

Artwork Documentation Report for Steina's *Violin Power*

Case Study Research conducted by LI-MA as part of the preparation for the exhibition on the Digital Canon¹ to be held in 2023. The *Violin Power* performance (1991-present) courtesy of the artist, the video *Violin Power* (1970-1978) distributed by LIMA and in the collections a.o SFMoMA, MoMA, ZKM, SAAM²



Image 1-4: (from left to right, top to bottom) Still from *Violin Power* (1970-1978 video), photograph of Steina performing at the Center for Contemporary Arts Santa Fe in the 1990s, still from the *Midi-Violin Demo* (2000), and lastly a photograph from Steina's performance of *Violin Power* at the Kwangju Biennale in 1995³

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¹ <https://www.digitalcanon.nl/#list>

² Other collections that own the video include but are not limited to: SFMoMA, MoMA, ZKM, SAAM, BERG Contemporary as well as the Steina and Woody Vasulka Foundation

³ Courtesy of Vasulka Kitchen Brno, Czech Republic; The Reporter, 1999, "The Love Chip," Press Release, May 22nd 1999. Courtesy of the Vasulka Archive; Courtesy of Jean Marie Dallet; and Courtesy of Stephen Vitiello

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Introduction

This research has been conducted in preparation for the upcoming Digital Canon exhibition in collaboration with Het Nieuwe Instituut which is scheduled for the end of 2023 / beginning of 2024. The Digital Canon, which Steina Vasulka's *Violin Power* is a part of, is the result of a research project initiated by LIMA in 2017 that aimed to generate recognition of important digital works of art created or improved on Dutch soil (Huisman 2020, 102). Although *Violin Power*, both as a video and performance, began in the United States it had a large influence on Dutch digital culture. Further, significant changes were made to the appearance of the performance during Steina's term as artistic co-director at STEIM: Studio for Electro-Instrumental Music (STEIM) where in collaboration with Tom Demeyer the Image/ine software (1997) was developed and used (Demeyer, n.d.).

Thus in collaboration with STEIM this three month research project has attempted to retrace the technical timeline, and conceptual evolution of this pioneering artwork while exploring the possibilities of how to present it in the future. To do this, the following conservation research questions have guided archival research conducted in the Vasulka online archive, Langlois Foundation, LIMA (formerly MonteVideo/TBA/Netherlands Media Art Institute), Ars Electronica, STEIM, and Zentrum für Kunst und Medien Karlsruhe (ZKM). The following exploration has also included the personal archives and remembrances of the following individuals: Jean Marie Dallet, Joan La Barbara, Morton Subotnick, Stephen Vitiello, Andrew Deutsch, Joey Heinen and Tom Demeyer without whose input this degree of insight into the artwork would not have been possible. This research culminated in an expert's roundtable, the reflection and input from which have informed the contents of this paper (see Appendix). The results of this research will inform preservation strategies for *Violin Power* and inform proposals for the work's exhibition in 2023/2024.

Conservation research question:

What is the work according to the artist?

What is the hardware, software, components and conservation strategy?

What was the state of the art in technology at the time?

What is the concept, functionality and aesthetics of the (interaction and) technology used?

How can interaction and / or synchronization be mapped and the technology and experience preserved?

How can the artwork be exhibited / used in the future?

What does it take to use / exhibit the work in the future?

Description / identity report

Brief description of the work

The video work *Violin Power* (1970-1978) shows the interaction between Steina's training as a violinist and her career as a video artist, highlighting the, "...relationship between image and musical structure" (Hill 2013). In the work the violin gradually changes from a musical instrument to a video editing interface able to generate and manipulate images in real time. In the 1990s, Steina continued to explore this dynamic, by taking the work out of the studio and investigating it in the form of a live performance. In this way, between 1991 and 2014, Steina performed *Violin Power* at various festivals, institutions and galleries under this title and others.

Over the years, the work underwent a series of technical changes and upgrades, beginning with a set-up that used an acoustic violin and a variable video tape player, to the MIDI violin and Pioneer laserdisc player featured in the performances of the 90s and onwards. The technical set-up of the 90s allowed random access to video content, as well as a wider range of permutations. Yet, from then on software was required to interpret the MIDI-signal from the violin. One of the more notable softwares used for this purpose was Image/Ine developed while Steina was artistic co-director and software collaborator at STEIM in 1996 (Demeyer, n.d.). The minimum technical requirements needed to run the Image/Ine software included the use of a Macintosh PowerPC; of which Steina kept multiple on hand with the first version of the Image/Ine software in the late 90s early 2000s.⁴

The last performances that this research has found, from the late 2000s and early 2010s, again sees a technical shift away from the Macintosh PowerPC and instead two laptops can be noted in the last performance known to this research, *Strange Music for Nam June Paik: Violin Power* (2013). At the end of the performance she credits Tom Demeyer once more for the Image/Ine software making it clear that she is still using it but besides these mentioned features little more could be deduced concerning the technical set-up of these later performances (Smithsonian American Art Museum 2013).

Considering this, the history of the work as a recurring *leitmotif* in Steina's oeuvre and its technical evolution throughout the decades, renders it a highly complex work to grasp. The fixed state of the video version from 1978 and the ever-changing performance of the work starting in 1991, creates a dichotomy as to what the work *Violin Power* entails and how it is to be exhibited going forward.

Biographical context

Steina was born January 20th, 1940 in Reykjavik, Iceland where she developed a love for art through studying violin, harmony and music theory from an early age. In 1959, she received a scholarship from the Czechoslovakian Ministry of Culture to study violin at the Prague conservatory. It was in Prague that she met Woody Vasulka who would become her partner

⁴ Tom Demeyer (former software developer at STEIM) in discussion with the authors and Hannah Bosma, 29 June 2021.

as well as frequent collaborator; they were married in 1964. Only a year after, the Vasulkas moved to New York City (Vasulka 1978, 1-2).

At the beginning of their time in New York city Steina made money working as a freelance musician and Woody as a film-maker and editor. It was through Woody's film contacts that the Vasulkas first came across video in 1969 (Vasulka 2008, 472). New York at that moment was a hotbed of activity in the media arts encouraged by funding from the New York State Council of the Arts as well as by the burgeoning Experimental Television Center (1971) and the Department of Media Study at the State University of New York Buffalo (1973) (Experimental Television Center, n.d.). The Vasulkas latched on to this and began recording New York City's underground activities with a SONY Portapak camera. Subsequent crowded viewing sessions in the Vasulkas' loft brought forth the need for a space for artistic experimentation instigating the co-founding of the Kitchen (1971) (The Kitchen 2021).

This beginning to the Vasulkas' experimentation with the SONY Portapak and early live video editing equipment like the Rutt-Etra (acquired 1974) paved the way for the *Violin Power* video (Furlong 1983) (see The Video *Violin Power* (1970-1978) Section). A project that continued as the Vasulkas made the move to Buffalo in 1973 to teach at the Department of Media Study part of the State University of New York Buffalo (Buckley 2017). During their time in Buffalo they acquired a DEC LSI-11 minicomputer which Jeffrey Schier, design engineer for the Vasulkas at the time, helped them interface with other analog video editing tools (Dreher 2012). This exploration into early computers continued after the completion of the *Violin Power* tape and the end of Steina's term teaching in Buffalo, when the Vasulkas moved to Santa Fe, New Mexico (Vasulka and Weibel 2008, 529).

In 1991, Steina bought the ZETA MIDI-violin and Pioneer Laserdisc player that would herald the reinvention of *Violin Power* as an interactive performance (see the *Violin Power* as a Performance Section) (Hill 2013). The first performance of *Violin Power* was given likewise in 1991 at the Center for Contemporary Arts Santa Fe. Following this she gave numerous performances of *Violin Power* under this title and others, depending on the occasion and collaborators. In 1997, she served as artistic co-director at STEIM where in collaboration with software engineer Tom Demeyer the Image/ine software, that would subsequently change the face of the *Violin Power* performance, was created (Demeyer, n.d.). Lastly in 2013, she gave the final performance known to date, concerning this research, titled *Strange Music for Nam June Paik: Violin Power* at the Smithsonian Museum of American Art in DC in which the Macintosh PowerPC seen in her performance at STEIM's "Touch Symposium" in 1998 was replaced by two laptops (see the *Violin Power* as a Performance Section) (Smithsonian American Art Museum 2013).

State of the art

As mentioned in the brief description of the artwork, the video *Violin Power* (1970-1978) is a compilation from several experiments that Steina did during the 1970s. This video artwork was presented countless times over the last five decades. Additionally, it was acquired by several art collections and is in distribution through Berg Contemporary's Gallery, Electronic Arts Intermix and LIMA.

Starting in 1991 the artwork was performed over fifteen times in various institutions all over the world. In order to retrace the chronology of these numerous iterations, a thorough archival research was necessary. During the scope of the present research, dozens of archives were contacted in hopes of finding relevant information regarding the history of *Violin Power* as a performance piece. In addition to establishing the chronology of the artwork's evolution, the goal of this research was to put together a technological timeline. The findings of this research will serve as the basis for the formulation of questions to Steina Vasulka, in a later step of this project.

Consultation of the archives at LIMA (formerly MonteVideo/TBA/Netherlands Media Art Institute) and the Vasulka.org online archive provided precious insight. That was further complimented by the documents archived at STEIM and the Daniel Langlois Foundation (held at the Cinémathèque Québécoise). Once a list of *Violin Power* performances and host institutions was put together, the archives of these institutions were contacted. This was done in order to get as much information as possible on the chronology and evolution of the work.

