> Expense") ("Systems Infrastructure," p. 128).

Luckow and Turner (167) suggest that the short-sighted vision and profit-focus of film

studios are a key reason why good archival practice is not carried out in the VFX industry.

As documented in the InterPARES 2 Project, which investigated the commercial

production of a CGI animated feature film to determine preservation practice, Turner et al.

(9-10) found that no program for records management or long-term preservation was

present in the studio during production and archiving mainly occurred for legal or

marketing reasons only. In short, archival resources and storage costs money. So, while the

studios create these "wonderful elements of cultural heritage," they do not value them in

the same way as archivists and media consumers do, and therefore do not require original

imagery, models and descriptive information to be captured and preserved for the future

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(Luckow and Turner 167).

Similarly, unlike their technical and creative pipeline processes, which are constantly advanced and improved upon, VFX practitioners are not realizing the potential of improving and expanding upon their archiving practices. They are failing to recognize the value in preserving records that add valuable contextual information about their archived "finals" and which also reflect and provide insights into their rich corporate and human histories. Therefore, VFX companies tend to pour all their resources into delivering seamless, original, and realistic looking film shots that contribute to the film narrative.

The Quest for Seamlessness and Storytelling

According to Rüling and Duymedjian (104-06) the digital bricolage of VFX production relies upon principles of *verisimilitude* and *narrative alignment*, meaning that achieving perceived seamlessness (or realism) and contributing to story and character development is key to producing effective and affecting VFX work.

The principle of verisimilitude is also explored by Giralt (p. 5) who indicates that VFX must seem hidden to audiences and at times, strive to exceed reality, to "accomplish a perfect mimesis". Similarly, Power (p. 123) describes 3D animation culture as "driven by a naturalistic agenda" and the convergence of live-action, motion capture and animation demonstrated in James Cameron's *Avatar* (2009) epitomizes the "seamless synthesis of the real and virtual."

While the goal of seamlessness and realism is of great importance, as Director George Miller aptly states, "The tools don't drive the pipeline, the stories drive the pipeline" (quoted in Swift, p. 10).

According to McClean (p. 38), "The purpose behind storytelling is the conveyance of something of value, of use, of wisdom." In filmmaking, the storytelling process commences with the script, which Director David Lynch refers to as "an indication, a blueprint" for the film (quoted in Goodridge, p. 133). This blueprint sets the cinematic process in motion and establishes the narrative universe in which dramatic events will unfold (Peacock 65). As director Milos Forman says:

> It all begins in the script. If what's happening is interesting, it
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> doesn't matter where you shoot from, people will be interested
>
> to watch. If you write something boring, you can film from
>
> mosquitoes' underpants and it will still be boring (quoted in
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> Eszterhas, p. 13).

From the script, the vision for the story comes to life and is defined through decisions made in the design of sets and costumes, selection of locations, casting of actors, choice of film or digital filming medium, framing and blocking of action, editing of shots, and design of sound and music.

The film's story is also supported by the work of VFX artists. While admittedly their work can be highly technical, when manufactured under the auspices of narrative storytelling, digital VFX can contribute significantly to the themes, visual messages and mise-en-scène of film storytelling. As the Visual Effects Society (p. 10) notes, "Everyone in this industry is passionate about participating in the filmmaking process. They want to tell stories …" Similarly, as the late Australian VFX artist, Peter Webb said, "Story is the only thing that interests me about the craft that I am in. Assisting the director in realizing their

vision and perhaps adding some touches of my own is the most satisfying collaboration"

(quoted in Williams, p. 158).

Part 2. Archiving: Telling Stories Through Permanence and Preservation

The *modus operandi* of modern day archivists is to assist individuals and organizations to

create, manage and preserve authentic and reliable permanent value records that have

integrity and that are usable. To do this, they identify, appraise, preserve, arrange, describe

and provide ongoing access to historical and evidentiary primary source records. Yet, as

Greene (22) importantly notes, archiving is more than a process and set of tasks; it is a

profession that yields power, is grounded in values, and which holds deep societal

relevance.

