Six Musical Compositions Integrating Digital Video

By

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Abstract

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In this thesis I am presenting six video-related musical compositions that explore physical movement in performance and the integration of alternative performance locations. This text offers a chronological description of these experiments, tracking the evolution of these ideas through a variety of forms: A walk-through installation, Location-based fixed-media videos, Interactive web platforms using maps, and projection templates for live performance. Each of the works explores a particular relationship of the digital video to the musical composition with varied approaches and degrees of connection between the sound and image. The insights and skills accumulated through the compositional process of the initial five works ultimately lead to the final piece in the series. This culminating composition offers a flexible working method and platform for integrating a quite diverse spectrum of musical collaborations and other activities. The new procedures I developed through these video-related compositions facilitated the creation of new works in quite diverse venues while also providing tools for bringing both audio and visual material from varying locations back into the concert hall through live performance.
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Supplementary Material: Essential Supporting Videos

The following Essential Supporting Videos are crucial as supplementary material for the discussion of the six musical compositions central to this dissertation. These videos will be included on and uploaded to the Pro Quest site along with the main text, and will also be available through the website of the Center for New Music and Audio Technologies, at UC Berkeley.

1. “Wie Schwerer Honig” (5:19)
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2. “Circles” (3:27)
   Fixed-media version   Arch Street Garage, Berkeley CA.

3. “October 14th” (5:17)
   Fixed-media version

4. “Shattuck Square”
   Screen capture video from use of the website:
   www.nilsbultmann.com/shattuck

5. “Ghosts” (3:47)
   Live documentation from concert performance
   Berkeley New Music Project, February 2010

6. “Oakland Shadows” (18:18)
   A compilation of 16 excerpts from the website: www.oaklandshadows.com
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Oakland Compilation Information: Location, Timing & Instrumentation
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**Example A:** 10th Street: Clay to Jefferson (0:24-1:19) Viola, Rhodes, Orchestra Bells

**Example B:** 11th Street: Jefferson to MLK (1:20-2:17) Viola, Rhodes (Moonlight Sonata)

**Example C:** 11th Street: MLK to Jefferson (2:18-2:58) Solo Viola (Bultmann Viola Concerto motives)

**Example D:** Jefferson: 9th to 8th Streets (2:59-3:47) Viola, Rhodes

**Example E:** 8th Street: MLK to Castro (3:48-4:43) Viola (and guest anonymous percussionist)

**Example F:** Castro: 8th to 9th Streets (4:44-5:21) *Joy:* from a series of 10 viola duets: N. Bultmann 2010 featuring Hank Dutt of the Kronos Quartet

**Example G:** 12th Street: Castro to MLK (5:22-6:23) *Hesitant:* from a series of 10 viola duets: N. Bultmann 2010 featuring Hank Dutt of the Kronos Quartet: Viola and Conducting: N. Bultmann

**Example H:** Castro: 11th to 12th Streets (6:24-7:04) Solo Viola, Guest Actor: David Arend
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Six Musical Compositions Integrating Digital Video

INTRODUCTION:

This document is to serve as the core thesis of the dissertation submitted in partial satisfaction of the requirements for the degree of Doctor of Philosophy in Music in the Graduate Division of the University of California. In this text I examine a series of six mixed-media musical compositions completed between 2009 and 2012, each exploring a particular use of digital video in the compositional process.

The Essential Supporting Videos referenced in the thesis consist of video files with documentation for each piece and, in two instances, links to websites. The central and recurring themes in these works are concerned with physical movement in performance, the integration of alternative performance spaces, as well as live interaction among musicians and between the musicians and their environments. Additionally, each piece emphasizes a particular function and use of digital video while also taking on diverse and varied forms. i.e., a walk-through installation, location-based fixed-media, interactive web platforms using maps, and projection templates for live performance.

This body of work represents one aspect of the entire creative output I manifested during my graduate and doctoral studies at Berkeley; an aspect that has ultimately served as a platform for integrating my many diverse musical interests and activities. Primarily, my path to composition came by way of my experience as a performing violist and improviser. During my undergraduate work, I studied viola performance, and thereafter, I performed classical chamber and orchestral music. A short time later, I became quite interested in free music improvisation, working with musicians from diverse backgrounds and in collaboration with dancers and choreographers. My entry into music composition came by way of multi-track recording in the studio.

During my time at Berkeley, I continued to maintain an active life as a free improviser, while simultaneously writing through-composed scores including solo viola music, viola duets, a string quartet, and compositions for full orchestra. I released a CD of multi-track compositions in 2007, and will shortly release a CD of my through-composed acoustic pieces. My subsequent video work had served as a means to connect and synthesize elements of my improvisational performances with my more formal through-composed work. Much of my initial work with video took me temporarily away from live concert hall performance into explorations of alternative venues and presentation platforms. However, the forms and working methods that emerged from these experiments allowed me to bring much of this work back to a traditional audience.
I. “WIE SCHWERER HONIG”:

My initial experiments with video began primarily by documenting live performances. I set out filming a variety of live concerts, both my own and those of others. Through this process I was generating ideas and data from which I could derive future compositions while familiarizing myself with the video gear. The works presented here were all created with fairly simple tools, using either one or two consumer model high-definition digital video cameras (Canon Hf s20) and a simple recording setup. The audio was typically captured separately by way of external microphones when recording in a hall or studio, or a Zoom H4n portable recording device for recordings on location. The external audio was typically linked to the corresponding video in postproduction prior to video editing. The majority of the video footage was filmed by myself, either handheld or with a supporting tripod. In filming these performances, I began to explore basic techniques of camera placement, zooming, lighting, and overall composition. As a performer, I gained in this process an awareness of how I was framed in the shot and cultivated an increased comfort level working in front of the camera.

I was particularly interested in filming collaborative and freely improvised music, as these practices had been a large part of my musical activities. Ideally I wished to capture moments in which I have participated in and witnessed when musicians seem to arrive at a consensus of the musical idea, mood, or 'space'. I was curious as to whether this merging was as visible and tangible as being at a live concert. Furthermore, I was interested in developing ways in which basic video editing techniques could be used on performance documentation video to create a more expressive representation of the performer's highly visceral experience, and also to augment certain qualities of the interaction among the musicians. This lead me to the first piece in this series of video compositions: "Wie Schwerer Honig", a walk-in installation offering a portal into an improvised musical exchange.

The goal of this project was to construct a situation in which one witnesses an intense moment of musical improvisation – as if placed under a magnifying glass– creating the sensation that one is almost inside the instruments. The motivation for this work was drawn in part from experiences I have had playing very informal viola performances for friends, many of whom have never witnessed a stringed instrument performed at such close range. I generally find that people who have only seen string players at a distance – perhaps on stage in an orchestra concert, for example – are often quite amazed at the wide dynamic range and sheer amplitude of sound that this single instrument produces when observed so closely. The intention of this installation piece was to extend and intensify such "up-close"
experiences, offering a portal into an improvised musical moment as well as insight into the physicality of live performance from a musician's point of view.

This piece – part performance, part installation – was set up as a walk-in room that featured a looped projected video. The material for the video was drawn from an improvised musical interaction and was enhanced through the use of simple video editing manipulations.

The musical content of this piece was taken from an improvised recording session done in collaboration with percussionist William Winant. Using the recording studio at the Art Institute of San Francisco with five microphones. It was filmed with two cameras, each of which was focused on the respective instruments. Having worked with Winant on several occasions over several years, I felt a strong affinity with the raawness and physicality with which he brings to his highly imaginative playing.