Besides the archives mentioned above, the following institutions and/or experts were successfully contacted during the course of this project:

- Ars Electronica
- ZKM
- V2 Rotterdam
- Santa Fe Center for Contemporary Arts
- Kwangju Biennale
- Smithsonian American Art Museum
- Morton Subotnick (about the Teleconcert, 1994)
- Vasulka Kitchen, Vasulka Chamber, Vasulka Foundation, BERG
- Jean Marie Dallet (Sliders_Lab VIM: Vasulka Interactive Multimedia)

The consulted documents varied from written forms, correspondence, hand drawn sketches, technical mappings, photographs or at times even video documentation. A complete overview of the gathered archival sources can be found in the attachment of this document. The spreadsheet compiles all the consulted documents and organizes them by date, topic and links them to the relevant iteration. It further includes comments and questions about the content of the documents.

Art technological description

The technical evolution of *Violin Power* can be classified into two main eras. The first one starts in the early 1970s with the exploration of multiple analog video tools and live closed loop video circuits. During this period, the audio signal captured from a standard violin (analog) is used to modify the video signal in various ways.

The second period in this classification started in 1991, with the acquisition of a MIDI violin and a Laserdisc player. This second era is characterized by the use of digital equipment and the real time modification of pre-recorded video footage. On

Both periods share the concepts of real time manipulation of video images through the use of a musical instrument as an editing tool, but differ in the technology, accompanying the evolution of the creation of audio and video tools, as well as new possibilities and conveniences brought by the use of computers and software.

The Violin Power video from 1978 clearly reflects the evolution of analog video tools. The video sequencer created by George Brown in 1972 makes it possible to alternate between several video sources, as seen in the first effect applied in the video, where 2 cameras alternate based on the violin audio signal.

A Keyer, such as Brown's Multi-Level Keyer, developed in 1973, would enable the next segment, where 2 cameras installed on opposite sides from Steina overlap each other under the effect of the violin signal.

In 1974, the Vasulkas acquired a Rutt-Etra scan processor. The flexibility and versatility of this iconic tool opened the door to a big range of creative applications. The following 2 scenes of the Violin Power (1978) video show examples of different configurations of the Rutt Etra scan processor to create different video displacement effects.

The inclusion of a Laserdisc player into Violin Power performances allowed Steina to directly access any frame in the discs and control the direction and velocity of the video reproduction through the Pioneer LD-V8000 serial interface. The software written by Russ Gritzko and further developed by Bill Heckel allows the interface between the ZETA VC-225 midi controller and the laserdisc player. This setup has been used by Steina in several performances since 1991.

Image/ine (1997)

The collaboration with Tom Demeyer in the creation of the Image/ine software around 1997, further encouraged Steina to experiment in real time video processing within the digital realm, using MIDI as control protocol and her Zeta midi violin as an interface.

Image/ine works in real time, meaning there is no compression slowdown or compiling time. The strength of Image/ine lies in the ability to integrate some of the basic techniques Steina was commonly using, such as keying, temporal manipulation and image displacement. The ability to control these functions with Midi makes the software very powerful for performance applications.

The minimum system requirements to run Image/ine are:

- Macintosh PowerPC with a minimum 120MHz running on System 7.1 or higher and a minimum 32MB of RAM.
- color monitor
- Apple QuickTime system extension software version 2.5 or higher

The maximum video resolution based on the technology available at that time, was 320 x 240 pixels at 10 FPS (on a Macintosh 8600). This video quality is much lower than the Laserdisc output, making it not a suitable replacement for performances, in cases where a higher video quality was required.

Evolution of the work

The following sections will discuss the evolution of *Violin Power* from the video which began in 1970 and ran to 1978 to the performance which began in 1991. In the video section the *Violin Power* (1970-1978) tape in the collection of LIMA will be broken down in great detail with attention to the technical equipment that informs each segment. This will be followed by an analysis of the different versions of the *Violin Power* tape based on information available during the time of this research. This section will then conclude with a brief overview of related works such as the *Midi-Violin Demo* tape, composed of a compilation of Steina's *Violin Power* performances. Lastly, the performance section will give a description and in depth study of the characteristics of five key performances by Steina from between 1995 and 2013.

The Video *Violin Power* (1970-1978)

The black and white video *Violin Power* (1970-1978) is composed of segments filmed between 1970 and 1978 and exists in numerous different versions, of which the ten minute and seven second video in the collection of LIMA will be discussed in great detail here. The *Violin Power* (1970-1978) video begins with Steina Vasulka's experimentation with the first camera owned by the Vasulkas, a SONY Portapak. At the time she was working as a freelance violinist in New York City and as she describes in the later publication *Buffalo Heads: Media Study, Media Practice, Media Pioneers*, "I did not mean the first segment of *Violin Power* to be so serious. I had just discovered Video and, same as everybody, wanted to see what I looked like." (Vasulka 2008, 521) In this first investigation, she gives a formal rendition of "Gypsy Tune" by Pablo Saraste. Behind her a black and white door or wall gives the appearance of an intimate environment juxtaposing the solemn nature of her performance.



Image 5: Still from the first part of the *Violin Power* (1970-1978) tape in which Steina plays "Gypsy Tune" by Pablo Saraste

This introduction to the work lasts one minute before abruptly giving way, with no transition, to the next excerpt filmed a couple months later consisting of Steina playing along to the Beatles' "Let it Be." (Vasulka 2008, 521) In the clip she dances as she plays in front of a

white background until the singing begins. At which point, Steina puts down her violin and begins to lip sync to the lyrics while moving closer to the camera. The camera angle then changes to a close up of Steina's mouth toothily mouthing along to the song. This minute and a half excerpt from *Violin Power* has also been shown as an extended four minute version exhibited as a work in its own right. Including notably, in 1972 at the Women's Video Festival held at the Kitchen organized by Steina, Susan Milano and Shridhar Bapat (Hill 2008, 485). It is still distributed by Video Data Bank in Chicago and as a sketch by Electronic Arts Intermix, New York (Video Data Bank, n.d.). Displaying the hazy line between what is and is not *Violin Power* which will be discussed further in the section: *Violin Power* as a performance.

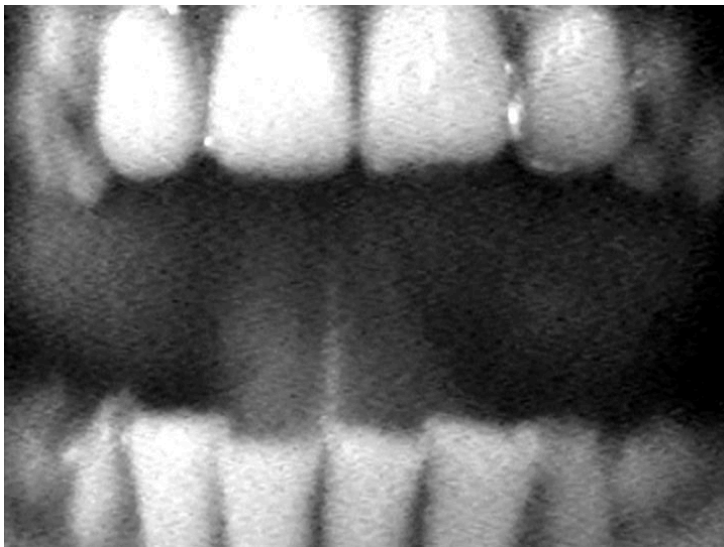


Image 6-Still from *Let it Be*

As the video abruptly changes to the next segment a few years pass by and Steina moves to Buffalo with Woody to teach at the Center for Media Study at the State University of New York (SUNY) at Buffalo. In the Fall and Winter of 1975 to 1976 she begins creating situations of observations in which a camera observe space, each other, and monitors are either observed, display these observations or do both. This method of working created an opening to experiment with the effect of the violin sound on the distortion of the video using contemporary real-time video editing software (Vasulka 2008, 521). Resulting in the next excerpt showing Steina upright against a dark background, her playing instigating a flickering dual image.

Already, in 1972 she had begun experimenting with closed loop audio/video circuits in her observations so it was no stretch to recreate this system in 1976 using two cameras and a video switcher. The video switcher may have been the then contemporary George Brown Programmable Video Sequencer (1972) but this cannot be said for certain (Furlong 1983). Which audio synthesizer was used is even more difficult to say but it would have interpreted the analog audio signal from Steina's violin and fed it into the video switcher queuing the switching back and forth between cameras. Resulting in the flickering dual appearance of this forty-five second segment of the tape.



Image 7- Still from *Violin Power* demonstrating Steina's implementation of early real-time video editing software

Then after another abrupt change we see first Steina back to the camera holding a violin, a monitor and a tripod with a camera in front of her. She is in what looks like a home environment with a desk and chair off to the left scattered with papers. Then back still to the camera she begins to play, triggering a switching between the camera visible in front of her in the first shot and the one behind her. Creating an ultimately transposed result where both camera outputs lie one on top of the other as interference moves in black bands down the image.

In 1973, George Brown followed his earlier Programmable Video Sequencer with the Multi-Level Keyer (Bonin 2004). Like the last clip discussed here this one uses a two camera set up but instead of using only a video switcher it likely also uses the Multi-Level Keyer to switch between sources. A video switcher would have still been needed to queue the Multi-Level Keyer when to switch between sources based on the audio input from Steina's violin. The result from the one and a half minute clip of which can be seen below (see Image 8).