The practice of archiving has existed for thousands of years, with archaeologists

discovering evidence of ancient clay, papyrus, parchment and leather record archives from

ancient cultures all over the globe, including Mesopotamia, Egypt, Greece, Persia and Rome

(Brosius 1). It is an important legacy, as it establishes that archives have held value to many

societies over time.

Archivists are the custodians of society's memory and bear the responsibility, skills

and knowledge to recognize records of long-term value as assets. As archivists Kim

Eberhard and Justine Heazlewood indicate:

Archives…form an essential bridge between past, present and

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future… [They] record the challenges, the aspirations and the

experiences of today's generation, and of the generations that

have preceded us. They document our successes and our

failures.

They are thereby an asset which we feel a duty to preserve and

to pass on for the use and benefit of our successors in time

(quoted in Australian Society of Archivists, p. 2).

Thus, while archivists inherently feel a responsibility to preserve records as assets, a key

challenge the profession faces is helping others take on this responsibility, too. Not to

mention expanding the limited perception of archives as basement record repositories to an

important continuum of historical evidence and stories.

The Quest for "Truthful" Evidence

A reliable and authentic archival record is one that is presumed to have "truthful" content

and stands for the facts to which it attests (Pearce-Moses 41). In other words, it is what it

purports to be and has not been manipulated, substituted, corrupted or falsified since its

creation (Duranti 7).

An archivist's job is "not to decide which version of truth to accept but instead to

protect documentary evidence so that the facts can remain inviolable: available for use now

and in the future for myriad reasons, without taint or tarnish" (Millar 13). Additionally, as

Pearce-Moses (30) highlights, archival records do not just happen, they are produced by

people and organizations to reflect and support their values and duties. Therefore, important

missions of the archivist are to ensure the provenance of the records and maintain information about the record creators, as well as maintain original order to be able to understand *how*, *why,* and *when* the creator produced and managed their records (International Council on Archives).

Unfortunately, this quest to preserve authentic and reliable evidence is not exercised well in many industries—including the VFX industry. For archives to be authentic and reliable, the records need to be created, captured, managed and stored appropriately in perpetuity. For film VFX, this translates to creating and managing up to millions of model, lighting, effects, texture and animation assets in production pipelines, as well as a wide range of technology and production digital records and data sets held within various applications, libraries and databases—all of which consume significant costs and resources. Not to mention, developing a process to select and store only the long-term value digital records (without breaching any copyright restrictions imposed by the studios) along with meaningful metadata well after production ceases, into the future.

This is a challenging endeavor, and one that has up to date, received limited scholarly and industry attention. Nonetheless, we propose it is a worthwhile venture for the archives and VFX community and suggest that a shift in focus for archives as story could prove to be an effective strategy to relay the importance and value of archiving digital VFX records and evidence of projects over time.

Archives as Story

Individuals and societies throughout time have selectively stored and archived their

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stories graphically, aurally and textually on all kinds of media, ranging from cave paintings to digital files (McKemmish 2). In addition, archives have their own stories, evident through the precious layers of metadata shaped by archival appraisal and description and which provide context to enrich the history and memory of records (Cook 178).

Terry Cook suggests that appraisal theories, such as those of American archivist Theodore Roosevelt Schellenberg introduced during the mid-twentieth century, sparked a conceptual move in the archival profession towards storytelling (Cook 179). Through the process of selection, archivists were granted the ability to become co-creators of the archive (not merely collectors and keepers), and their focus shifted from archives as "'truth', evidence, authenticity, defending the integrity of the record, to archives as story, as narrative…" (Cook p. 176).

Gilliland (34), in her examination of archival appraisal history, highlights that appraisal is always evolving and has been influenced over time by political, societal, institutional and pragmatic motivations. Furthermore, the very notion and practice of "reappraisal" clearly illustrates that thoughts pertaining to which records should be maintained in archival collections changes over time. Thus, while archivists may strive to conduct appraisal according to defined frameworks, it can be argued that the "art" of appraisal is not a one-off action during the life of a record (Gilliland 51). Rather, it is an evolving practice that influences the narrative scope and storytelling capacity of records. As Duff and Harris (p. 265) suggest, the stories of record creators and that of records managers and archivists are also an integral part of the continual story of archives, "records are always in the process of being made, 'their' stories are never ending."

