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The FiddleLights project: an artist's recording of bow-hand movements in fiddle tunes

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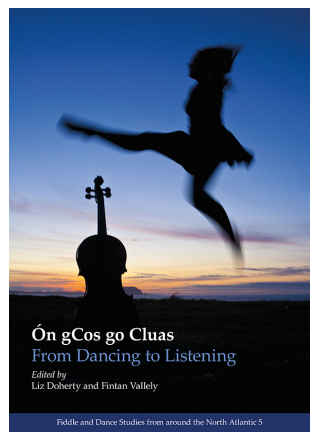

About the author:

Elisa Sereno-Janz is a graduate of the University of Western Ontario, Canada in Music and in Education. As a music educator, fiddler and classical violinist, she has been active in the Calgary music community for twenty-seven years and is currently taking a BA in Fine Arts at the Alberta College of Art and Design in Calgary. Her visual art practice explores new media where she integrates fine art and music. She presented at the North Atlantic Fiddle Convention 2006 and her paper, 'Bridging Fiddle and Classical Communities in Calgary, Canada: The Baroque and Buskin' Strings' was published in *Driving the Bow* (2008).

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The FiddleLights project: an artist's recording of bow-hand movements in fiddle tunes

ELISA SERENO-JANZ

Fiddling and dancing are inextricably entwined. Just as fiddle music moves the body of the dancer, the act of fiddling moves the body of the fiddler in its own dance. The performer executes complex movements in the manipulation of the bow, of the fingers, and of the entire body to release the voice of the instrument. I experience fiddling as part of the practice of haptic art, that of aesthetic touch. In this, the corporeal experience is as much a part of the music making as the aural result. FiddleLights is a new media visual art project in which I record the gestures of the bow, presenting a kinetic 'drawing' of the actual movements which create the bowed sound on the fiddle.

In the year 2010, after 27 years as a professional musician and private violin/ fiddle teacher, I entered the Alberta College of Art and Design in Calgary, Canada, to study for a degree in Fine Art. In one of my drawing classes, the students were led in a discussion about how to access ideas for abstraction. My teacher, Mark Mullin, is an abstract painter. He suggested, 'In using the body as a subject for abstraction, don't think of how the body looks, but rather how the body moves'. The challenge was how to then represent that movement in a two dimensional form. This abstract drawing assignment proved to be pivotal in exploring new avenues of creative production.

The project

I have always been fascinated by the shapes that my bow hand draws in the air when I play the fiddle. Sometimes when teaching fiddlers and violinists, I have drawn my students' attention to the shapes their bow hand makes as they play. When they smooth out the curves and pay attention to their movements, their playing becomes more graceful, with smoother transitions between strings and between bow strokes. As a subject for drawing abstraction, I was curious as to how I could represent the bow hand movement in a two dimensional form. My theory was that I would discover basic shapes such as circles, ovals, and figures of eight. I tried many different methods of actualising the shapes which I create with my bow hand when I play the fiddle. I tacked a piece of paper to the wall. Holding a felt pen between the fingers of my bow hand, I played my fiddle, transferring for the first time the shape my

bow hand was making in the air onto paper. Immediately, I was surprised by the diversity of gesture which these drawings began to show. Figures 1–3 are the result of taping Arches paper to the wall and holding a watercolour crayon between the fingers of my bow hand, drawing on the paper while I played.