For this session, I offered several structures to work with -- including open parameters for free improvisation -- that I thought would be ripe with potential material for video installation pieces. I extracted a three-minute excerpt from the session that captured a viola line centering around a D-minor drone (with half step, as well as microtonal departures from the base root pitch). This is shaped by hairpin dynamic swells and this material is followed by a single ascending melodic line. The percussion part is an integral element in the pacing, color, and contour of this section; bowed tams and timpani follow, comment on, and instigate the viola line. There is an inviting intensity to the sound during these moments and a palpable shared musical space that I wanted to work with and develop.

Although my original intention was to project separate videos of the viola and percussion, I decided instead to focus exclusively on the viola by devoting two screens to its depiction. By excluding visual representation of the percussion, the mysterious quality inherent in the music was even more enhanced. The listener was left with the impression that the low, complex, and churning timbres were emerging from the slow, labored bow changes of the viola.

After editing and mastering the audio from the studio recording and linking it with the camera footage, I edited the material in Final Cut Pro. In using only a few simple editing procedures, I enhanced the magnification in order to further highlight the visceral qualities of the performance.

Musically, the selected three-minute excerpt begins with a short melodic introduction before moving into the droning D-minor tonal center. From within this drone, there emerges a series of blooming pitch oscillations and dynamic swells, which finally arrive at an ascending melodic line that resolves at the top of the viola's register.

In Final Cut Pro I took the video of this section and slowed it down to fifty percent, resulting in a pitch shift down one octave and the appearance of the video
moving half as quickly. I positioned this slower version next to the original unmodified version so that the two were presented side by side in a split-screen presentation. The timing with which the two versions occur was crucial to the form of the piece. The slower version appears first with the original version appearing thereafter only to eventually catch up with the slower version. The two versions thereby merge and end together with mutual ascending glissandi lines adding a solidifying sense of structural unity. Thus, the form of Die Schwerer Honig is a musical canon in which, on account of the different playback speeds, the follower eventually finds the leader.

The slow pulsing quality of the viola lines -- which is generated from the departure in pitch from the D tonal center -- is central to the piece, providing an active counterpoint between the two voices. These pitch oscillations are supported by dynamic swells and are generally timed with the bowing, presenting a quite striking visual representation of this interaction, as the violist turns in and away from the camera with each bow change. The result is breath-like with a hypnotic sense of back and forth and in and out. Although the percussion is not visible, its sonic presence, characterized by molten waves of noise and resonance at low frequencies, is fundamental to the mood of the piece.

The initial premiere was held in a small room in the foyer of Hertz Hall on the same evening of the Berkeley New Music Project concert. The room was available for audience members to enter during intermission as well as before and after the concert. Since the audio was recorded with the utmost care, using excellent microphones and a professional studio, the sound quality of the playback environment was a high priority. The playback set-up included two large Meyer speakers (with bass frequencies equalized to support the ominous low drone), and a simple looped video projection of the two viola players as a split-screen image on the front wall opposite the entrance.

It was important to create an environment that matched and supported the mood of the music; to this end, the room design and interior decorating became important elements in the compositional process as well. The remaining walls were covered with black cloth, and two curtains were layered in front of the entrance door to block light. A few seats were set up for the audience members. The minimal light used in the room exuded a sort of cave-like atmosphere.

During the process of installation, I experimented with several presentation options. I was curious to see whether the music in and of itself would stand alone; the room serving primarily as an immersion listening environment in the tradition of the French Acousmonium. I experimented by removing the video and in its place, set a single candle in the center of the room such that the vibrating air from the speakers would impact and shape the direction of the flame. This was a beautiful and simple effect, since the movement and shadows cast by the flame
correlated directly with the audible material. This particular room design provided a womb-like quality in which to house the piece. I was pleased that the music itself, without the video, was able to stand on its own and sustain interest. I ultimately decided to save the candle effect for another work however and returned to my initial vision of the video projection. In so doing, several other dimensions came alive, offering a vital visual representation of both the actual production of sound as well as its manifestation over multiple layers of time in this close-up of a musical moment.

The title refers to the last line of Hugo Von Hofmannsthal's poem *The Ballad of External Life*: “Wie Schwerer Honig aus den Hohlen Waben,” ("like thick honey out of the empty comb") which seemed fitting for this amorphous and oozing musical texture. This phrase is given as the last line of the poem. After several verses of thoughtful inquiry into the meaning of activities we encounter in our external life, the final verse offers some support by stating that despite all confusion and pointlessness of our actions there is hope in the simple act of a person uttering a single word, in this case “Abend,” (evening). Referring to the word *Evening*, the final sentence is: "Ein Wort, daraus Tiefsinn und Trauer rinnt, wie Schwerer Honig aus den hohlen Waben” (One word, from which deep meaning and sorrow seeps, like thick honey out of the empty comb). Within one simple word, there is potential for great meaning and emotional content. Similarly in music there is always the potential for great depth and a rich world of expression embedded in each sound, in each phrase, each bow change. The intention with this installation was to reveal this hidden world by creating a situation where one could slow down and look closely into a musical moment, a moment cracked open, exposed, and oozing.

The use of video in this installation was central in achieving the desired result of immersing the audience in an intensely passionate musical moment while offering a glimpse into the performer's experience. Of course, the editing procedures (playback speed manipulations and image doubling) also greatly supported the absorbing magnification effect I wished to capture. At the core of the project, however, the primary role of the video component was essentially live performance documentation (that is, of the performing violist).

For the next audio-video composition, I wanted to expand my use of video by developing a visual representation system that linked directly to various parameters of the sound. I was also interested in creating a new work that extracted its musical material primarily from a non-stage location. These two goals came together in the piece Circles.
II. **CIRCLES:**

Circles drew its audio and video material from a parking garage located across the street from the Center for New Music and Audio Technologies (CNMAT). The parking structure is in a fairly quiet, residential neighborhood on the north end of the UC campus. One evening while working at CNMAT, in the wee hours of the night I was beckoned outside by the sound of a wispy, low whistling and sputtering, buzzing and electric drone sound. The sound's source revealed itself as a choir of fluorescent lights in the parking garage. I was inspired by the ominous, yet beautiful atmosphere of this space whose inner and outer glow captivated my imagination. Two of the dividing walls had circular windows cut out of them. (see Diagram 1 & 2) The subtle flickering of the florescent lights produced an interesting and complex tapestry of squares, rectangles, and circles, as well as other irregular shapes projected on the wall.

I spent three nights working in the garage – December 24 - 26, 2010. The garage is also located directly below the Berkeley Graduate Theological Union ("GTU"). Immediately to the right of the garage's entrance are stairs that rise up to Holy Hill, a neighborhood in North Berkeley that houses the various religious colleges that comprise the GTU.

As I grew increasingly sensitive to the space, and given the fact that my imagination was able to run freely, my fears and superstitions were running high. Who was this dark, diabolical artist lurking in the crypts, fallen from grace, working with the sinister alchemy of low drones in the bowels of a religious educational institution? It was Christmas, after all. I find this type of mental activity often goes hand-in-hand with my creative process. I appreciate these multiple interweaving narratives, however transitory or illusory they may be, as I find it can ultimately help generate an intensity of mood and feeling, which is central to the core of this piece.

Like so many musicians and filmmakers, I have been very inspired by David Lynch and, in particular, his ability to capture the mood of a location. Lynch spent five years shooting Eraserhead and during much of this time, he lived on the location of the film set – the abandoned stables of the American Film Institute -- where he was once a student. Many of the strange and industrial sounds from the film were taken directly from the stables, which adds to the intense and claustrophobic mood set in the film. I appreciate the equal significance he places on sound and location, as well as the sensitive way in which he treats space, allowing the story to emerge from mood, feeling, or sound.