While appraisal helps form narrative, so too does the practice of description. As

Hurley (p. 122) describes, "Description is the ability to depict manifold layers of meaning enfolding the record with a documented understanding of related event or circumstance up to and including the fonds and its ambience." The formulation of words and prose by archivists to convey and explain the layers of meanings, contexts, systems and provenance of records can be seen as a form of storytelling.

Furthermore, the strength and appeal of the narrative found within a catalog entry or finding aid could serve as the opening chapter of a researcher's own story and journey to seek out information and knowledge from the archives.

New collaborative and participatory approaches adopted by the archival profession have widened description authorship and storytelling to also include the users of archival records. For example, the growing use of online platforms such as social networks and photo sharing sites facilitates and encourages user-created description, where by *producers* contribute notes, tags and comments to improve, build and enrich collection metadata and stories (Duranti and Rogers 63; Gorzalski 4).

Critical approaches to archiving practice (including description) are also starting to emerge in the profession to empower the subjects of records to supplement, resolve and build on their own stories. This is especially illustrated in the work of the Archives and the Rights of the Child Research Program being led by Monash University in Australia. This program aims to address challenges of the archival multiverse by developing new reflexive archival models and co-creation approaches to archival description, appraisal and access that will integrate the rights and needs of individuals and communities (Evans, McKemmish and Rolan 5-14).

While archives have their own stories, as McKemmish (9) highlights, archives are

also woven through many other stories as documentary "traces"; which are always in a state of becoming through spacetime and which have dynamism in their multiple purposes and relationships. Thus, as the archival traces build, interweave, and connect over time, they recount, reflect, and inform an innumerable number of stories related to events, places, people, organizations, practice, culture and ideology. In other words, "the archive is never closed. It opens out of the future" (Derrida 68).

Thus, if digital VFX assets are archived, preserved and accessible into the future, they could connect to a wide range of stories and exist far beyond the confines of an LTO storage tape.

Part 3. Approach to Archiving and Preserving VFX Stories

To undertake the archival storytelling task in the VFX industry; archivists should embrace a broad perspective in order to source the multiple meanings, truths, and narratives about and held within VFX archives. Archivists should also work closely with the VFX industry in order to co-create and preserve valuable VFX record collections and stories.

Defining VFX Stories Through Appraisal

As outlined in this paper, VFX production is a product of globalized and transient people, code, and machinery, meaning all of these elements can bring forth meanings and an array of potential archive "stories." Therefore, in approaching appraisal within the VFX industry, archivists must, as Ketelaar (141) suggests, interrogate the archive's "semantic genealogy"

and explore more than administrative context, but also examine social, cultural, political, and creative contexts of record collections. This approach also aligns with digital curation appraisal advice from Harvey, who highlights that responsible selection and appraisal practice should expand beyond the retention of administrative business records and also include records that "reflect the full range of human experience" (p. 10).

So, how do we define which records and stories have ongoing value and reflect the full range of the VFX industry experience? We would argue that this process should take a macro view and consider VFX records as traces that could open up a multitude of stories from wider contexts and fields that exist beyond the VFX studio—including media studies, media production, technology, digital art, and design. In appraising VFX records we should view them as primary source collections that, if preserved, could potentially supplement and connect to published films as well as other related activities and record collections such as "making-of" or "behind-the-scenes" videos, publications, portfolio sites, artist biographies, conference papers and documentation produced by professional bodies such as the Visual Effects Society (VES). These records would then provide real-world evidence—richer and more complete stories about the people, business, process, technology and outputs of the film VFX industry.[3]

As illustrated in Figure 2 below, VFX archives could encompass a range of records that span beyond business administration activities to also include creative design records

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[3] Many publications, papers and behind-the-scenes videos provide a great overview of VFX, but they are often a curated "best of" view of VFX that can fail to address the challenges and failures that are often encountered by the industry during production. Access to firsthand records created by the industry will support truthful accounts of VFX practices over time.