Image 8-Still from *Violin Power* displaying the layered effect of the input of the two cameras

Abruptly the angle then changes to a close up of Steina's violin, the neck of the violin angled toward the lower right hand corner of the screen, and her bow moving almost parallel to the left. As she plays the bow becomes a barely legible squiggle, coming back into focus in the silent moments between strokes. This scene lasts for fifteen seconds before the angle changes once more to the violin lying almost parallel along the bottom of the screen. Again the sound of the violin causes the bow to become a squiggle that forms figure eights yet in this clip as she plays the effect becomes more and more abstracted. Finally, spreading to the edges and causing a rippling of the overall image. This continues for a minute and ten seconds until the angle changes. Now, Steina is facing the camera with her violin foreshortened and the bow moving horizontally across the screen. Her playing in this segment causes the image to become distorted in a slightly different way causing a more kaleidoscopic result and making the image bisect. The squiggling effect of the bow returns in the final part before breaking apart once more. This section lasts forty seconds before the screen goes black forming the only real transition in the tape before Steina moves into the frame. Unlike the prior segments here when she plays, the image is broken into horizontal lines through which the forms of her hand and the bow are visible moving for the duration of a minute.

The Rutt-Etra Scan Processor had been introduced by Steve Rutt and Bill Etra in 1970 but it wasn't until 1974 that a Rutt-Etra Scan Processor entered the Vasulkas equipment pool (Furlong 1983). Thus from 1975 to 1976 when Steina was experimenting with letting the sound of the violin determine the distortion of the video it is not a surprise that these experiments would also include the use of horizontal displacement, possibly using the Rutt-Etra Scan Processor. This can be seen in the effects on the video in this section including the squiggling of the bow, rippling of the image, kaleidoscopic and horizontal breaking down of the image (see Images 9-10). Here a frequency shifter likely reads the analog signal from the violin and inputs it into the Rutt-Etra Scan processor along with input from the two cameras. The Rutt-Etra Scan Processor, created by Steve Rutt and Bill Etra, opened the door to many new creative applications in video art from the 70s.

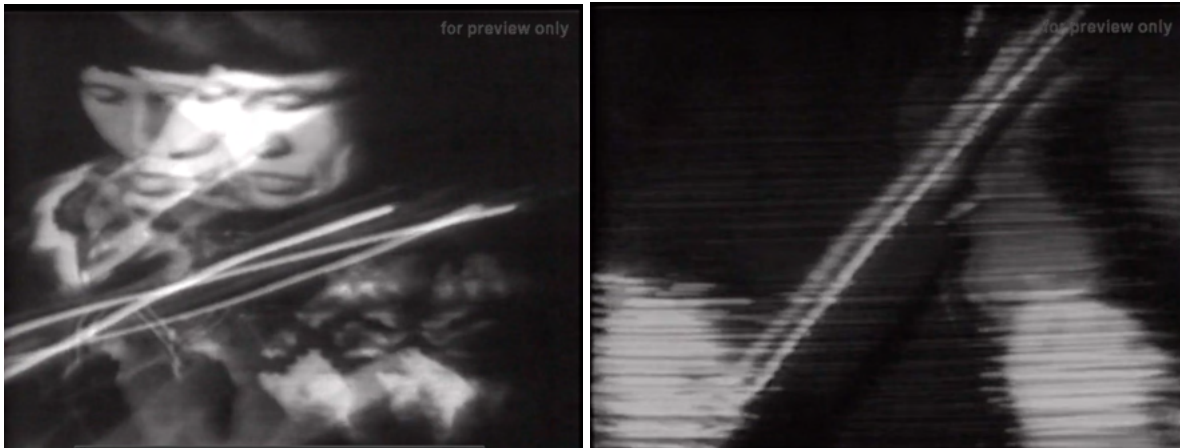


Image 9-10 - Stills from *Violin Power* demonstrating some of the possibilities of the Rutt-Etra Scan Processor

The tape then changes abruptly to horizontal squiggling lines moving across the screen like a topographical map with the sound causing steeper peaks and an increased brightness. With the absence of sound lines fade into the black background causing an overall flickering effect as lines increase in brightness and then fade sporadically. This segment continues for two minutes and twenty seconds before abruptly segwaying to the final excerpt.

This section again likely uses the Rutt-Etra Scan Processor but in a very different way. In this case, instead the intensity of the video itself is being used to pull the raster lines up creating this effect that was quite iconic in the Vasulkas' combined oeuvre. The sound from an analog violin is being read by a synth that queues, again, the Rutt-Etra Scan Processor to adjust the brightness and steepness of the lines fed by two camera sources (Bonin 2004). The result, while now it appears quite simple at the time, was a large leap that moved from the figurative to pushing the very materiality of video.

The last segment draws the video *Violin Power* (1970-1978) to a close with a final performance by Steina where she plays Johann Sebastian Bach (Vasulka 2008, 521). To do this it starts by showing what is most likely a Rutt-Etra Scan Processor before the camera rapidly zooms out while panning to the left. This continues until the focus lands on Steina playing at what looks like to be a bar, behind her on a monitor a feedback loop can be seen. The camera then zooms in on her face and drifts up so that Steina's face ends up in the bottom right corner of the screen. The focus hovers there as the camera zooms in and out until finally wandering lower till only her chest and the chin rest of her violin are on the screen. The focus remains there until the end of the performance when it zooms out to show Steina seated on a stool behind a microphone with a monitor to her left. At which point she chuckles and exclaims "Cet moi!" while a man's voice (probably Woody's) off screen laughs in kind and answers, "Alright." It ends with both laughing together exuberantly at a total of ten minutes and seven seconds.



Image 10-11 - Stills from the last section show first the Rutt-Etra Scan Processor and second Steina playing the violin producing a feedback loop on the monitor right behind her

Violin Power (1970-1978) the video has been acquired by several institutions, and is in distribution by Berg Contemporary's Gallery, LIMA, and Electronic Arts Intermix. Between both the *Violin Power* tapes in collection and distribution various discrepancies can be seen. Lucinda Furlong illustrates these difference when she states, "But in her work, Steina is also "playing around" in the sense of tinkering with electronic and mechanical gadgets--setting them up, seeing what they can do, and then structuring the resulting tapes much like a piece of music, with a theme and several variations." (Furlong, n.d.) Highlighting that part of Steina's playing with the medium is creating different versions of which indicators such as dating and duration indicate.

Part of this research included making a timeline for the development of the video as well as collecting a sampling of institutions who confirm that the video is in their collections. From these institutions, Berg Contemporary puts the dates for the video from 1969 to 1978 and ZKM gives a different duration at nine minutes and forty-six minutes compared to the ten minutes and seven seconds of the version in LIMAs collection, which has been described in detail here. Even between distributors the version in distribution varies slightly for example Electronic Arts Intermix gives a longer duration but still shy of LIMA's version at ten minutes and four seconds (Electronic Arts Intermix, n.d.). It was not possible to further investigate these discrepancies during this research but the deviations between versions should be investigated in greater detail in the future by comparing the tapes against one another.

Lastly, in the tape section it is important to note related tapes that correspond to and have been presented in combination with the *Violin Power* performance and video. Most prominent among these is the *Midi-Violin Demo* (2000) which although it has not been acquired has been presented as a work in its own right, most notably at the "Media Study, Media Practice, Media Pioneers 1973-1990: Buffalo Heads" exhibition at ZKM in 2006. The *Midi-Violin Demo* is composed of a curated selection of performances of *Violin Power* and related works by Steina including notably her performance at STEIM in 1998 as well as *Steina Exercises the Maiden* from the same year. Many different versions of it exist created for different purposes from application materials to demonstration tools. They can vary in title, duration, and selection of performances. One such version found at LIMA is titled *Violin Power II: A MIDI-Violin and Laserdisc Player Performance* (1993) and contains an earlier selection of performances undesignated and not featured on the later *Midi-Violin Demo*.

These tapes not only provide important insight into the following performance section but also form as artworks in their own right.

Violin Power as a Performance

Following the *Violin Power* (1970-1978) tape exists a period of inactivity as concerns *Violin Power* where Steina was producing other work such as *Machine Vision* (1978), *The West* (1983), *Geomania* (1987) and *Ptolemy* (1990). She was also experimenting with early computers and works such as *The West* made use of laserdiscs and a video matrix. The use of laserdisc players and the concept of real-time analog video loops was seen quite extensively in these interim works (Vasulka and Pelikan, n.d.). Elements which would be revisited in her *Violin Power* performance.

In 1991 Steina purchased the ZETA VC-225 violin with Musical Instrument Digital interface (MIDI) (Hill 2013). Before this Steina was experimenting with interfacing her acoustic violin with a variable speed cassette player but the technological development of MIDI in 1983 offered a jump from analog to digital (see The Video *Violin Power* Section) (Malkowski 2017). In the same year she also made the purchase of the Pioneer Laserdisc player and together these technical elements became the mainstays of the early *Violin Power* performance, which saw its first appearance in the same year at the Center for Contemporary Arts Santa Fe (see Appendix-Iteration Overview).