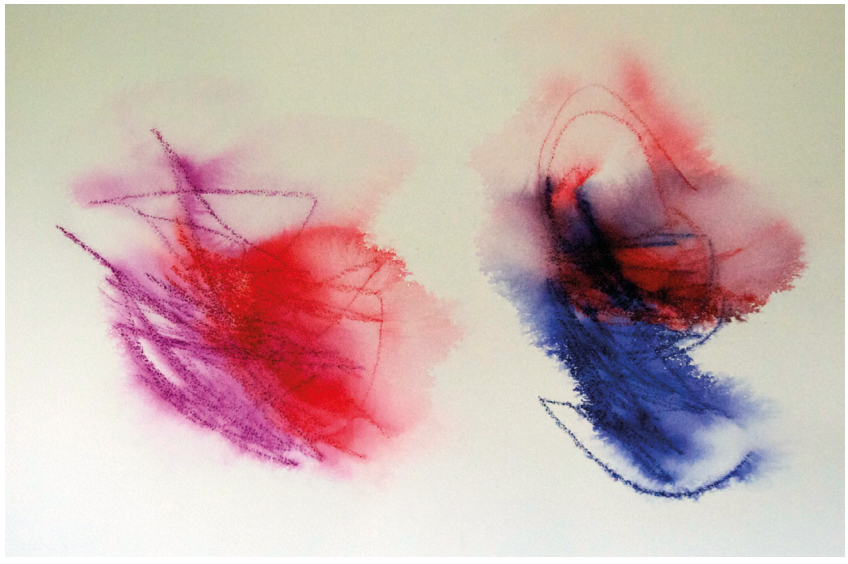

Figure 1 The traditional reel, 'The Mason's Apron'. The A and B sections and the repeats are separated in colour and in space on the page.

Figure 2 Slow air, 'The Bunch of Keys'. In this one, the A and B sections are also different colours, but layered in the same area.

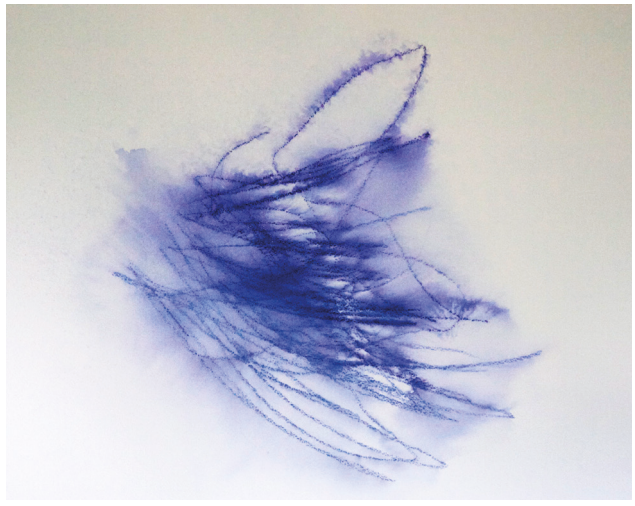

Figure 3 'Snow in April', a waltz by Tim Janz, where the A and B sections are presented in the same colour (watercolour crayon).

Figure 4 'Snow in April' (kinetic).

Figure 5 ‘The Bridal Jig’.

Figure 6 ‘The Mason’s Apron’.

Although this method was showing me how varied the shapes were for each tune, the resistance of the drawing tool with the paper confined my gestures. The result was an inexact representation of the movement. At this time I was also taking a photography course and experimenting with the possibilities in time-lapse photography by tracking the movement of lights at night. I was curious as to whether I could somehow use that technology to show the bow-hand gestures more clearly. Laser pointers are small, weigh only 10 grams and discharge a very bright, focused beam. I taped a laser pointer to my bow hand, so that the light was pointing off my knuckle, and shining at the wall at a 90° angle. I turned out the lights, so that the only light recorded in the photograph would be from the laser pointer. I set my camera to a 22 second exposure which gave enough time to play the A section and the B section of the tune once, without repeats. Because the laser pointer weighs so little as to be almost imperceptible, I was able to play with much greater freedom of movement. This now provided me with an exact two-dimensional representation of the movement used to play that particular tune.

Figure 4 is a laser kinetic drawing of the same tune 'Snow in April'. In this digital time-lapse photograph, we can see how much freer the movement of the bow hand is compared to the more angular movements recorded in Figure 3. Note however, that the general shape of the drawings are similar.