such as concept art as well as flow charts or system architecture records that document the

development of bespoke pipelines, systems, and proprietary tools over time. Retaining these

records would help future VFX practitioners and researchers to better understand *how* and

why certain technical and creative approaches were adopted during productions. Having

access to multiple VFX record collections could also facilitate industry studies to identify

trends, patterns, similarities, differences, successes and failures of VFX production over
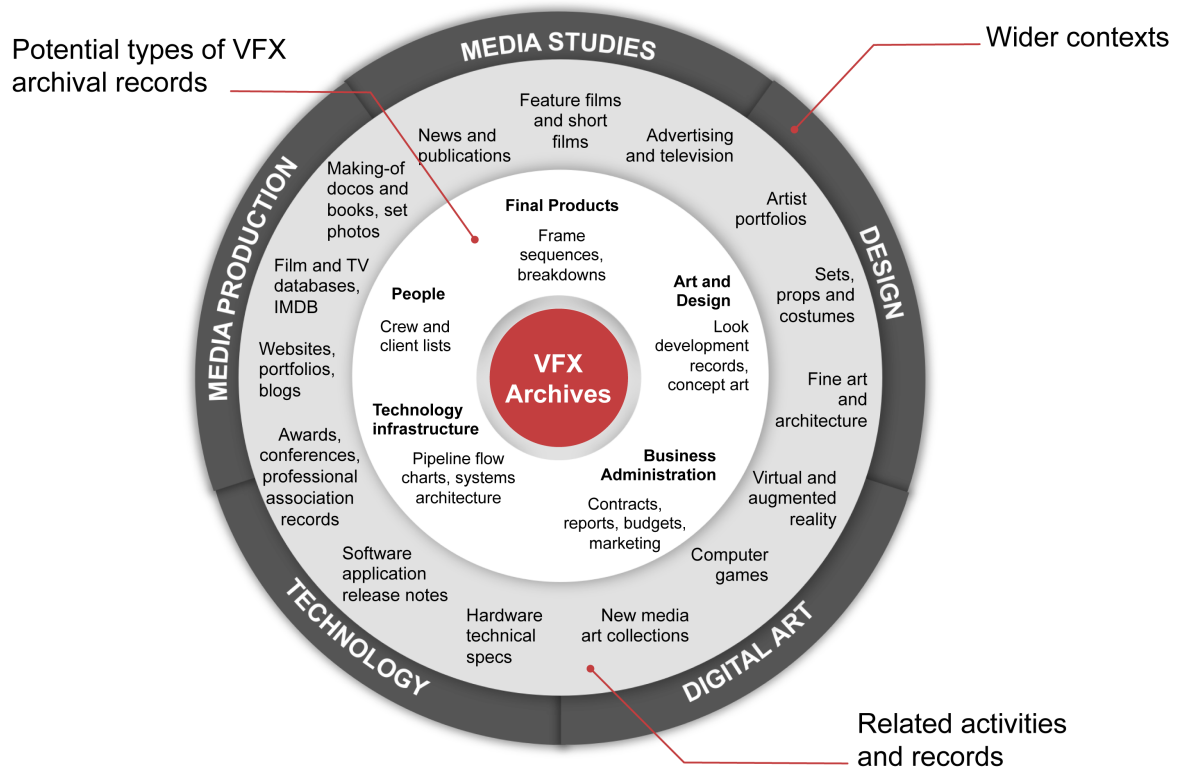
time.

Figure 2. Multiple contexts, related activities, and records for VFX archives

As well as taking a macro view of the contexts and relationships of VFX records, as

Niu (69) indicates, technical features also need to be appraised, since they directly affect the

costs and viability of preservation. This is especially the case for many CGI records created

in the VFX industry. Given the pipelines are constantly evolving, new processes and

versions of both in-house and commercial software and tools are always being introduced to

improve technical and creative efficiencies.

Bringing an archived asset (which could be made up of many small files) back online

from even just one year ago can prove extremely difficult for the record creators themselves

as the original technical environment and conditions no longer exist. In fact, industry

practitioners generally find that recreation of assets to be a much more efficient approach

than retaining original assets over time.