Of the characteristics of this very first performance little is known but manifestations contemporary to it, such as *Violin Power* (1995) performed at the Kwangju Biennale, paint a picture of some of the key elements seen in *Violin Power* performances from that time. These characteristics will be discussed further in the following subsections as five performances from between 1995 and 2013, the last known to this research, are summarily described. The performances discussed here will include: the aforementioned *Violin Power* (1995) performed at the Kwangju Biennale; *Violin Opera for Paik* (1996) performed at VideoBrasil; *The Maiden* and *Violin Power* (1998) performed at the NTT Intercommunications Center in Tokyo; *Violin Power* (1998) performed at STEIM in Amsterdam; and lastly *Strange Music for Nam June Paik: Violin Power* (2013) performed at the Smithsonian American Art Museum in DC. These performances have been chosen based on the presence of documentation that shows the performance in its entirety. Fragments of other performances such as *Hyena Days* (1992) performed at Ars Electronica in Linz, Austria, where only a two minute and 9 second segment was found during the scope of this research, and *Hyena Days* (1992) performed at V2_, which V2_ only had on record as an audio recording, were not seen as being entirely representative. Therefore, they are not included here.

Violin Power (1995) performed at Kwangju Biennale, South Korea

During a visit to the Vasulka's Santa Fe home in the early 90s Nam June Paik saw Steina experimenting with the *Violin Power* performance. In a follow up letter he asks if Steina would be willing to present the work in Korea and urges her to contact Cynthia Goodman co-director of the '95 Kwangju Biennale (Paik, n.d.). After a series of letters Steina finally performed *Violin Power* on June 22nd 1995. This performance was recorded on a Hi8 camera by Stephen Vitiello, sound artist and collaborator, who has kindly shared a digitized version for the purpose of this research.

Steina begins the performance playing on a darkened stage with a blank screen behind her, displaying a traditional musicality little seen in later performances. She plays what could be a loose improvisation on Pablo Saraste's "Gypsy Tune" that takes on a duality at moments that could suggest the accompaniment of a pre-recorded track. The music pauses and there is a moment of silence as the screen remains blank then a harsh electronic sound breaks over repeating, "Surround sounds." This disruption heralds the beginning of Steina's manipulation of the video as the screen is suddenly illuminated with a segment from the Vasulkas' *Pariah* (1984).

The following performance features segments from not only *Pariah*, but also the *Violin Power* (1970-1978) tape, *Art of Memory* (1987), footage from Saburo Teshigawara's dance team, imagery of trees swaying in the wind, black smoke and bubbling lava. As she plays she sporadically jumps between different pieces before settling into the in depth manipulation and experimentation of the work at hand. In the process creating repeating themes throughout the performance. Further, as she begins to alter the video and shape the performance the musicality in a traditional sense is reduced. Instead there is a more experimental approach to music where the orchestration of the video is used to create rhythm in repetition or interesting moments of improvised harmony. For example, short strokes of the bow are often used for direct commands. Yet, as she returns to the segment of the *Violin Power* (1970-1978) tape, where she is playing Pablo Saraste's "Gypsy Tune," she lengthens her bow strokes so that she is harmonizing in a lower tone, even as she repeats sections, fast forwards and slows down the tape.

In repetition there is an isolation of moments of interest: a dive in the dance of Saburo Teshigawara dance team, Tim Thompson in *Pariah* saying "no, never," and a jump as Saburo Teshigawara dances on glass that makes a resounding clash. Repeated over and over again these moments make a kind of rhythm accentuated by Steina's violin playing. Then just as quickly disrupted by a rapid succession of images called up in short jerky rapid strokes of the bow. The performance ends with Steina controlling a video showing black smoke by making it run backwards and forwards with long funereal strokes. Then with one sharp short note she skips to a short clip of Daniel Nagin's face from Woody's *The Art of Memory* before the screen goes dark. The work ends at a short, for later performances, 12.00 minutes.

Although Steina often changed the material used in her performances to suit the event. The Vasulkas' *Pariah* and the *Violin Power* (1970-1978) tape were favorites that almost always were featured and are present in all of the performances described here. In fact, the use of *Pariah* took on an even more symbolic role in Steina's performance of *The Maiden* (see the Section on the *Violin Power* and *The Maiden*). Further the choice of material in Steina's early performances shows a preference for works created by the Vasulkas such as the aforementioned *Pariah*, *Art of Memory*, and of course the *Violin Power* (1970-1978) tape. Other material included was taped by Steina and made up other works not investigated further here.

Lastly it's important to note some characteristics evident here that would continue into later performances. One such characteristic related to the audience experience of the work was a prominent distortion of sound whenever Steina slowed the video. This sound is was seen to be present in all performances described here and highlights the use of sound from the

video that can be drowned out at moments by Steina's playing. Another characteristic that is displayed here that alternatively stays true in later manifestations is the element of a dramatic performative conclusion. Showing a reiteration of a vocabulary of showman style movements that link musical performance and art.

Violin Opera for Paik (1996) performed at VideoBrasil, Brazil

In 1996, Steina participated in the 11th Festival of VideoBrasil titled, "Awaiting the 22nd Century: A Virtual Presence in VideoBrasil 96" where along with Stephen Vitiello she presented a tribute to Nam June Paik (Associação Cultural Videobrasil, n.d.). Like many of Steina's performances created in collaboration or presented for a special occasion it was renamed, this time to *Violin Opera for Paik*. Yet unlike other performances presented in collaboration like *Hyena Days*, which Steina performed with Michael Saup, here Vitiello plays first and then Steina. They do not perform together. They also do not use the same material but instead interact with other parts of Nam June Paik's oeuvre.

Vitiello's performance begins with him sitting cross-legged, vocalizing into a microphone as behind him on the screen a recording of Vitiello performs a Nam June Paik *Piano Piece*. At the 3 minute mark this recording is overlaid with video from Nam June Paik's performance in the Ramsbott home and Vitiello gets up and moves to the xylophone. The video flickers back and forth between the earlier recording overlaying it and then one or the other coming into focus as Vitiello plays a soft repetitive melody on the xylophone. His playing appears not to manipulate the video but instead to compliment it.

At the 8 minute mark Vitiello begins the second part of his performance where he is playing the hammered dulcimer. While he is playing a man behind the instrument films it, zooming in on the strings, the footage of which is relayed on the screen. Where it alternates with footage of Nam June Paik performing a *Piano Piece*. The two overlay each other as with the earlier performance at times seeming to merge together. Towards the end of the performance a recording of Nam June Paik speaking in Korean begins to come on intermittently. Vitiello's part ends with a snowed out screen as he slowly puts down his mallets.

Steina's performance begins 15 and a half minutes in with two quiet plucks of a violin string that call up a still of Nam June Paik laughing and then prompt it to play. As the performance continues many of the characteristics displayed can be seen to coincide with those described of the one given at the Kwangju Biennale. As with the Kwangju Biennale performance there is an electronic sound that heralds the beginning of Steina's manipulation of the video, in this case one reminiscent of something being rewound that correlates with the recording of Nam June Paik playing backwards. This is broken up with a quick succession of familiar images from the prior performance: trees, a part of *Pariah*, and bubbling lava. Again Steina seems to look for moments of musical serendipity as when she plays with the *Violin Power* (1970-1978) tape once more and when past Steina plucks a string in her playing of "Gypsy Tune" Steina performatively plucks a screen and rewinds. Repeating and chorusing the pluck so it becomes a repetitive theme.

This repetition repeats in her return to favorite moments from past performances such as the diving to the ground of Saburo Teshigawara's dance team which she speeds up as she repeats it then slows it down in sheer exaggeration. Not only this but all of the material used

in the Kwangju Biennale performance is manipulated and reworked again here with the addition of the recording of Nam June Paik laughing. This recording Steina allows to play for longer than the other works highlighting it before jumping back to his laughter. Between which she alternates with a later moment where Paik says yes, creating a jarring rhythm. For the end of the performance she returns once more to *Pariah* experimenting with the video and looking for compositional moments such as an exasperated sound from Thompson which she draws out into one long continuous sound. The piece ends with the video of Thompson saying, "Tell me who you are" and a succession of three short bow strokes from Steina at 20 minutes and 24 seconds. A less dramatic ending than the Kwangju Biennale performance but fitting in its understatement as a performance meant to highlight and honor another artist.

Violin Power and *The Maiden* (1998) performed at the NTT Intercommunications Center, Japan

In 1996, Woody was invited to present works from *The Brotherhood* at the NTT Intercommunication Center in Japan along with three new works commissioned for the Tokyo exhibition (Gogota 1996). After some postponement 6 tables were presented in Fall of 1998 these included: the preceding *Table 1-Translocations*, *Table 2-Automata*, and *Table 3-Friendly Fire* produced in the early 90s as well as the three new works *Table 4-Stealth*, *Table 5-Scribe*, and *Table 6-The Maiden*. *The Maiden* constructed from an aluminum chiropractic adjustment table is activated by sounds through a microphone which triggers a series of gestural motions of the sculpture enacted by pneumatic pistols (Carlisle 1999, 65). Large wooden fans made by Susan Hamilton are prompted by a certain pitch to close and open while video made by Steina streams across their surfaces triggered by motion sensors. Motion sensors also activate an audio recording of Gene Youngblood reading an avant-garde text written by Melody Sumner Calahan which plays on the approach of the visitor (NTT Intercommunication Center 1998).

The exhibition text describes *The Maiden* in the following way, "*The Maiden* was conceived without a mother. She knows her gender by signals from her own body, but up until this moment, when in flight, *The Brotherhood* has taken long and loving care in grooming her for this Maiden Voyage (NTT Intercommunication Center 1998)." Steina plays upon this background story in her performance of *The Maiden*, planned since the beginning of the exhibition, in which she embroiders a story of a futile courtship between Tim Thompson in *Pariah* and the table-bound Maiden. In this performance, given on July 17th 1998, she uses her MIDI-violin instead of the microphone to activate the maiden as she simultaneously manipulates the video of Tim Thompson in the background. Yet before her performance of *The Maiden* she performs *Violin Power*, both performances of which will be discussed here (NTT Intercommunication Center 1998, 189).