Similarly, it was important for me that the sounds and images that ultimately made up Circles would naturally emerge from the garage itself. After the first long and rather spooky night, I felt I had learned how to tap into the mood of the
location. Again, I was very interested in devising some kind of method that would connect the sounds to a visual system. I experimented with a variety of ways to connect the musical material to specific aspects of the video, including opacity, zoom, and camera movement. I eventually arrived at the use of camera rotation to create a simple system that linked the visual unfolding of the space over time to the musical material, and specifically to the music's pitch and rhythm. Essentially one sees footage of the garage revealed from the point of view of a camera in the center of the space rotating 360 degrees over the course of one minute. These rotations would be played at various speeds, and each speed would have an associated pitch (primarily derived from the B-flat drone of the lights) as well as an associated tempo (derived from a common time pattern of an electronic metronome recorded alongside the rotating camera).

I collected the audio and video in the following way: I placed the camera on a tripod in the center of the garage, set a simple metronome to a quarter note at sixty b.p.m. in common time, and then recorded and filmed the steady turning of the camera one complete rotation over the course of sixty seconds. I used a portable Zoom H4n recorder to capture a strong audio signal, which I later synced to the image. This became the foundation audio and video material that I worked with to create the piece.

A substantial portion of the audio consisted of the low hum of the buzzing fluorescent lights (nearing a low B-flat at approximately sixty Hertz, with a strong second partial implying an F) and the default pitch on the metronome (which was centered around an approximate D-natural), though in a much higher range than the lights. In representing the 4/4 meter, the metronome creates two different pitches: a D on the downbeat and another D in the octave above for the remaining three beats. If the video is played at the normal speed, one will see a steady rotation of the camera that reveals the garage as seen from that vantage point, while hearing the low drone of the lights and the repetitive pulses of the metronome. This single minute of linked audio and video footage was the material I used to construct the majority of the work. Here again, I increased and decreased the playback of the video (and corresponding audio) in Final Cut Pro, thus altering the pitch and tempo of the musical material and the speed of the rotating camera. If the speed of the video is decreased fifty percent, one will see a rotation half as fast while hearing all of the audio one octave lower and the metronome at half of its original tempo. The audio and video can then be sped up or slowed down to any pitch one would like with a corresponding tempo of the metronome. Slowing the material down to thirty-nine percent, for example, brought the pitch of the metronome down from a D to an approximate B-flat, matching the light drone of the original footage.
By manipulating the video and audio in this manner, I was able to achieve a direct connection between the playback speed of the video (and therefore the revealing of the space) with the pitch and rhythm in the music. I could paint and compose freely by overlaying various speed and pitch changes in the timeline. With this technique, it would be possible to visually represent or "play" a melody using this language. I selected a variety of playback speeds and created a series of overlaying and interweaving polyrhythms and drones along with the corresponding visual medley of motion and speed. Often I would overlay multiple videos at different speeds and fade them in and out by adjusting the image opacity in the editing program. These timelines became projection backdrops with audio for live performances. I premiered a live version of this work at the Berkeley New Music Project in February 2010, performing solo viola live to a fixed audio and video timeline.

In addition to the live performance projection templates, I created a fixed-media version (see Essential Supporting Video # 2). In this four-minute piece, I present a split screen image: on the left side are the layered rotations in the garage with corresponding audio; on the right side is a still shot of me playing viola within one of the circles in the dividing wall (Diagram 1: position F). This was recorded on site using the H4n Zoom recorder, and was filmed from a still position in the center of the garage.

The musical material I performed on the viola centered around and interacted with the buzzing B-flat drone of the lights. I matched the pitch with a double-stop drone in the viola; a low B-flat detuned string and an oscillating note on the G string that slowly wanders between B-flat and B-natural. Shifting between and within these two pitch centers allows for an exploration of tension and release: in matching the frequencies that naturally occur in the space (i.e. the sixty Hertz of the lights), I am merging with the environment, and by departing from the light drone frequency I am odds with its fundamental vibration, creating friction.

I spent quite a bit of time exploring the sounds of the space and beyond, almost as in meditation. An interesting feature of the space was the absence of full outside walls such that the inside and outside sounds were indistinguishable. A fortuitous occurrence during the recording of this viola material was one in which an airplane flew overhead, presumably descending into Oakland International Airport. The sound it produced was a slow glissando, steadily decreasing in pitch, which I used as inspiration and interpreted into my viola playing as a descending glissando that ultimately stumbles into the overriding B-flat of the lights.

From the one-minute rotation footage, and the several takes of my viola playing I edited together a three-minute narrative arch of audio and video at varied playback speeds. The viola footage, in both audio and video formats, used a combination of normal speed and half-speed. The general harmonic underpinning
in this version of the piece is an oscillation between a B-flat drone (50% playback speed) and F-natural (39% playback speed) drone, implying the dominant-tonic relationship. I also used some video footage played backwards at times.

In addition to establishing a direct connection between the visual and audio material, Circles was an important exercise in allowing the musical material to emerge from the physical venue itself. It was also one of my earliest efforts of bringing my creative process from more conventional venues such as the concert hall and recording studio into alternative locations out in the world. This journey was continued further into even more expansive terrain in another work piece entitled October 14th.

III. OCTOBER 14th

In October 14th I employ a text score to provide a loose structure for the creation of a new audiovisual piece within a 3-hour time span. This work arose during a period in which I was videotaping a number of my concerts as well as a variety of other experiences from my daily life. I was particularly interested in capturing images that passed before the camera while I was in motion (for example walking down the street, hiking a mountain, or driving my car). At this time, the distinction between non-performance and performance life tended to blur, as I was engaged in filming much of my experience. I would film a live performance and then continue to film while traveling to another concert, rehearsal, or studio performance. At the end of the day, I would then experiment with combining these sessions through editing.

These experiments eventually fueled the desire to create a piece that merged the concert performance footage I was collecting with some travel footage from the streets and other locations. I envisioned a work that integrated the multi-track recording process, as gathered in multiple and geographically-separated sites, as well as video footage documenting the traveling to and from performances. Prior to October 14th, one of my first attempts at creating such a work was a multi-track composition in which I filmed and recorded four viola tracks, each taking place in separate rooms in a house. Footage also included the movement between rooms. I then took all the footage and edited it together. This study, as well as other shorter exercises, generated interesting results which ultimately led me to carry out a similar process covering a more extensive geographical space. It was important to me that the traveling between locations as well as the recording and filming of the musical material were connected by some overarching plan of action.

Understanding that the editing process would be disjunct and would likely demand a lengthy process of repositioning material in a timeline, I wanted to provide parameters in order to unify the experience of the audio recording, filming,
and traveling process. My intention was to create a cohesive sense of flow to the performance as if it were a live concert, only on a dramatically larger stage.

Years earlier, I had encountered text scores by John Cage, Pauline Oliveras and Christian Wolfe and appreciated them in their expansive understanding of the function of a score, as well as their ability to accommodate improvisational activity. These scores provided the performer with underlying principles and guidelines while leaving substantial freedom for interpretation. I looked to these text scores as inspiration and a point of departure for a piece called *October 14th*.

In reflecting on what information would be beneficial for this new work, I considered the phrase, “Have a beautiful day.” I liked the idea of how one could turn "a beautiful day" into a piece, or perhaps, more importantly, how one might use a piece to transform the day into something beautiful. I was interested in developing a framework that would include a full day of creating music in diverse venues that could later be edited into a shorter fixed-media work. I began devising methods to film and record a 12-hour day in various geographical locations, each involving separate musical encounters.