Given the rate of technological obsolescence, VFX record appraisal decisions will

undoubtedly need to factor in the fundamental feasibility of technically preserving particular

types of records. This may include exploring alternative preservation approaches, such as

archiving representations of the assets instead (for example videos, thumbnail images, and

turntables[4]) in order to support evidence, reference, recreation and study of VFX production

elements. Not to mention capturing "additional" information and tools needed to access and

understand [the] bitstream" will also be required (Harvey and Weatherburn 63). This means

providing contextual information about the business, original systems, and software, as well

as relationships between records, and along with archived VFX assets (or representations of

assets) to help ensure that they are usable and have meaning over time.

In order to apply these appraisal approaches, it will be fundamental for archivists to

collaborate with the VFX industry, to ensure the records selected for archiving tell useful,

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[4] A *turntable* is a sequence of renderings that provides a complete 360 degree view of a 3D model.

authentic and reliable stories.

Collaborative Storytelling

As Cook (182) suggests, engaging and partnering with the citizen is paramount and ever more possible in our current digital age. Similarly, as Gilliland-Swetland (21) suggests, implementing archival theory and practice within digital settings requires "working with information creators to identify requirements for the long-term management of information." Thus, archivists should share the role of storyteller with the VFX industry and work collaboratively together to develop approaches and criteria for selecting and archiving VFX digital records.

This notion of working in collaboration with record creators has been effectively researched, theorized, and applied within the related field of new media art conservation. In this field, conservators and archivists regularly seek direct input from artists to determine appropriate preservation strategies. This includes approaches to the documentation and cataloging of conceptual, creative, presentation, and reception components of CGI work as well as the development of form templates, guides, and models to ensure enduring access and use of new media collections (Documentation and Conservation of the Media Arts Heritage; Fauduet et al. 1-10; Matters in Media Art; Muller and Jones 418-19). This approach also aligns with digital records preservation advice from Harvey and Weatherburn (48-50), who suggest that given the large amount of challenges inherent in digital preservation we need to foster collaboration to be able to effectively communicate, develop, share, and test our preservation ideas and approaches.

Collaboration with the film studios is also paramount in ensuring VFX stories are kept alive. This is due to the fact that the film studios generally have intellectual property rights over VFX records and are essentially the "owners" of these collections and stories. While it is evident that VFX companies deliver materials to their studio clients upon completion of projects, it is unclear as to what happens to these collections within the studios after the film project is completed. By working with studios to develop agreed-upon custodianship models and arrangements for access, rich collections full of meaningful stories could be retained and managed over time.

Collaboration with the VFX industry, while a large undertaking given its global dispersion, could bring about positive results. For example, by participating in the appraisal and selection of their records for archiving, the industry may gain the realization that their digital painting, modelling, lighting, animation, and compositing work has the potential to reflect and inform a multitude of stories through space and time—far beyond the intent of the original film project and thus, potentially sparking a genuine desire to improve and expand upon current VFX archival practice.

Future Work and Conclusions

The act of bringing CGI to the screen is no small feat—neither is preserving evidence of VFX production over time. Therefore, achieving the creation and safeguarding of meaningful VFX stories over time will require the collective efforts of archivists, VFX practitioners, and film studios. This process will require:

- First, understanding current archiving practice to determine *how*, *why,* and *what*

  types of records are currently being archived by the industry.

- Then, collaboratively exploring which VFX digital records *should* actually be

  archived long-term to ensure appraisal approaches result in meaningful collections of

  material and stories that truthfully reflect industry practice over time and complement

  other related activities, collections and areas of study.

- Finally, co-creating practical and achievable approaches for the consistent

  implementation of archiving across the VFX industry—including determining

  custody arrangements and acceptable access requirements for collections over time.

  This collaborative work may even explore the notion of creating designated archives

  or museums for film VFX collections or transferring collections to existing

  institutions.[5]

The practice of archiving and digitally preserving VFX records is complex and challenging.

In this paper we argue that storytelling—which is central to the craft of filmmaking and

VFX—provides a compelling and useful guiding principle for archivists working in this

area. Thus, archivists should appreciate their collections and practices as supporting and

enabling of multi-dimensional and never-ending stories.

Furthermore, the power of narrative can be effectively used to promote the archiving

profession and values, as well as communicate the fact that archives are assets to

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[5] Presently many studios have donated their physical film collections to institutions such as the UCLA Film and Television Archive (while still retaining intellectual property rights over the collections). In addition, two new film-collecting institutions have recently been announced, the Academy Museum of Motion Pictures and the Lucas Museum of Narrative Art, both of which could prove to be viable options for managing VFX archival collections in the future.