The recording that will be described here was shot by Aaron S. Davidson and compiled by Melissa Dubin and shows the two performances in full including a brief explanation between the two where Steina shows the functions of the MIDI violin (Davidson and Dubin, n.d.). The performance begins with Steina on a small stage separate from the platform on which *The Maiden* is displayed. Behind *The Maiden* a screen shows the video of swaying trees described in earlier performances. Steina quickly jumps from her kneeling position and plays several long ominous notes rewinding, fast forwarding and slowing the motion of the trees.

Then after this introduction she gives three short bow strokes on the violin and call ups several images in fast succession: the footage of Nam June Paik laughing seen for the first time in her performance of *Violin Opera for Paik*, the *Violin Power* (1970-1978) tape, and the bubbling lava seen in all earlier performance described here.

In this preceding performance *The Maiden* stays still as Steina manipulates the images on the screen behind her, displaying many characteristics which have already been discussed. As before there is an attention to repetition as she returns once more to the segment of the *Violin Power* (1970-1978) tape where she is playing Pablo Saraste and echoes her past self repeating the pluck again and again. Further, over these three performances an isolation and settling into favorite moments can be found. For example when Steina manipulates the *Violin Power* (1970-1978) tape there is an emphasis on her recording of herself playing Pablo Saraste and other parts of the tape are rarely touched in her performances. Many of these favorite segments include an action or a sound that by manipulation can be built up into a musical moment or at least one of interest. Often there is also an echoing of the movement on the screen, a slow moving black smoke requires long steady bow strokes while a lava bubble bursting gets a quick sharp one.

All manipulated material used here has been described for the two earlier performances except for her use of *The Land of Elevator Girls* (1989), a conscientious choice considering the venue and program. This work she also highlights by placing it at the end of her performance and just letting it run without any further manipulation for several minutes. While she stands letting the work play out she holds the bow and the violin at the ready keeping the tension in the performance. Until she heralds the end of the performance with one short dramatic stroke of her bow signaling the screen to go dark. The performance ends at 19 minutes and 17 seconds, a very similar time to that seen with *Violin Opera for Paik*.

After the performance as mentioned before there is a brief explanation given by Steina of the MIDI violin controls and then she begins her performance of *The Maiden*. Here she manipulates both *The Maiden* and the video on the screen behind it. Steina's artistic statement about the dialogue between Tim Thompson in *Pariah* and *The Maiden* lends a certain depth to the reading of this performance. As Steina begins the performance with the repeated image of Tim Thompson writhing on the floor with slow long bow strokes she triggers gentle movements from *The Maiden* in sharp contrast. At times she cuts the video and plays solely to *The Maiden* during which she plays lower and more methodically, opening and shutting the fans coquettishly. Then she resumes the video and plays both, putting the motions of the two in dialogue with one another.

Again in this performance she returns to repetition, replaying segments of the video, but this time *The Maiden* seems to echo the video repeating similar motions when triggered by the same noise. Lower notes played on the violin seem to elicit less action from *The Maiden*, whose fans are opened and closed by a certain high pitch. Higher notes make *The Maiden's* motions more erratic so that it seems to writhe helplessly. An element that Steina highlights as she replays Tim Thompson yelling, "Doctor!" while *The Maiden* squirms. At times Steina's performance feels less targeted than her performances of *Violin Power*, and immediately related works, as in this case she had to focus on the triggers of both *The Maiden* and the video.

As the performance draws to a close with a shrill vibrating note Steina makes *The Maiden's* fans flutter before closing in finality. Behind her Tim Thompson repeats "I know who I am" and then Steina lets the video play out as Tim Thompson reiterates, "I know who I am. I know who you are. Tell me who you are." Then with a quick soft stroke Steina concludes the performance in a way that harkens back to the ending of *Video Opera for Paik* where Steina finishes on the same part of *Pariah*. Steina's performance of *The Maiden* ends at 12 minutes and 27 seconds, a very similar duration to her performance of *Violin Power* at the Kwangju Biennale but impossible to compare for their many differences.

Violin Power (1998) performed at STEIM, the Netherlands

In 1996, Steina served as artistic co-director and software collaborator at STEIM. It was during this time that she collaborated with Tom Demeyer on the aforementioned Image/line software, which saw one of its earliest public previews at the Touch Symposium organized by STEIM at Frascati in Amsterdam. At this event Steina presented *Violin Power* and was joined by 5 other artists working in collaboration with STEIM who presented recent work. These artists included: Michel Waisvisz, Laetitia Sonami, Cas de Marez, Trevor Wishart, and Francis M. Utti. Their names are of especial interest to include here as earlier pre-recorded footage of all of their performances composed a large part of this manifestation of *Violin Power*. Making a noticeable break from earlier performances of *Violin Power* that, besides *Violin Opera for Paik*, exclusively used works from either Woody, Steina or both. Not only this but these works, especially Trevor Wishart's *What Sound Does a Color Make?*, would continue to make appearances in many of her performances after this. These changes in choice of material could also be seen to signify the divide between the performance before the Image/line software and after, where advancements in the technological set-up allowed a greater ease in program variation.

The recording of this performance, described here, as well as two other videos: one of an interview with Steina concerning the Touch Symposium and another of her performing *Violin Power* in 2004 with David Stout come courtesy of Hannah Bosma, PhD student at the University of Amsterdam, and Nico Bes, former studio manager at STEIM. All three videos describe and provide context for a moment where major changes were made not only in the choice of manipulated material but also in the other visual characteristics of the work. That will be described here further in the scope of the performance.

Thus on December 18th 1998, Steina took the stage for the second to last performance of the evening. Like *Violin Opera for Paik* Steina begins with a pluck of a violin string yet here it calls up an image of Laetitia Sonami's *Lady's Glove* which she manipulates in a lot of similar ways seen with earlier performances. Yet, one aspect that quickly becomes noticeable is the prominence of the video audio over Steina's own playing. In earlier performances there is an emphasis on Steina's violin playing as actively contributing to the composition yet here, especially in the beginning, Steina's playing is more often drowned out. Although when Steina turns towards the audience later in the performance the sound of her violin becomes more audible even while the audio of the video is still given precedent.

Other characteristics of the acoustics include an ongoing reverberation of the audio of the video and the sound of Steina's violin, which remains unclear as to whether it comes from the space in which the work is performed, the quality of the recording or if it is in fact an

intentional characteristic. Regardless this echoing quality is evident throughout the whole performance creating an added atmospheric dimension to the work.

For the visual characteristics as has been said before, here Steina changes the material manipulated dedicating the first part of her performance to Laetitia Sonami's *Lady's Glove*, Michel Waisvisz's *The Hands*, Trevor Wishart *What Sound Does a Color Make?*, Francis M. Utti playing the Cello, and a monologue by Cas de Marez. In the second part of her performance she returns to the defining work of the *Violin Power* performances, *Pariah*, which here appears in color. A still from the aforementioned segment of Woody's *The Art of Memory* makes a brief appearance at the end of the second segment and the *Violin Power* (1970-1978) tape is seen in the first segment but otherwise the other works described in earlier performances are absent here.

Further, the capabilities of the Image/ine software are seen in the use of never before seen live video editing effects which make appearances throughout the performance. These include layering of images, negative, automatic motion trail and relief effects. Steina seems particularly drawn to the negative effect which she uses to invert images and then layer them over each other combining effects in ways not seen in earlier performances. The performance concludes with an ending often revisited by Steina where she lets the segment of *Pariah* in which Tim Thompson says, "I know who you are. Just tell me who you are." play out before ending it with one small dramatic stroke of the violin at 27 minutes and 10 seconds. Longer than many of her earlier performances, the median for which hung around 20 minutes. This performance and its contemporaries would herald in the longer 30 minutes manifestations of the 2000s which will be investigated further with *Strange Music for Nam June Paik: Violin Power*.

Strange Music for Nam June Paik: Violin Power (2013) performed at the Smithsonian American Art Museum, the United States of America

On January 29th, 2006 Nam June Paik, father of video art and an old friend of the Vasulkas, passed away. To celebrate his life and the incredible breadth of his work on April 14th, 2013 the Smithsonian American Art Museum (SAAM) organized a tribute to him as part of their Art & Process Program titled "Strange Music for Nam June Paik." This tribute included performances of Nam June Paik's films and music by those who had known the artist well, such as Steina Vasulka, Ryuichi Sakamoto and Stephen Vitiello (Smithsonian American Art Museum 2013). At this event Steina performed a variation of *Violin Power* titled *Strange Music for Nam June Paik: Violin Power*, harkening back to the performance of *Violin Power* she gave at the Kwangju Biennale on Nam June Paik's request and her prior tribute to his work performed with Stephen Vitiello, *Violin Opera for Paik*, both described in great detail prior.

With this performance again an evolution can be seen in the choice of material and how it is manipulated. A short clip found of *Violin Power* (2006) performed at the zentrum für kunst und medien karlsruhe, as part of the exhibition, "Mind Frames. Media Study at Buffalo 1973-1990," shows her manipulating material from a then contemporary work of her's, *Warp* (2000), which she revisits in this performance (zentrum für kunst und medien karlsruhe 2006). Not only that but this manifestation at SAAM also includes newer footage not pictured in the prior performance showing her and another person in the Vasulkas' studio. Besides

these newer additions, again there is the return to those works that identify the *Violin Power* performance such as *Pariah* and the *Violin Power* (1970-1978) tape as well as inclusions from her 1998 performance given at STEIM such as Trevor Wishart's *What Sound Does a Color Make?* and Michiel Waisvisz's *The Hands*.