Although the simplicity of the “Have a beautiful day” score was quite compelling, I decided, however, to narrow the parameters, reduce the time frame, and include more detailed specifications as to the geographical locations. I outlined a list of text instructions that would serve as my performance score. This would provide a framework for the recording and filming of specified musical and non-musical experiences within a loosely determined timeframe and set of locations.

The text score for this piece was designed as a set of instructions:

1. Track two overlaying recordings of viola in San Francisco studio
2. Leave the studio and drive across the East Bay Bridge listening back to the viola recordings
3. Climb to the top of Grizzly Peak in Berkeley and look back at San Francisco, while listening to the recorded violas, stopping at 20-minute intervals and recording the striking of three Tibetan Prayer Bowls
4. Do all of this within a three-hour period and film the entire process.

Diagram 3 shows the overall plan of action and general timeframe.

On October 14th 2010, I performed the above score which became the title for the edited fixed-media version submitted as part of this dissertation. (See Essential Supporting Video #3). With the score as my guideline, I recorded the initial musical section (a 5-minute piece of two overlaying violas) again at the recording studio of the Art Institute of CA in San Francisco. I recorded the first line, and then listening back to that material recorded the second part. It was all
recorded fairly quickly with one take for each track, mixed onsite, exported, and uploaded onto my phone. I would then listen to that material with headphones while filming and recording the other phases of the piece as instructed by the score (i.e., walking to my car, driving to Berkeley, hiking and playing the prayer bowls). This initial 5-minute viola duet became the soundtrack for the filming of the later stages of the piece, and greatly influenced the performative experience and the resulting digital material.

Upon leaving the studio at the Art Institute and listening to the recorded duet, I experienced the street as a continuation of the musical journey. My intention was to embody the mood of the music while moving through space and also to capture what would otherwise be glossed over as unimportant or mundane. While the majority of the captured images I filmed myself using a handheld camera and a small dashboard camera mount in my car, I did rely on assistance in capturing the studio and prayer bowl footage in order to allow me to concentrate on performance.

The musical material for the viola duet was improvised and centered around a G drone, which was enhanced by tuning the viola's C string down to a low G; therefore the open strings (from lowest to highest) were G, G, D, A. I had been working with this type of material for quite some time in my improvisations. The music is constructed in part using simple diatonic phrases that emerge from the texture, are repeated at various octaves, and then folded back into the sustained drone. These short motives involve frequent diving for position shifts with glissandi up and down at varied speeds, as well as non-chord tones held painfully long which eventually resolve into a chord tone on a base of G.

I also created opportunity for exploring additional tension by oscillating between the lowered and the raised third scale degree, so that the generally dark harmonic minor material is occasionally spiced with some G-major jolts of joy. Many of the phrases also begin with extremely biting attacks in the chords leading into sensitive legato melodic material in the higher ranges. This way there is a surge of violent energy at the beginning of a phrase that melt into more gentle expressions; all of this often accompanied by repetitive but irregularly spaced left hand pizzicato low open G-strings that strengthen the presence of a drone. This pizzicato material eventually expands into a guitar-like accompaniment.

The music does not provide a continuous drone as does the Tanpura or Sruti boxes used in Indian music traditions. The aim instead was to imply the presence of a drone by returning frequently to the low detuned G (or other G and D open strings) at irregularly spaced but significant moments in the phrases. This way, even if the low G is not there every given moment, there is still the sense that it is not far off, and a trust that the phrases will eventually relax back into this foundational resonance.
By altering the frequency of the occurrences of the actual low drones, I felt I could create the illusion of expanding and contracting space. By simplifying the pitch domain and committing to this underlying drone, I was free to deeply explore emotional terrain and tone color through dynamics and timbre. There is no particular metric grid but I aimed to cultivate a slow and flexible inner pulse within this spacious environment of the drone in which to pass phrases between the two violas, like two intertwining snakes, fighting, or mating, or both.

The sense of space is central to the work and despite the moments of high intensity, the music has a meditative quality. Although in many ways this piece was an effort to merge aspects of my meditation practice with my art, it is not necessarily meant to be meditation music in the sense of aiming to have an exclusively calming effect on the listener. The music however serves as a sound representation of a personal internalized experience of practicing sitting meditation; an experience that is often raw and comprises moments that oscillate between stillness and intense dynamic activity and restlessness.

In practicing sitting meditation, my intention is to cultivate awareness that provides a calm overview even in the midst of tumultuous mind activity. Through practice, contemplation and sustained concentration I have found it possible to begin to generate a spaciousness around the diverse and sometimes difficult experiences within a meditation session. Similarly, in October 14, I aimed to skillfully use the core underlying resonance of the low G drone to create a sense of vastness that would sooth and encompass the busier, edgier, and perhaps more divergent, musical material.

Much of the influence for this style of playing, particularly the use of the drone, I credit to listening to the great Indian violinist L. Subramaniam, as well as to the several brief collaborations I have had with Carnatic musicians in the San Francisco bay area. The edgier attacks of notes and use of occasional noise elements however were drawn from my experiences in free improvisation and work with electronic music. The phrase structures, sense of pacing, and overall form were certainly heavily influenced by the many years of playing western classical viola repertoire and the study of western composition, and also by my particular approach to multi-track recording itself.

I have relied upon multi-track recording as a way of generating ideas for more traditionally notated works. It has also served as a mirror in which to listen to myself in order to better understand how I phrase and think musically. In the edited piece October 14th (around 1:50) the two viola lines are visible simultaneously. The one on the left was recorded first and the one on the right was responding to that material. The multi-track assists in my listening back to the first improvised viola while recording the second part. Though I play the first line just moments before, often times I generally don't recall exactly what was just played. It is
therefore a process of intuiting where the phrases are going and responding in the
moment. Through this process, I begin to recognize patterns of expression and
understand my musical inclinations. As well as being a tool for developing more
awareness of my own improvising, I feel this process ultimately makes me a
stronger and more sensitive improviser within group settings.

In the viola duet of October 14th, the first recorded viola line sets the
foundation for the piece and was deliberately sparse to allow significant space for
the second voice to engage and respond. The aim was to sustain a sense of
spaciousness while allowing for moments of high tension between two violas to
resolve at particular crucial moments. The Tibetan bells often help to define these
moments of convergence. There were three bowls I used for the piece, with
approximate pitches of D-natural, E-natural, and B-flat (the D bell appears twice in
the edited version). With their poignancy and bright resonance cutting through the
string texture, the bells naturally become a pillar for the formal structure of the
work.

The score for this work ultimately provided material for two very different
versions of the piece. As part of this dissertation, I have included the second
version, which is the finished fixed-media version I later assembled from the
footage collected on October 14, 2010 (Essential Supporting Video #3). The first
version exists independently of the second solely as the act of the performance
itself: the three-hour interval including all the music recording, filming and travel
as undertaken per the scores instruction. Even if I had never looked at the footage
from that day, the act of carrying out the instructions stands on its own as a
performance of the score, albeit without an audience.

As a performer, I very much need and value these process-oriented acts of
expression that are free of any need to contain a creative experience for future use.
Prior to October 14, 2010, I had also been experimenting with hiking for fifteen
minutes, sitting and watching my breath for fifteen minutes, and then playing the
viola for fifteen minutes, without recording or capturing its enactment. I again saw
this as a way of combining my meditation and musical practices. It was an
important and challenging exercise for me at this time to refrain from filming or
recording these practices. By exercising such restraint, I found that I was able to let
go of my “composer self” who is continually devising methods of capturing,
structuring and capitalizing on any given experience. This more relaxed and
quieter mental landscape allowed me to enter more deeply into the performance
experience. This relaxation effect was also a result of adequate preparation and
planning, as well as the parameters of a score. Although simple on their own terms,
these instructions provided a framework upon which my performer self could rely.
The score provided a framework for me to work within a meditative and
concentrated state without the self-consciousness of compositional intent; all of

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this while simultaneously creating audio and video material with which, as the composer, I could work with at a later date.