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everyone—even to the filmmaking and VFX community.

References

Australian Society of Archivists. *Archives Matter!* Dickson, A.C.T.: Australian Society of
 Archivists, 2007.

Bettivia, Rhiannon. "Where Does Significance Lie: Locating the Significant Properties of Video
 Games in Preserving Virtual Worlds II Data." *International Journal of Digital Curation*
 11.1 (2016): 17–32. doi: 10.2218/ijdc.v11i1.339.

Black, Joel. *The Reality Effect: Film Culture and the Graphic Imperative*. New York: Routledge,
 2002.

Brosius, Maria. "Ancient Archives and Concepts of Record-keeping: An Introduction." In
 *Ancient Archives and Archival Traditions: Concepts of Record-Keeping in the Ancient
 World*, edited by Maria Brosius, 1-16. Oxford: Oxford University Press, 2003.

Burrowes, Tim. "Fuel VFX Goes into Administration." *Mumbrella*. August 28, 2012.
 https://mumbrella.com.au/fuel-vfx-goes-into-administration-112240.

Cook, Terry. "'We Are What We Keep; We Keep What We Are': Archival Appraisal Past,
 Present and Future." *Journal of the Society of Archivists* 32.2 (2011): 173–189. doi:
 10.1080/00379816.2011.619688.

Curtin, Michael, and Kevin Sanson. "Fringe City: Editor's Introduction." In *Voices of Labor:
 Creativity, Craft, and Conflict in Global Hollywood*, edited by Michael Curtin and Kevin
 Sanson, 200-203. Oakland: University of California Press, 2017.

Curtin, Michael, and John Vanderhoef. "A Vanishing Piece of the Pi: The Globalization of
 Visual Effects Labour." *Television & New Media* 16.3 (2015): 219–239. doi:
 10.1177/1527476414524285.

"Dave Rand, VFX Artist" [interview]. In *Voices of Labor: Creativity, Craft, and Conflict in*

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Global Hollywood, edited by Michael Curtin and Kevin Sanson, 215-225. Oakland: University of California Press, 2017.

Delve, Janet, and David Anderson, eds. *Preserving Complex Digital Objects*. London: Facet Publishing, 2014.

Derrida, Jacques. *Archive Fever: A Freudian Impression*. Chicago: University of Chicago Press, 1996.

Dittmer, Jason. "American Exceptionalism, Visual Effects, and the Post-9/11 Cinematic Superhero Boom." *Environment and Planning D: Society and Space* 29.1 (2011): 114–30. doi: 10.1068/d4309.

Documentation and Conservation of the Media Arts Heritage (DOCAM). "The DOCAM Research Alliance." Accessed April 5, 2018. http://www.docam.ca/.

Dodgson, Neil, John Patterson, and Phil Willis. "What's up Prof? Current Issues in the Visual Effects and Post-Production Industry." *Leonardo* 43.1 (2010): 92–93. doi: 10.2307/40540114.

Dubner, Stephen J. "No Hollywood Ending for the Visual-Effects Industry." *Freakonomics*, February 23, 2017. http://freakonomics.com/podcast/no-hollywood-ending-visual-effects-industry-2/.

Duff, Wendy M., and Verne Harris. "Stories and Names: Archival Description as Narrating Records and Constructing Meanings." *Archival Science* 2.3-4 (2002): 263–85. doi: 10.1007/BF02435625.

Duranti, Luciana. "Reliability and Authenticity: The Concepts and Their Implications." *Archivaria* 39 (February 1995): 5-10. https://archivaria.ca/archivar/index.php/archivaria/article/view/12063

Duranti, Luciana, and Corinne Rogers. "Archives in a Digital Society." *Canadian Issues*, August

2014, 62–67.

Eszterhas, Joe. *The Devil's Guide to Hollywood*. New York: St. Martin's Press, 2009.

Evans, Joanne, Sue McKemmish, and Greg Rolan. "Critical Archiving and Recordkeeping

Research and Practice in the Continuum." *Journal of Critical Library and Information

Studies* 1.2 (2017). doi: 10.24242/jclis.v1i2.35.