The recording of the performance described here comes from the Smithsonian American Art Museum and is publicly available on Youtube (Smithsonian American Art Museum 2013). Contact was also made with the Public Programs Department at the museum over whether any further information about this performance might be available but unfortunately due to the COVID-19 restrictions and the need to work remotely such files were not accessible. Therefore, it is recommended to contact the museum again in the future to see if further context can be obtained concerning this extremely important performance which forms the last known to date of this work. At this point it is possible only to analyze the performance from what documentation is available as has been done below.

The performance begins with an inaudible pluck of a string near the top of Steina's MIDI-violin, then she stands holding her violin upright as behind her the screen is illuminated with the aforementioned video segment with her in her studio. In the clip, which she allows to play without manipulation, she and another person rub bows across a raised yellow outcrop creating a sawing sound. She follows this with a quick succession of video segments from *Warp*, to the clip of Nam June Paik laughing, seen and described prior in *Violin Opera for Paik* (1996). This opening sets up the subsequent piece in which further evolution of the *Violin Power* performance is seen in combination with characteristics consistent from her past performances.

In the first part of the performance many similarities are seen with the more recent *Violin Power* (1998) performed at STEIM in terms of its acoustic qualities. Steina's playing here is more often drowned out by the audio of the video that she is manipulating. Yet unlike with the STEIM performance it is difficult to see how she is engaging with the violin as she is not spotlighted. Further, the way that she is interacting with the Image/line software, first seen in the same performance, has changed drastically. There is not only an investigation of effects not seen prior, such as pixelation of the image and a watery disruption of it, but also a layering of effects in unforeseen ways that sever the manipulated product from the original video. This overall result is further accented by Steina's dissonant playing of the violin creating an eerie dreamscape quality. Included in this there is less of an emphasis on building up impromptu musical compositions using the audio of the manipulated video but what can only be described as more attention to the overall atmosphere.

She also refers to the earlier *Violin Power* (1995) performed at the Kwangju Biennale, which begins with a musical overture played against a black screen, by emphasizing the interplay between audio and video. To do this at times throughout the performance she cuts the video and manipulates solely the audio, using segments from her playing of "Gypsy Tune" in the *Violin Power* (1970-1978) tape, Nam June Paik's laughter and Trevor Wishart's mouth music from *What Sound Does a Color Make?*. Although use of the *Violin Power* (1970-1978) tape predominates in these sections of the performance it is little seen elsewhere in her manipulation of the video; instead there is a return to the works described in her past performances including the aforementioned two additions from *Violin Power* (1998) as performed at STEIM.

The last differentiating factor that separates this performance from those prior is how it ends, whereas many others emphasized *Pariah* in the closing section here she cuts the video altogether and returns to the audio. Jumping rapidly and sporadically through different sound clips until she reaches the track of Nam June Paik laughing which she allows to play before putting down her violin and holding up both arms with a flourish as the audio cuts. The performance ends at 36 minutes, conforming with the longer duration of these later performances of *Violin Power*. Further, this return to the Nam June Paik segment in the final section forms a fitting end to a performance intended to be in his honor.

Summary of Roundtable

The roundtable, described in the introduction, was held on July 1st, 2021 and addressed many of the questions raised during this research concerning how to preserve and present Steina's *Violin Power* (see *VP_Roundtable_Summary_1-7-2021* for extended summary). The experts in attendance provided feedback and suggestions to these questions, an overview of which has been supplied here. At the roundtable there were thirteen participants from various backgrounds and of varying expertise these included: Hannah Bosma (Musicologist at the University of Amsterdam), Jean-Marie Dallet (Artist, Curator and Professor at the University of Paris), Sanneke Huisman (Curator at LIMA), Patricia Falcão (Time-based Media Conservator at Tate), Paul Klomp (Professor of Media Art at AKI Artez Enschede), Joey Heinen (Digital Preservation Manager at the Los Angeles County Museum of Art), Jennifer Helia DeFelice (Assistant Professor at Brno University of Technology and founding member of Vasulka Kitchen Brno), Wiel Seuskens (Technical Manager at LIMA), Claudia Röck (Freelance Media Conservator), Eléonore Bernard (Freelance Media Conservator), Mauricio van der Maesen de Sombreff (Artist, Computer Scientist as well as Telecommunications and Electronics Engineer), Olivia Brum (Post Masters' Student at the University of Amsterdam and Graduate Intern at LIMA), and Gaby Wijers (Director at LIMA).

Some of the main suggestions and directions supplied by participants are as follows:

- Steina keeping several Macintosh PowerbookPCs with the first version of the Image/ine software, could be regarded as a point at which the artist decided not to develop the software further, and therefore the point at which to present the work (suggested by Paul Klomp)
- That the work cannot be presented by anyone other than the artist (suggested by Hannah Bosma)
- The presentation of *Violin Power* at the Digital Canon exhibition (2023-2024) as a last performance or funeral for the artwork (suggested by Sanneke Huisman)
- The creation of descriptive scores as a useful tool for understanding the evolution of the work and how to present it (suggested by Hannah Bosma)
- Recording the MIDI of a performance of *Violin Power* from which that particular manifestation could be reconstructed (suggested by Wiel Seuskens) (see Image 12)
- Creating tools for improving the reading of Steina's performances by watching them through again with her and creating tags that describe what she is doing at what parts (suggested by Jean-Marie Dallet)
- Performance of the work by a different artist/musician in understanding with Steina but with the assumption that the work would have a different outcome as a consequence (suggested by Patricia Falcão)

- Presentation of the exhibit as an active archive with the reactivation of certain aspects of the work (suggested by Patricia Falcão)
- Representation of *Violin Power* as the 1970-1978 tape (suggested by Patricia Falcão)
- Creation of a distributed archive as a wiki or another type of linked system of open data to which further archives could be connected (suggested by Jean-Marie Dallet)
- Reinterpretation of the work with focus on the word “power” in the title therefore allowing for a contemporary take on the work, not only in terms of technological experimentation, but also in a more societal context (suggested by Sanneke Huisman)
- Getting recordings of prior performances from which the work could be set up to play automatically without the need for an artist/musician (suggested by Paul Klomp)
- Allowing *Violin Power* to continue to develop and adapt to new technologies rather than freezing it in its current state (suggested by Paul Klomp)

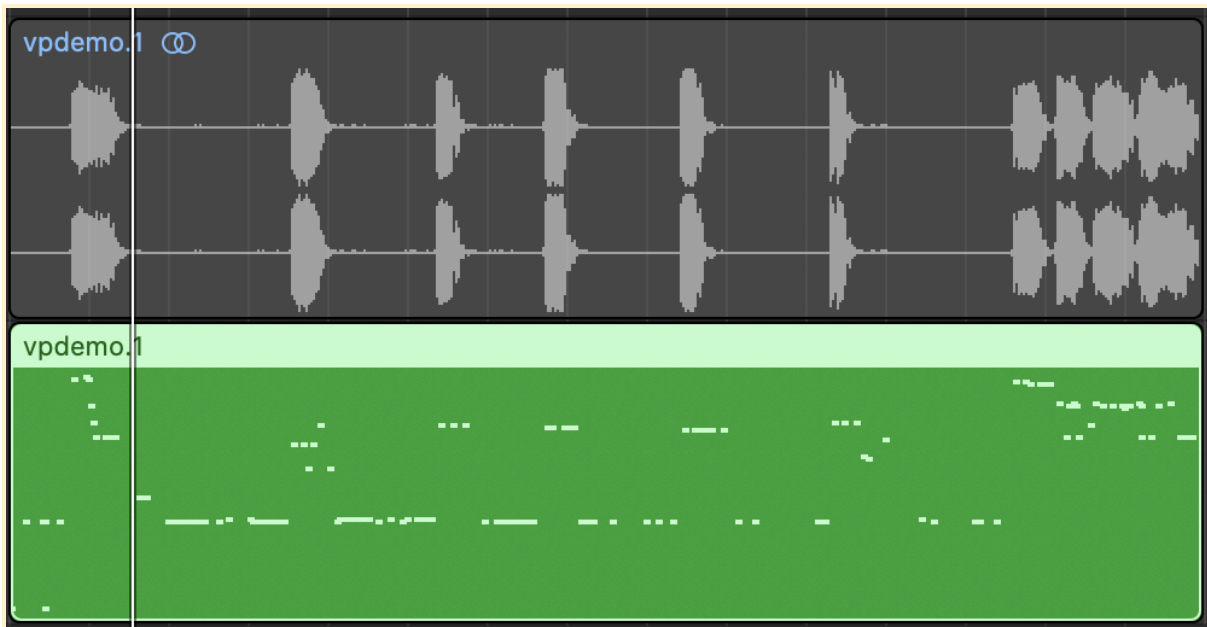


Image 12- Reconstructed MIDI score based on audio. Made with Logic Pro X Flex tool.

Considerations for Presentation

These suggestions from the roundtable give some ideas for how to present the work in the future but ultimately this decision should be made in conversation with the artist. During this research several requests were made to Steina for an interview but as of now she has not responded to any of them. If an artist interview would be possible in the future it would be a vital next step in deciding how the work should be presented at the Digital Canon Exhibition (2023-2024). In case of such an opportunity the following questions have been prepared by the research group for the artist:

1. Would you be able to perform the work again in 2024?
2. If not, who is allowed to perform it?
3. What are the conditions required to perform the work?
4. Is there a score for the performance?