From the approximate three hours of footage compiled from the performance, I edited a five-minute fixed-media piece. In this version, after an opening bell, the piece begins with leaving the studio located in a busy section of San Francisco and ends with the recording of Tibetan Bells on top of Grizzly peak in Berkeley. Selected images of the transition between these two places are captured with video, including kids running in the streets, the drive across the Bay Bridge, and the journey up the hills to Grizzly Peak. This video footage happens within the musical container of the initial five-minute viola duet. The time on the road and up the mountain is used to recall the music and to document the transition to the next phrase of audio recording (the bells). The panoramic view closes the piece, looking back on San Francisco where the original violas were recorded, and the piece is then ultimately concluded with an additional closing bell.

The submitted fixed-media version was edited together in about 12 hours using Final Cut Pro 7 with the help of a professional editor, Chris Faber. During this session I expanded and developed my knowledge of the program, which I have been able to use subsequently. In many ways video editing was quite intuitive as the work-flow was very similar to the multi-track audio editing process I already use in my compositional work. In this work, similar to the way I often layered a variety of sounds together in my multi-track compositions, I layered multiple images by adjusting the opacity of the images. Examples of this are the emergence of the viola player out of the bridge-driving scene and again with the ghostlike violist in the sky on the hike. Again, I worked with changing the playback speed in several instances including most notably again the cars in the bridge scene. I very much enjoy the editing process, which gives me a similar satisfaction to the experience of composing my notated work, in that I am dealing with balance and form and narrative.

Diagram 4 presents two perpendicularly positioned timelines with corresponding images. This offers a representation of the time frame of when the footage was filmed as well as the new timeline created while editing. Vertically (from top to bottom) the images are in the order that they actually occurred and were filmed during the estimated 3-hour window. Horizontally (from left to right) are the images in the order they were presented for this 5-minute edited version. Diagram 5 provides a closer look at these selected images. Although some of the images are taken out of sequence and much of the footage is left out, the arch of the edited piece implies the actual journey taken during the performance day. A day that was, indeed, quite beautiful.

While the performance of October 14th spanned quite a large geographical area, with the exception of the three Tibetan bells, most of the actual audio
recording (viola duet) was done in the recording studio. From here, a natural next step was to include and document music making during the periods of travel as well. A central impetus for developing the subsequent piece, *Shattuck Square*, was a desire to discover whether it would be possible to perform and record an actual multi-track piece while in motion. In this work, a particular emphasis would again be placed on locations and the incorporation of maps.

IV SHATTUCK SQUARE:

The form for *Shattuck Square* emerged as a multi-layer performance piece, taking place in an expansive venue and featuring four fixed-media videos presented within an interactive website. In its original incarnation, this project combined YouTube videos with 'zoom-able' Google Maps extracted from the web in realtime. I later moved the videos to another streaming service and replaced the Google Map technology with still images for greater independence and increased site stability. The initial version, however, successfully linked these two public services, allowing for live streaming of the YouTube videos as framed within the dynamic Google Map images.

The inspiration for this piece evolved out of observing experiences from my daily life. Between January and March 2010, I attended daily yoga classes at Yoga-to-the-People in downtown Berkeley. While preparing for my PhD Orals exam, teaching, and performing on the viola, I would attend at least one class each day. I generally drove to these classes, sometimes rather quickly, either from home or from campus, parked my car within a four-block radius, would run to the coffee shop on Shattuck Square for a pomegranate green tea and swiftly walk into class with seconds to spare. After many months of observing myself engaged in states of deceleration and acceleration in and out of this location, I began to form initial ideas and images for a piece with an expanding and contracting venue and varied methods of movement.

The locations expand and contract in concentric rectangles around one central focal point: the historic Shattuck Square building in downtown Berkeley, located on the corner of University and Shattuck Avenues. Each of the four videos feature one layer of musical material that was filmed on location and then reflected onto the Google map, adjustable to various degrees of zoom. The performer records the musical material either in stasis (level 1), or while engaged in one of several modes of travel (walking, running, driving). The user of the website can adjust the zoom level with the plus or minus signs, allowing him or her to move in and out of the various layers of location and music.
Given the technological developments that have allowed for extreme portability in the design of recording devices, it is now essentially possible to wear a recording studio on one's body. This piece was an important breakthrough for me in that I was able to successfully create a multi-tracked audio composition while in motion. The process associated with such a task posed an intriguing musical challenge: I am an improvising performer now working in a less controlled and public space. As a result, I was offered an invitation into further reflection on the roles and interplay of performer, audience, and venue. The video component of this piece documents this exploration while also presenting a glimpse via captured images of the happenings at these particular locations and moments in time.

The composition process for this work involved a variety of new and often non-sequential steps, including: location selection and video-shoot preplanning; on-site, partially improvised musical performance and multi-track recording; re-composition of the audio and visual material through postproduction editing; and, ultimately, website design. Each of the four videos are, in essence, short films, and each has a unique visual aesthetic that developed as a result of the mode of filming and editing choices. Diagram 6 offers an overview of the movements, locations, musical material, and video screen set-ups at each of the four levels.

**Level One – Sitting:** This video was filmed inside the Shattuck Square building at the Yoga-to-the-People studio. The audio material features a combination of vocal cries and silence. Although, conceptually, this layer is the center from which the other material expands outwards, it was actually the last material to be recorded after having listened back to the musical material of levels two and three. A single, full-screen camera angle frames sustained diatonic pitches that are sung in a lyrical manner.

**Level Two – Walking:** This video was filmed within a twenty-minute period, beginning at approximately nine p.m. on Sunday, April 20th, 2011. As mentioned above, the four tracks of viola material were recorded on site while walking, using a portable multi-track device (Roland Zoom h4n). I used a very inexpensive instrument (a $100 viola purchased online) for safety reasons and a very basic Fishman bridge pick-up. This was the first level I created, and it served as the motivic kernel from which the entire piece grew. A raw, improvised, and driving perpetual motion in the viola texture is at the backbone of this entire piece, and can also be detected in other levels. I used two cameras each on two diagonally opposed corners of Shattuck Square (see Diagram 7); this allowed video to be captured at all points of the block. As the cameras rolled continuously, I recorded the first side of the block to a click track (quarter note = 120). After pausing for only a few seconds in order to switch audio to the next track, I turned the corner and overdubbed the next viola line while listening back to the first. I continued this process for all four tracks and sides of the block; Diagram 8 shows a timeline of
the construction of this level. The four-way-split video screen layout was edited so that the viewer sees what was playing during the recordings. This edited video then fits into the Google Map representation of that block at the particular zoom level. The goal here was to create a simple "as is" depiction of the recording, almost like a surveillance camera, bringing together four moments in time through the multi-track recording process. I included only a few minor additional edits at the beginning to introduce each voice one at a time. Otherwise, the four takes – each side of Shattuck Square – are visible simultaneously so that one can both hear and see what I was playing while constructing a multi-track composition on the street.