Fauduet, Louise, Adèle Sicre, Céline Thomas, Nola N'Diaye, Chu-Yin Chen, and Florent

Aziosmanoff. "Digital Art Posterity: Building a Data Model for Digital Art Corpora."

14th International Conference on Digital Preservation (Kyoto, Japan, September 25-29,

2017). https://ipres2017.jp/wp-content/uploads/41Florent-Aziosmanoff.pdf.

Gilliland, Anne J. "Archival Appraisal: Practicing on Shifting Sands." In *Archives and

Recordkeeping: Theory into Practice*, edited by Caroline Brown, 31–61. London: Facet

Publishing, 2014.

Gilliland-Swetland, Anne J. "Enduring Paradigm, New Opportunities: The Value of the Archival

Perspective in the Digital Environment." Washington: Council on Library and

Information Resources, 2000. https://www.clir.org/wp-content/uploads/sites/6/pub89.pdf.

Giralt, Gabriel F. "The Interchangeability of VFX and Live Action and Its Implications for

Realism." *Journal of Film and Video* 69.1 (2017): 3–17. doi:

10.5406/jfilmvideo.69.1.0003.

Goodridge, Mike. *Directing*. Boston: Focal Press, 2002.

Gorzalski, Matt. "Examining User-Created Description in the Archival Profession." *Journal of

Archival Organization* 11.1-2 (2013): 1-22. doi: 10.1080/15332748.2013.866858.

Green, Tim, Matt Hoesterey, Hannes Ricklefs, Mark Streatfield, Steve Theodore, Laurent M.

Abecassis, Ben Carter, Ben Cole, and Dave Stephens. "Introduction." In *Production Pipeline Fundamentals for Film and Games*, edited by Renee Dunlop, 1–20. Burlington, MA: Focal Press, 2014.

Green, Tim, Matt Hoesterey, Hannes Ricklefs, Mark Streatfield, Steve Theodore, Laurent M. Abecassis, Ben Carter, Martin Weaver, and Fran Zandonella. "Systems Infrastructure." In *Production Pipeline Fundamentals for Film and Games*, edited by Renee Dunlop, 125–44. Burlington, MA: Focal Press, 2014.

Greene, Mark. 2009. "The Power of Archives: Archivists' Values and Value in the Postmodern Age (with an Introduction by Dennis Meissner)." *The American Archivist* 72.1 (2009): 13–41. doi: 10.17723/aarc.72.1.k0322x0p38v44l53.

Harvey, Ross. "Appraisal and Selection." In *DCC: Digital Curation Manual*, edited by Seamus Ross and Michael Day. [Edinburgh]: Digital Curation Centre, 2007. http://www.dcc.ac.uk/sites/default/files/documents/resource/curation-manual/chapters/appraisal-and-selection/appraisal-and-selection.pdf.

Harvey, Ross, and Jaye Weatherburn. *Preserving Digital Materials*. 3rd ed. Lanham, MD: Rowman & Littlefield, 2018.

Hurley, Chris. "Parallel Provenance: (1) What, If Anything, Is Archival Description?" *Archives and Manuscripts* 33.1 (2005): 110–45.

Innocenti, Perla. "The Pursuit of Authenticity in Preserving Digital Art." In *2015 Digital Heritage International Congress*, 425–30. Granada: IEEE, 2015. doi: 10.1109/DigitalHeritage.2015.7419540.

International Council on Archives. "Who Is an Archivist?" Accessed April 5, 2018. https://www.ica.org/en/discover-archives-and-our-profession.

Jean Chung, Hye. "Global Visual Effects Pipelines: An Interview with Hannes Ricklefs." *Media*

     Fields Journal, no. 2 (2011): 1–9. http://www.mediafieldsjournal.org/global-visual-

     effects/2011/2/28/global-visual-effects-pipelines-an-interview-with-hannes-ric.html.

Jean Chung, Hye. "Media Heterotopia and Transnational Filmmaking: Mapping Real and Virtual

     Worlds." *Cinema Journal* 51.4 (2012): 87–109. doi: 10.1353/cj.2012.0071.