5. Are there limiting factors?
6. Is the performance always improvised?
7. What is the goal of the performance?
8. What version of the work can be performed?
9. What is the required technical setup?
10. Can the technical setup be modernized?
11. Can *Violin Power* (as a performance) be acquired by an institution?
12. What is the relationship between the *Violin Power* (1970-1978) video and the performance?
13. How do you see the legacy of *Violin Power* as a performance work?

These questions should be seen as an open framework to which other more specific questions can be added to pin down in detail the artist's desired requisites for future presentation of *Violin Power*. If the artist could imagine the performative aspect of this work continuing after their death such an interview, or series of interviews, should also include the creation of a score or guideline with the artist that would instruct prospective presentations.

On the other hand, if it is not possible to interview Steina it could be an option to construct a strategy for presentation from interviews with collaborators and friends of Steina's who have close experience with the work. This research has already gathered some information in this regard but a more comprehensive study of the work through this lens would contribute to a more intimate reading and presentation of the work when direct discussion with the artist is not possible.

Lastly, during the roundtable Joey Heinen, Digital Preservation Manager at the Los Angeles County Museum of Art, brought up an important point by asking about the distinction between *Violin Power* as a "living work" as opposed to an "archival representation of the work?" In showing the work a decision needs to be made regarding which one of these facets to represent it with. What degree of authenticity is the aim? Should the performance be shown or a representation of it? Or perhaps should a complete reinterpretation of the work be done by another artist? These are only some of the questions that remain and considerations that need to be taken into account as this project continues to move forward. The suggestions from the roundtable, provide some solutions regarding a range of different outcomes or presentation goals (see Summary of Roundtable Section).

Conclusion

In conclusion, *Violin Power* is one of many other time-based media artworks related to life-long experiments. In its simplest form, *Violin Power* can be considered to be the 10 minute and 7 second video, of which numerous versions on a variety of different formats exist. In the collection of LIMA the original *Violin Power* (1970-1978) tape is a NTSE U-matic. From which LIMA has duplicated it following internal established protocols for the preservation of video artworks. These protocols are as follows: the NTSE U-matic tapes are backed up to Analog Betacam SP. The video content is digitized as uncompressed avi and stored on LTO-5 tapes for long-term preservation. For accessibility the uncompressed video file is used for presentation and a compressed mpeg-4 is used for online preview, including a watermark. The double set of LTO-5 tapes are checked once every year for potential

problems. LIMA also has 3 DVDs of the work and a number of distribution and documentation tapes.

However, *Violin Power* is also considered an ongoing work, with a range of experiments on live video editing that make use of both analog and digital video tools and instruments. Starting in 1991, these experiments have also taken the form of performances which have evolved in terms of their characteristics as well as technology used. To begin to understand these, this report has attempted to isolate the identifying characteristics of five different performances by Steina conducted between 1995 and 2013 by describing and comparing them in great detail. In so doing it has tried to put a finger on which long standing attributes define the work, for consideration regarding how it should be presented.

In this regard, ultimately this remains an ongoing project and as such there are many aspects of this research that still require attention. To date this project has included the compilation of this research document, an extended roundtable summary briefly summarized here, a technical and performance timeline included in the Appendix, a spreadsheet overview of archival documents processed, a list of questions for Steina included above, a Mindmap of possible scenarios for future presentation, the collection of video documentation of various performances of *Violin Power* and interviews with Tom Demeyer, Hannah Bosma and Morton Subotnick. Of those tasks that remain to be done a detailed description of the equipment lists, installation instructions, performance scores and scripts should be generated, ideally in conversation with the artist, and preserved. Unresolved queries should be followed up and materials received from the Cinémathèque Québécoise should be analyzed and processed. Also if possible the artist should be interviewed using the questions included above as a framework to ultimately determine their intention for the future of the work. Through the input of this research and by answering these remaining questions a solution can be found for how to display *Violin Power* at LIMA's upcoming Digital Canon exhibition (2023-2024).

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Appendix

Chronology of Relevant Events

1970

- Rutt-Etra Scan processor* introduced by Steve Rutt and Bill Etra in 1970

1971

- Steina and Woody Vasulka start the Kitchen
"In 1971, Etra and video artists Woody and Steina Vasulka rented a kitchen space in the Mercer Arts Center at the Broadway Center Hotel, "where they would show experimental works. I became one of the managing directors and would lock the doors during the boring video tapes so nobody would leave." ("A Multimedia Life, Plus Weasels" 2000)

1973

- Steina and Woody Vasulka used a "George Brown Multi-Level Keyer" (1973) to provoke the impression of three-dimensionality by the layering of levels (Dreher, n.d.)

1974

- They moved to Buffalo, NY, invited by the media scholar Gerald O'Grady, as faculty in the Department of Media Studies at Buffalo State College, State University of NY. (London 2020, #)
- The Vasulkas acquire a Rutt-Etra scan processor (Furlong 1983, 15)

1975

- Steina and Woody acquired a [DEC LSI-11](#) minicomputer. Their student Jeffrey Schier developed concepts on how to use the minicomputer in video image processing. (Dreher, n.d.)

1976

- Jeffrey Schier starts the construction of the Digital Image Articulator" to process images by combining rectangular basic elements. The partition into discrete basic components substitutes the waveforms of the Rutt/Etra Scan processor. (Dreher, n.d.)

1980

- They moved to Santa Fe, Their work was influenced by the aesthetics of the surrounding desert landscapes. (London 2020, #)

1983

- The MIDI (Musical Instrument Digital Interface) protocol is presented at the first North American Music Manufacturers Exhibition in Los Angeles. (“timeline”, n.d.)

1991

- Steina acquired a Zeta MIDI violin and a Pioneer Disk Player. Interfacing these instruments with a computer gave Steina instant access to any frame of video on the disk as well as access to fast/slow and forward/backward movements. The initial software was written by Russ Gritzko and further developed and improved by Bill Heckel. (Hill 2013)

1997

- While serving as artistic co-director at STEIM, Steina collaborated with Tom Demeyer on the Image/ine software, a PPC based, midi controlled Video DSP program providing a variety of real-time image processing. (“V2”, n.d.) (Demeyer, n.d.)

Iteration Overview

1991

Internal ref.	VP_1991-10_CCA_NM
Title	<i>Violin Power</i>
Date	October 1991
Location	Center for Contemporary Arts Santa Fe, New Mexico, USA
Sources	CCA Archives (contacted)

1992

Internal ref.	VP_1992_IE_US
Title	<i>Violin Power</i>
Date	1992
Location	Internet Event: Santa Fe and Electronic Cafe, Los Angeles
Sources	Langlois Fondation (consulted)

Internal ref.	HD_1992-06_Ars_AT
Title	<i>Hyena Days</i>
Date	June 23rd, 1992
Location	Ars Electronica, Linz, Austria
Sources	Ars Electronica Archives (consulted)

Internal ref.	HD_1992-09_V2_NL
Title	<i>Hyena Days</i>
Date	September 26th, 1992
Location	V2_, s'Hertogenbosch, The Netherlands
Sources	V2_ (consulted), Vasulka Online Archive (consulted)

Internal ref.	HD_1992_DW_DE
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Title	<i>Hyena Days</i>
Date	1992
Location	Deutsche Welle, T.V. Program, Frankfurt, Germany
Sources	Jean Marie Dallet (consulted), Vasulka Online Archive (consulted)

Internal ref.	VP_1992_BUT_CZ
Title	<i>Violin Power</i>
Date	1992
Location	Brno Polytechnic Institute, Brno, Czech Republic
Sources	Jean Marie Dallet (consulted), Vasulka Online Archive (consulted)

Internal ref.	VP_1992-11_RC_CZ
Title	<i>Violin Power</i>
Date	November 29th, 1992
Location	Rock Café, Prague, Czech Republic
Sources	Vasulka Online Archive (consulted)

1993

Internal ref.	VP_1993-05_NGI_IS
Title	<i>Violin Power</i>
Date	May 1993
Location	National Gallery of Iceland, Reykjavik, Iceland
Sources	Jean Marie Dallet (consulted), Vasulka Online Archive (consulted), Margrét Elísabet Ólafsdóttir (consulted)

Internal ref.	VP_1993_TI_CO
Title	<i>Violin Power</i>
Date	1993
Location	Telluride Institute, Telluride, Colorado, USA
Sources	Jean Marie Dallet (consulted), Vasulka Online Archive (consulted)

1994

Internal ref.	VP_1994-11_TC_US
Title	<i>Violin Power</i>
Date	November 1st, 1994
Location	Teleconcert: Santa Fe, Santa Monica, New York City
Sources	Morton Subotnick (consulted), Jean Marie Dallet (consulted), Vasulka Online Archive (consulted)

1995

Internal ref.	VP_1995_CU_NY
Title	<i>Violin Power</i>
Date	1995
Location	Cornell University, Ithaca, New York, USA
Sources	Jean Marie Dallet (consulted)

Internal ref.	VP_1995_IC_NY
Title	<i>Violin Power</i>
Date	1995
Location	Ithaca College, Ithaca, New York, USA
Sources	Jean Marie Dallet (consulted)

Internal ref.	VP_1995_BU_NY
Title	<i>Violin Power</i>
Date	1995
Location	SUNY, Binghamton, New York, USA
Sources	Jean Marie Dallet (consulted)