**Level Three – Running:** This level covers a circumference approximately six times larger than that of level two, and is bordered by Center, Oxford, Berkeley, and Milvia streets. My running speed in this video was set to the tempo of a quarter note at 120 bpm, which was determined as I ran in time with the material of level two. In my initial tests, I discovered that at this tempo it was possible to cover approximately two sides of the new rectangle in the three minute and forty-eight second duration set by the level two walking pace. I therefore chose to present a simple split-screen layout showing these two sides, each traversed within this duration. The musical material consists of five orchestra bells hung in several locations along the path of this rectangle. While running, I am listening to the first layer of music and timing the strike of the bells to the music. The camera work was less prescribed than in the previous level: I repeated this run many times with instructions for the camera operator to catch particular shots. I ran each of the half-rectangles in the full duration, but the footage shown in the split-screen video comprises a selection from a variety of takes. In contrast with Level Two, which means to capture a real-time musical performance, this level draws from a compilation of footage, filmed over several days, and presenting a more reconstructed reality and timeline. The audio recording of the bells, however, does consistently correspond with the video.

**Level Four – Driving:** This level was captured while driving at night through a larger territory, covering Cedar, Sacramento, Dwight, and Piedmont streets, with an additional weaving corner through the hills featured at the end of the video (resulting in an interesting encounter involving a deer). What is displayed here is the single take from the camera as mounted on the dashboard of the car. A portable recorder was placed near the engine block in order to capture some of the pitch content generated by the engine. This audio was then synced with the video. The initial counterclockwise loop had a duration of 10:43. I increased and decreased the playback speed of this video so as to enhance the dramatic arch, and to manipulate the pitch of the revving engine in a way that was musical and more in accord with the viola and bells of levels two and three. The resulting video with varied playback speeds was then set to match the 3:48 duration of the other levels.
**Site Design:** The design of the website was done in close collaboration with Yotam Mann, an important contributor in regard to site functionality and html programming. The index webpage opens to level two, and although the play button starts all four videos at the same time, only level 2 is visible and audible. The plus/minus zoom button either exposes or hides the other videos and audio, while zooming in and out of the Google map. The site resizes the videos and Google maps such that each particular YouTube video is framed by the rectangular geographical area in which the music was performed. In theory, all the videos and their corresponding audio align, though some inevitable lag will occur on account of the various load time and playback speeds associated with streaming videos. The similar and repetitive nature of the musical material helps to mask any sense of interruption. The fact that the viola material of Level Two is present in each of the four levels helps to create a sense of compositional continuity, even though one is scrolling through audio and video in real time. *Essential Supporting Video #4* is screen capture video of a user on the website scrolling between Levels 2, 3 and 4. Level one is not included as this example is from an earlier version of the website.

One of the challenges I faced in *Shattuck Square* was that of capturing an audio recording of acceptable quality while moving through large geographical areas. The poor quality viola and very basic bridge pick-up I used, the latter of which captured very little of the resonance chamber of the former, certainly contributed to this problem. In *Shattuck Square*, however, this was not of great concern since the rawness of the experience was intended. The desired effect for this work could be likened to the introduction Paul Hindemith gives to the fourth movement of his *Viola Sonata opus 25, number 1*: "Rasendes Zeitmass. Wild. Tonschoenheit is Nebensach" (Frantic Tempo. Wild. Beauty of Sound is of Secondary Importance). Unfortunately the quality of sound for *Shattuck Square* was of secondary importance in part also due to the limitations of my technical set-up. Recording outdoors poses certain inherent challenges; however, it would certainly be possible to increase the recording quality of such a performance through the use of alternative microphone placements and wind screens. I was, however, more interested in developing a way to bring the footage from my explorations of new territory back into the concert hall. I therefore began developing approaches of importing one location into another using projected video in ways that would allow for interaction with a live performance. The principal procedure that evolved over time and worked well in a number of contexts was one in which I would cast my shadow upon the video screen.
V. GHOSTS:

My first live performance to make use of this process using my shadow was a work called Ghosts (Essential Supporting Video #5), which included projected video of pre-recorded footage of myself skateboarding up and down a long hallway. I engaged and improvised with this material by standing between the projector and the large screen at Hertz Hall, casting a shadow upon the projected video, often creating the illusion that these dark skateboarding figures were emerging from and returning to a silhouetted body. In contrast with Circles (Arch Street Garage) – in which the camera is in motion, revealing the space and performers throughout time – this piece captures an unmoving angle of a long hallway, through which a skateboarding violist moves towards and away from the camera. The screen then offers to the stage the illusion of augmented depth, this illusion being strengthened by the coming and going of the pre-filmed skateboarding performers. The audience has the option to watch the live performer on stage – in the case of this performance, a performer standing on a chair – or watch the screen projecting an integrated version of the pre-recorded and live performances.

As mentioned before, the vision for this piece was to create a visual field where the skateboarding viola players could at times appear to emerge from and return back into the improviser's shadow, like ghosts of the live player. The site, camera positioning for capturing the skateboarders, and musical material were selected to serve this purpose. Similar to the garage in Circles, again the mood of the location was central to the work. The hallway, the main corridor of Morrison Hall, the UC Berkeley Music Building – which, during the day, is full of vitality: students rushing to class, instruments playing, singing – at this late hour was entirely desolate. The material was all recorded between two and five a.m., and the building lights were turned off. I added two additional lights in select positions in the hallway that would highlight the skateboarding in certain locations. The camera was placed on a tripod at one end of the hallway. It was important that the live audio be captured while moving through the space; in other words, no overdubbing later. The challenge that arose was to film this material without using headphones; the solution was to again use the Fishman bridge pick-up on the viola, which connected to a wireless body pack that was received and recorded digitally into the audio editing program Logic Pro. The click track could then be monitored live through two speakers that were placed in the hallway outside the line of vision of the cameras. While skateboarding, the click track projected quite loudly throughout the hallway, however the bridge pick-up still recorded the viola with virtually no
bleed. For safety reasons I again used a very inexpensive viola. The sound for the live performer in the concert hall however was more natural as I was able to safely use my good viola and as well as a DPA microphone for a more acoustic and resonant quality.

The pre-recorded material that was captured while skateboarding primarily employed a steady stream of sixteenth and eighth note perpetual motion. Each appearance of the skateboarding performer has the duration of approximately ten seconds. In many of the takes the skateboarder is moving away from the camera, while in others he is moving towards the camera. These short modules of musical material become the compositional building blocks for the work. The only sound used that was not produced by the viola was a single click from a click-track that was slowed down to play back at six percent of its original speed, creating a gong-like resonance that recurs through the piece. This repeated sound supports the establishment of the mood and is central to the wave-like structures and pacing of the work.

For the initial performance, I isolated eight modules of footage from over fifty takes. I compiled a loose structure in a Final Cut Pro timeline using these modules, many occurring multiple times. The video opacity of the individual takes was lowered to enhance the ghost-like nature of their appearance and also to allow several of these takes to be present at the same time on the screen. In this audio-video timeline there is an oscillation between a still eeriness (with the low gong-like resonance) and these flourishes of the independent fast-moving events (skateboarders). My role as the live improvising performer was then to connect these musical phrases. In addition to bridging the musical ideas I was also able to connect the visual material through my gestures and position in relation to the screen. For example, the position of my shadow would greatly influenced the sense of drama and narrative arch by either creating the sensation that these moving figures were entering and leaving my body or passing to and emerging from the side. This platform then became an opportunity for both musical improvisation as well as for physical exploration of a particular field of space (the screen). The result of this was an opportunity for diverse movement and dance within the context of musical performance.

The submitted video documentation is from the live performance at Hertz Hall (Essential Supporting Video #5) filmed using two cameras. I constructed this particular timeline of skateboarders and low gongs to be projected at this concert with the intention of providing a loose structure for improvisation. Generally I used quite contrasting musical material in the live improvisation to the faster motion of the skateboarders in the video.