Ketelaar, Eric. "Tacit Narratives: The Meanings of Archives." *Archival Science* 1.2 (2001): 131-

     41. doi: 10.1007/BF02435644.

Lang, Brent. "'This Is the End,' 'Now You See Me' VFX Firm Closes Doors, 100 People Laid

     Off." *The Wrap*. August 4, 2014. https://www.thewrap.com/modus-fx-closes- doors-100-

     people-laid/.

Laurenson, Pip. "Authenticity, Change and Loss in the Conservation of Time-Based Media

     Installations." *Tate Papers*, no. 6 (Autumn 2006).

     http://www.tate.org.uk/research/publications/tate-papers/06/authenticity-change-and-loss-

     conservation-of-time-based-media-installations.

Luckow, Randal, and James M. Turner. "All Singing, All Talking, All Digital: Media Windows

     and Archiving Practice in the Motion Picture Studios." *Archivaria* 65.1 (2008): 165-86.

     http://archivaria.ca/index.php/archivaria/article/view/13174/14416.

Matters in Media Art. "About Matters in Media Art." Matters in Media Art. Accessed April 5,

     2018. http://mattersinmediaart.org/about.html.

McClean, Shilo T. *Digital Storytelling: The Narrative Power of Visual Effects in Film*.

     Cambridge, MA: MIT Press, 2014.

McDonough, Jerome, and Robert Olendorf. "Saving Second Life: Issues in Archiving a

     Complex, Multi-User Virtual World." *International Journal of Digital Curation* 6.2

(2011): 89-108. doi: 10.2218/ijdc.v6i2.192.

McKemmish, Sue. "Traces: Document, Record, Archive, Archives." In *Archives: Recordkeeping in Society*, edited by Sue McKemmish, Michael Piggott, Barbara Reed, and Frank Upward, 1–20. Wagga Wagga: Centre for Information Studies, Charles Sturt University, 2005.

Millar, Laura. "On the Crest of a Wave: Transforming the Archival Future." *Archives and Manuscripts* 45.2 (2017): 59-76. doi: 10.1080/01576895.2017.1328696.

Muller, Lizzie, and Caitlin Jones. "Between Real and Ideal: Documenting Media Art." *Leonardo* 41.4 (2008): 418-19. http://muse.jhu.edu/article/243523.

Niu, Jinfang. "Appraisal and Selection for Digital Curation." *International Journal of Digital Curation* 9.2 (2014): 65–82. doi: 10.2218/ijdc.v9i2.272.

Peacock, Richard Beck. *The Art of Moviemaking: Script to Screen*. Upper Saddle River: Prentice Hall, 2001.

Pearce-Moses, Richard. *A Glossary of Archival and Records Terminology*. Chicago: Society of American Archivists, 2005.

Power, Pat. 2009. "Animated Expressions: Expressive Style in 3D Computer Graphic Narrative Animation." *Animation* 4.2 (2009): 107-29. doi: 10.1177/1746847709104643.

Rüling, Charles-Clemens, and Raffi Duymedjian. "Digital Bricolage: Resources and Coordination in the Production of Digital Visual Effects." *Technological Forecasting and Social Change* 83 (2014): 98-110. doi: 10.1016/j.techfore.2013.05.003.

Swift, Brendan. 2010. "Inside Word: The Art of Story-Telling." *Inside Film*. July 2010. https://search.informit.com.au/documentSummary;dn=184635093811524;res=IELAPA.

Turner, James M, Marta Braun, Mary Ide, Randal Luckow, Michael Murhph, Isabella Oreice,

and Andrew Rodger. "Case Study 09(3) Final Report: Digital Moving Images –

Commercial Film Studio." InterPARES 2 Project, September 2007.

http://interpares.org/display_file.cfm?doc=ip2_cs09-3_final_report.pdf.

Visual Effects Society. *The State of the Global Visual Effects Industry 2013: An Analysis of*

Current Business Models and Better Business Practices. Sherman Oaks, CA: Visual

Effects Society, 2013. https://www.visualeffectssociety.com/download/file/fid/10911.

Williams, Ruth. "Once upon a Time … The Role of Visual Effects Design in Storytelling."

Metro Magazine, no. 138 (2003): 155-58.