Internal ref.	VP_1995_RIT_NY
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Title	<i>Violin Power</i>
Date	1995
Location	Rochester Institute of Technology, Rochester, New York, USA
Sources	Jean Marie Dallet (consulted)

Internal ref.	VP_1995_HWG_NY
Title	<i>Violin Power</i>
Date	1995
Location	Hallwalls Gallery, Buffalo, New York, USA
Sources	Jean Marie Dallet (consulted)

Internal ref.	VP_1995-06_KB_KR
Title	<i>Violin Power</i>
Date	June 22nd, 1995
Location	Kwangju Biennale, South Korea
Sources	Stephen Vitiello (consulted), Jean Marie Dallet (consulted), Vasulka Online Archive (consulted), Kwangju Biennale (contacted)

Internal ref.	VP_1995-10_HU_CZ
Title	<i>Violin Power</i>
Date	October 12th, 1995
Location	Hitech-Umeni, Brno, Czech Republic
Sources	Jean Marie Dallet (consulted), Vasulka Kitchen Brno (consulted)

1996

Internal ref.	HD_1996-09_KHM_DE
Title	<i>Hyena Days</i>
Date	September 1996
Location	KHM, Cologne, Germany
Sources	Vasulka Online Archive (consulted), Jean Marie Dallet (consulted)

Internal ref.	VP_1996_VB_BR
Title	<i>Violin Opera for Paik</i>
Date	November 12th, 1996
Location	Videobrasil's 11th Festival, Brazil
Sources	Stephen Vitiello (consulted), Videobrasil (consulted)

1998

Internal ref.	VP_1998-07_NTT_JP
Title	<i>Violin Power and The Maiden</i>
Date	July 17th, 1998
Location	NTT Intercommunications Center, Tokyo, Japan
Sources	Vasulka Online Archive (consulted), Joey Heinen (consulted), NTT Intercommunications Center (contacted)

Internal ref.	VP_1998-10_FNC_CA
Title	<i>Violin Power</i>
Date	October 15th to 25th, 1998
Location	Festival International Nouveau Cinéma Nouveaux Médias, Montréal, Canada
Sources	Jean Marie Dallet (consulted)

Internal ref.	OR_1998-11_I_NZ
Title	<i>Orka</i>
Date	November 7th and 8th, 1998
Location	Interdigitate, Auckland, New Zealand
Sources	Vasulka Online Archive (consulted)

Internal ref.	VP_1998-12_STEIM_NL
Title	<i>Violin Power</i>
Date	December 18th, 1998

Location	Frascati (organized by STEIM), Amsterdam, The Netherlands
Sources	STEIM (consulted)

1999

Internal ref.	VP_1999-02_MBAM_FR
Title	<i>Violin Power</i>
Date	March 20th, 1999
Location	Musée des Beaux-Arts, Clermont-Ferrand, France
Sources	Musée d'art Roger-Quilliot (contacted), Association Videoformes (contacted)

2004

Internal ref.	VP_2004_ROM_IT
Title	<i>Rome Performance</i>
Date	2004
Location	Rome, Italy
Sources	LIMA (consulted)

2006

Internal ref.	VP_2006-05_FDL_CA
Title	<i>Violin Power</i>
Date	May 26th, 2006
Location	Daniel Langlois Foundation, Montreal, Canada
Sources	Cinémathèque Québécoise (contacted)

Internal ref.	VP_2007_ZKM_DE
Title	<i>Violin Power</i>
Date	December 15th, 2006
Location	ZKM, Karlsruhe, Germany

Sources	ZKM (consulted)
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2008

Internal ref.	VP_2008-05_SITE_NM
Title	<i>Violin Power</i>
Date	May 6th, 2008
Location	SITE Santa Fe, New Mexico, USA
Sources	SITE Santa Fe (contacted)

2013

Internal ref.	VP_2013-04_SAAM_DC
Title	<i>Strange Music for Nam June Paik: Violin Power</i>
Date	April 14th, 2013
Location	Smithsonian American Art Museum, Washington DC, USA
Sources	Smithsonian American Art Museum (contacted)

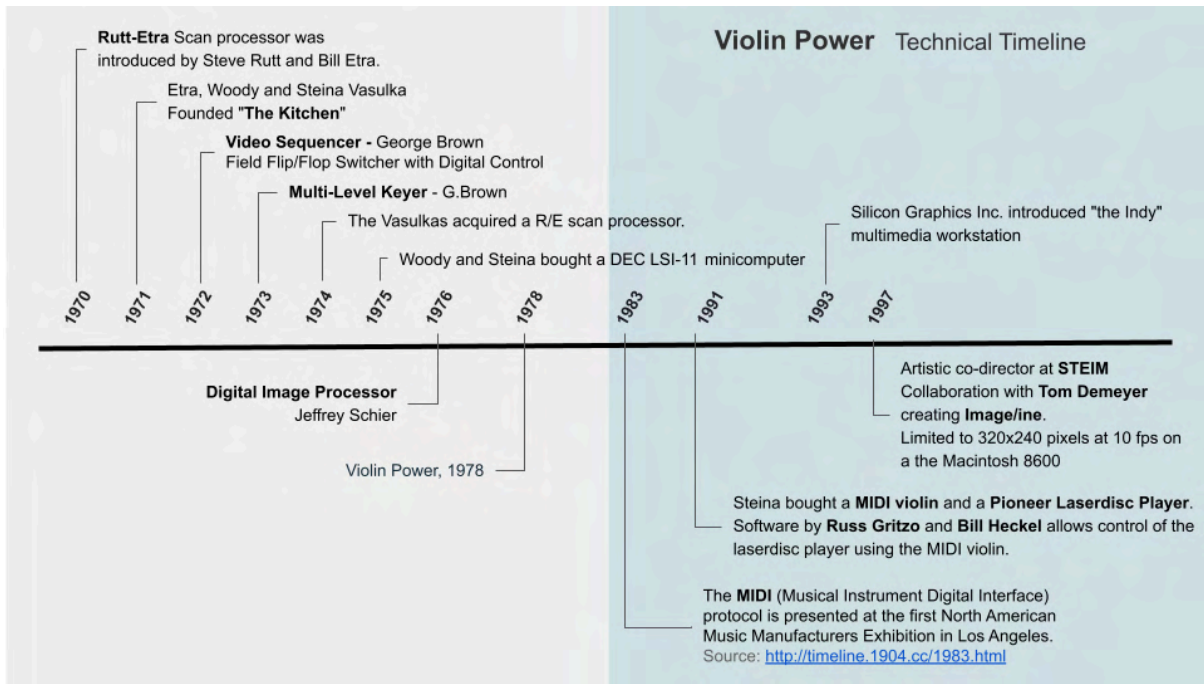


Image 13-Violin Power technical timeline

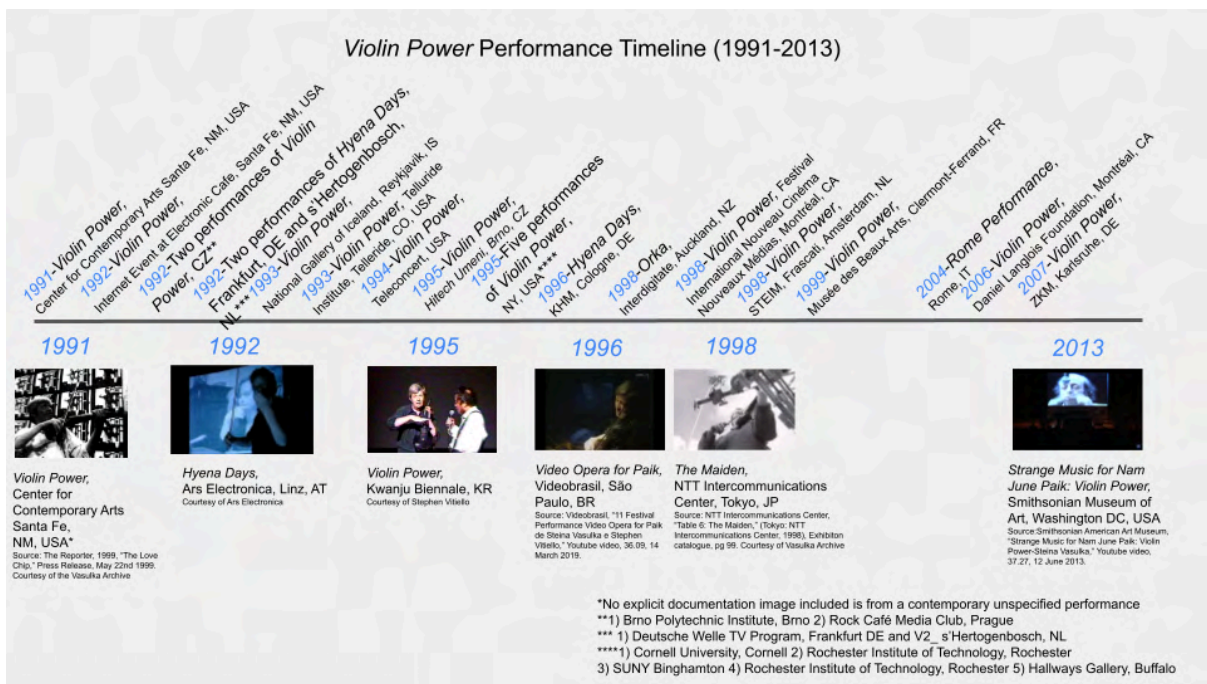


Image 14-Violin Power performance timeline