The most current version is more open and allows the performer to create the form in the moment of performance. The musical audio and video modules (the
skateboarders) are imported into an Ableton Live session, where the improviser can trigger via midi foot switch the various skateboarding violists and clicks/gongs in real time. This simple patch will work in a number of ways, allowing the performer to interact with a variety of material, which could also be expanded by filming more musicians (dancers, elephants, etc.) moving through the space.

The experience of watching my shadow in real time while performing in Ghosts presented the sensation as if I were present in the hallway. With this perspective, I could spontaneously interact, both musically and physically with the events and objects in the hall. I immediately saw how this newly discovered freedom could apply to my performance experience. In taking the shadow techniques from Ghosts and combining it with the traveling footage of October 14th, I was interested in exploring what possibilities might arise by having my shadow move through the city streets. After undertaking some initial screen tests in the Elmwood district of Berkeley, I concluded that the process was quite effective and warranted further exploration. I then selected a 12-block area of Oakland and began a systematic collection of walking footage through the streets. I then drew upon this footage for the development of a new work, Oakland Shadows.

VI. OAKLAND SHADOWS:

The location for Oakland Shadows was a 12 square block area in Oakland ranging from 8th street to 12th street and between Clay and Castro streets. Having just finished the Shattuck Square experiment, I was still intrigued by Google Maps and the potential for integrating it into my work. Thus, the initial vision for Oakland Shadows focused on an online platform that offered the audience and/or, in this case, the site user various choices as they related to a map system. With Oakland Shadows, I imagined the birth of my first “online viola avatar” and I was exploring interesting urban areas to situate the avatar and to allow these ideas to develop. I chose the 12 square blocks in Oakland as it appeared to have a low density of cars and pedestrians and in general, moved at a relatively slow pace.

The neighborhood is quite diverse, with a mix of residential and commercial properties, and a park in its center. A central factor in selecting this location however was that it was an area unknown to me. In both Shattuck Square and Circles the process of becoming familiar with a new location was a vital aspect of the creative process. For Oakland Shadows I also trusted that by committing to this location, the material and working methods would emerge after spending time there.

The Essential Video #6 is an 18-minute compilation of 16 examples from the Oakland Shadows project. These excerpts are edited together in a timeline and labeled with letters A-P that appear in the right-hand corner on the video.
Although there is a narrative arch to this compilation, this video is presented not as a finished work, but rather primarily as a means of showcasing a diverse cross section of the material. The process of creating the audio-visual street pieces associated with *Oakland Shadows* involved several stages.

First, I moved with a steady pace through the streets from one corner to the next, filming and bringing attention to certain visual material. The scenes were filmed through a tungsten filter, which produced a bluish tint meant to lend an abstract quality to the visual world. At the same time, I recorded various sounds from the streets: motors, bits of conversation, etc. I then reviewed the videos and removed some of the ambient sounds, as well as added initial musical material, i.e., a Rhodes electric piano track. I then projected the videos onto a large screen in Hertz Hall at U.C. Berkeley. As in *Ghosts*, I placed myself in the light path of the projector and, in order to facilitate a more integrated image, I built a temporary platform of chorus risers that enabled my shadow to align with the projected video. The intention here was to create the illusion of a viola player more or less moving through the streets. From this point of view I tracked an additional layer of audio material – the viola lines – which were inspired by both the visual and initial audio material. I then filmed the result of this process – that is, the original video and shadow – and combined it with the multi-track audio recording to produce fixed-media videos of each block.

In several instances, I also added footage and audio of additional musicians, which contributed an extra layer of interest and complexity to both the audio and video. I accomplished this in two ways: one, by inviting another player to perform in the concert hall in order to cast an additional shadow; and, two, by inviting musicians to play and record on the streets. In the former case, I was also able to utilize my through-composed pieces and integrate them into the work. Much of the musical material in both cases was improvised, sometimes with gentle instructions from me. I found that when I would revisit these streets in Hertz Hall, I enjoyed having another player’s image and music-making with which to interact.

I filmed the first round of the 62 streets scenes in one long, late afternoon shoot, which included the light cast by the setting sun. This quality of light, as affected by the tungsten filter, was central to the mood for many of the street scenes. The camera was relatively small (canon Hfs20) and I was able to hold it at chest level partially covered by a black cloth bag. I wished to reduce the conspicuousness of my filming in order to capture the unmediated activity of the street. The next step would be to use a hidden camera attached to my chest while monitoring the shot through a separate phone size device and perhaps also include the use of bi-aural headphone microphones. Inspired by the mindful walking meditation practices in many Buddhist traditions, my aim was to move slowly and peacefully through the neighborhood while filming. As I expanded the process to
include other musicians and actors, the camera work became more complex. I began experimenting with different angles, varied walking tempos, and more dynamic activity. The majority of the filming was spontaneous and as such, incorporated many chance events into the work (i.e Essential Supporting Video #6 Example D, the car starting on fire, and Example E the surprise percussionist). In some instances, particularly the examples with featured guests musicians and actors, the scenes were more predetermined and directed. In a few cases I reconstructed the street scenes from multiple takes selected during the edit, but in general, each block was filmed in one long shot.

Following the filming process, I then recorded the Rhodes keyboard parts for many of the streets while watching the initial footage. Though the majority of my performance life has been centered around the viola, a large part of my musical activities involve the piano and vintage electronic keyboards. There is a wide range of performance subtlety available and a certain appealing bell-like warmth to the Rhodes. For Oakland Shadows I used an 88 key Mock 1 stage model offering abundant low end frequencies that served well in establishing a mood that complimented the visual material. Much of this music was improvised and recorded to a click track. In several instances I also added a very basic drum track and in the three north-bound 12th-street blocks, there was additional production in the background tracks by Jamie Watts with whom I was collaborating.

For the first version of the 62 streets, I recorded my viola playing in Hertz Hall. I played the video tracks back in Ableton Live with the accompanying Rhodes or other supporting musical material. The inclusion of and interaction with sounds discovered on location became one of the central themes. In many of the street scenes, I chose to perform solo viola only to engage with the environmental sounds more directly. In Example C & M of Essential Supporting Video #6, the solo viola line is in part interacting with the accelerating engine noise of the traffic.

From the platform of risers on the stage of Hertz Hall, I could then watch the videos and my shadow while tracking the viola lines. The element of physical movement became a primary feature to this new method of performance. There was something quite exciting and freeing about performing in this way. As the performer, I felt that I was transported to the 12 square blocks in Oakland, which catalyzed my imagination and thus opened my playing to many possibilities.

The aim was not to create a perfectly realistic representation of this movement as if I was actually walking these streets. I did however attempt some preliminary tests using a portable stair master while tracking the viola, more or less matching the pace of my original walk through the street. I preferred however a stationary platform and the resulting ghost-like hovering motion. I also experimented with a green screen as an alternative option to create a similar effect. Ultimately I still preferred the striking contrast of the shadow blocking the light on
the screen and the simplicity of performing in a live context using this method. Over time, I adjusted certain angles and parameters to create a proportional representation of my body moving through the streets. In several instances, I also experimented with more dynamic movement just to see what the possibilities might be, for example the chase scene in Example O. I also filmed the entire collection of streets from my bike and then again from a cab with the intent to create a flying shadow avatar. The process, as well as the results, is still ongoing and evolving.

The initial version of this work takes the form of an interactive website where the user can choose in which direction the shadow performer will go. The most current active website is located at: www.oaklandshadows.com. For this online version, I added an additional file to each street that comprises a map of the entire twelve-block area with a small, white flame that traces the path of the violist on each street. The map outline was extracted from a still image of a Google map and augmented by Ilya Rostovtsev, (see Diagram 9) who created a new version in black and blue. To create the moving flame, I used a free, downloadable program called 'I-Cursor', which converts a cursor into a chosen shape – in this case, a burning flame. I then watched the videos of street travel within each block while moving the cursor along the street on the map, and captured screen images using the program, 'I Show You HD'. I then combined the video of the shadow violist traveling along the street with the corresponding map-and-flame video, along with a title to create the versions for the online platform.

The website plays video files – in this case, sixty-two possible videos, one for each side of the street and direction of the twelve blocks. The user can choose a possible direction at each corner. This choice was facilitated by text overlay annotations onto the video (provided by Youtube) “Go right, Go Left, Go back, or Go straight” that would link to the next video. With a map and corresponding location marking on each video, a user can navigate through the series of videos as if traveling through the neighborhood.

This choose-your-own-adventure model was initially quite appealing as it mirrored my own process of creating the pieces, as well as allowing the viewer to obtain their own ability to meander through the location. The parallel online location offered a means of connecting these otherwise separate musical pieces, as well as grounding them in reference to the physical location in which they were created.

By turning over choices to the user within this platform, I opened up many possibilities of merging my musical and video work with the world of video game design in order to further explore listener/viewer interactivity. My longer-term vision is to create a symbiotic relationship between the actual location and the online platform, including live on-site performances for audiences as well as
streamed concerts projected onto surfaces in the neighborhood. I also did some preliminary work on several site-specific works related to the architecture of the neighborhood buildings. These additional scenes were also all to be connected through the Youtube annotations that would flash on the screen for a few seconds. The intent was to create an environment of multiplicity with room for exploration and choice.

Many of these options to expand the interactivity of the web platform have yet to be implemented. In its current form, the website provides the user with an ability to make choices as to which streets and directions he or she wishes to proceed but only at certain points along the route. This however, has proven to be too limited as users have generally expressed an interest in having more moment-to-moment control and influence on where and when they can navigate throughout the location, i.e., like a traditional video game. The 62 streets with the additional hidden musical extracts totaled approximately two and a half hours of music. Although the wandering and meandering aspect of the avatar was initially quite compelling, the vastness of the territory, both musically and geographically, could be potentially overwhelming without offering more guiding principals in which to assist the user.

One way of addressing this is to build more explicit connections between the musical material and the geographical locations. I can foresee designating a particular rhythm to each of the corner intersections. As one approaches or retreats from the corner, the presence of the rhythm could become more or less prominent. I also sketched out several potential systems for linking each of the 12 blocks to a tonal center drone, which would open up enormous compositional opportunity.

Most recently I have found a very effective presentation method is through compiling a series of the street scenes together to create longer narrative pieces. This functions quite well in a concert hall performance setting and allows me to compose a musical and geographical path from the various street modules and highlight particular musical moments. The sense of narrative could also be strengthened by including text and perhaps scripted dialogue. Even the most minimal additional of verbal or written content can frame these musical pieces within the context of a story and have tremendous influence on the viewers perception of the music and film. The few pieces of text added to the Essential Supporting Video #6 (‘Once upon a time’, ‘Meanwhile back in Orchestra’ ect..) I included merely as a demonstration of the suggestive possibilities of including such material. I feel that this work lends itself quite naturally to the development of short films that could be performed live in a film festival setting. I also have ambitions to create a feature length film using this shadow technique in combination with more scripted narratives.
FUTURE DIRECTIONS:

In general, the techniques cultivated throughout the creation of all six pieces have opened up many possibilities for future work. The tools I developed for collecting and combining diverse audio and video footage offers a flexible platform to host collaborations with musicians and artists in other disciplines, i.e., visual artists, videographers, computer programmers, choreographers, and dancers.

Additionally, the skills developed while completing this body of work are also applicable to my through-composed pieces. Example P of Essential Supporting Video #6 is a sample of a method I intend to further develop in which I build an ensemble of musicians recorded at different times who can then be repositioned to create the illusion of performing together on stage. In Example P, I recorded four multi-tracked violas (wearing masks) in various locations on stage that I then reconfigured to create the illusion that it was happening simultaneously. This technique would allow me to construct a virtual ensemble that can perform new audio–video compositions, both improvisational and notated material. My intention is to use these methods to connect and collaborate with more traditional performance groups including orchestras, chamber music and new music ensembles. I am also interested in using video scores for controlling certain parameters of the music in combination with more traditional notation. A natural expansion of this work would also include some of the emerging technologies for streaming video in order to allow for collaborative endeavors over a wide geographical area to be performed in a live context.

I also envision creating several versions of my through-composed pieces so that compositions with larger ensembles could be scaled down for smaller venues. For example my current Viola Concerto, scored for orchestra and solo viola, could be performed in a solo concert setting using footage of the orchestral part with the solo viola line performed live via the shadow technique.

The ability to import and export material into and out of various contexts offers greatly expanded possibilities. As this work often takes place in more public spaces, it is imaginable that interesting social-political topics would emerge that could offer a broader context to and engagement with the creative process. The journey through these six works has provided me with an infrastructure to bring together music making within a variety of contexts. It also offers me the opportunity to integrate my day-to-day experiences as I collect material from the world and bring it back into the concert hall.
Bibliography:


GARAGE DIAGRAM

DIAGRAM 1

Camera Position (rotates 360°)

Position of Live Viola Player

Pillar

Dividing Wall With Cut out Circle

Camera Angle Screenshots

A B C D

E F G H
Garage Camera Angle Closeups

A

B

C

D

E

F

G

H

DIAGRAM 2
Instructions/ Score with Approximate Timings For “October 14th”

DIAGRAM 3

- Recording Studio
- 1 Hour
- Travel
- 2 Hours
- Hill Climb
- 3 Hours

Bell 1
Bell 2
Bell 3
<table>
<thead>
<tr>
<th>Movement</th>
<th>Location</th>
<th>Musical Material</th>
<th>Video depiction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level 1:</strong></td>
<td>Stationary</td>
<td>Inside the Building</td>
<td>Vocals &amp; Viola</td>
</tr>
<tr>
<td></td>
<td>(64 Shattuck Square)</td>
<td></td>
<td>Single screen</td>
</tr>
<tr>
<td><strong>Level 2:</strong></td>
<td>Walking</td>
<td>Around Shattuck Square</td>
<td>Viola Multi-tracking</td>
</tr>
<tr>
<td></td>
<td>(Clockwise)</td>
<td></td>
<td>perpetual motion</td>
</tr>
<tr>
<td><strong>Level 3:</strong></td>
<td>Running</td>
<td>Rectangular area</td>
<td>Orchestra Bells</td>
</tr>
<tr>
<td></td>
<td>(Counterclockwise)</td>
<td>(Berkeley, Milvia - Center, Oxford)</td>
<td></td>
</tr>
<tr>
<td><strong>Level 4:</strong></td>
<td>Driving</td>
<td>Rectangular area</td>
<td>Engine sound</td>
</tr>
<tr>
<td></td>
<td>(Counterclockwise)</td>
<td>(Cedra, Sacramento - Dwight, Piedmont)</td>
<td>speed increased to control pitch</td>
</tr>
</tbody>
</table>
Shattuck Square Detailed Level 2 Process Diagram

Recording Process

Start

Time

(Camera 1)

Take 1

Break

(Approx. 3min 10sec)

(Camera 2)

Take 2

Break

(Camera 2)

Take 3

Break

(Camera 1)

Take 4

(+Outro)

(Live Back)

Take 1

Take 2

Take 1

Take 2

Take 1

Take 2

Take 1

Multi-track Recording

+4 tracks of video

Take 1

Take 2

Take 3

Take 4

set into 4 way
set into google maps
set into 4 way
splitscreen video

Diagrams
Oakland Shadows Map

by Ilya Rostovtsev