Figure 5 'The Bridal Jig' and Figure 6 'The Mason's Apron' further demonstrate the variety of shapes and gestures used to give voice to the fiddle, creating a unique drawing for each tune. I found that fiddle tunes provided much better material for working with than classical music. Classical music tends to have sections where the ideas are developed over a long period of time, with more similar motivic repeated gestures, while fiddle tunes encapsulate a diversity of motion within only 16 bars of music. For all of these examples, I played the A section and the B section only once, without the normal repeats. This allowed for more space in the drawing. When I tried it with the repeats, the lines became cluttered. From examining these first examples of kinetic drawings of fiddle tunes, I became intrigued by the idea that certain categories of fiddle tunes – reels, jigs, airs, waltzes – seemed to have their own individual gestures and visual character. This led to a question. Could gestures be related not only to the type of dance, but also the genre of tradition, such as Irish, Scottish, Old Time, etc., or even individual players? FiddleLight images provide a new visual representation of the language of music. There is significant potential to further explore these kinetic signatures in the realms of musical analysis, pedagogical development, and abstract visual art.

Descriptions and comparisons

Following the visual clues, the music itself can be analysed through these kinetic drawings. The position of the lines can be related to pitch. The density and length of lines are indicators of the speed of the music. Circles and figures of eight represent string crossings. Correlating the position of the lines in the photograph to the movement and position of the bow hand, the lower notes on the fiddle, played on the G string are represented by the higher lines in the drawing. High notes played on the E string are represented by the lines in the lower areas of the drawing. In Figure 4 'Snow in April', one can see that there is more density to the lines

in the upper regions of the drawing, showing that the melody has a higher proportion of low notes. The sweeping gestures from the upper right corner to the middle on the right side represent long bow strokes. These long bow strokes indicate a slower tempo. The curls and stylised figure eights represent string crossings, where the bow-hand changes levels from string to string. Following the curls at the very bottom of the page, which represent the E string and high notes, we can follow the line right up to the top of the page, which represents the G string. From this we can deduce that there is a part of the melody which jumps from the high notes to the low notes. As the lateral movements are those which indicate the length of bow, we can also see that in this part of the melody it is an abrupt string crossing, with few, if any, notes played between. Exploring and analysing the static image of a melody is one method by which the viewer can experience fiddle music in a new way. Listening to the music while looking at the drawing enhances the viewer's appreciation, entwining the visual with the aural experience.

In contrast to 'Snow in April', 'The Bridal Jig' (Figure 5) has much more density in the line-work. This suggests a faster tempo, encompassing more gestures in the same amount of time. The densest part of the drawing is the bottom left hand corner which suggests high notes on the E string. There is very little on the upper right hand side, letting us know that there is little or nothing on the G string, concentrating the melody between the D, A and E strings. The angular gestures at the top of the drawing indicate that there are sections of bow strokes which remain on the same string. The wavy lines, curly shapes, and small circles are the string crossings. In listening to the recording, notice that the lilting gestures in the music are directly represented visually by the curvilinear gestures of the bow movement.

Figure 6, 'The Mason's Apron', is an example of a reel, and has the most density of the three examples so far. This indicates that it is the fastest tempo with the greatest frequency of bow strokes. There is a lot of angular movement similar to what we saw in the 'The Bridal Jig', yet the lines are much shorter and there are more of them concentrated in a small space. This also suggests shorter bow strokes overall. The angular strokes on the left hand side of the drawing, which are more vertical would be those on the E string. The densest section of the angular strokes are in the middle at a slight angle. These would be on the A string. There is some activity on the right hand side of the drawing which is indicating notes on the D string. There is nothing on the G string in this melody. The circles at the bottom and middle of the drawing illustrate the string crossings found in the B section of the reel. Although there are some curly gestures in 'The Mason's Apron', there are far fewer than there are in 'The Bridal Jig'. In listening to the recording of 'The Mason's Apron', we can correlate the sound of the strong, repetitive bow-strokes with the visual density of similar line.

Figure 7 Reels.

Studying the line work has led to some interesting discoveries. I have noticed that jigs in compound duple time (6/8), have many more curly lines while reels which are in simple duple time (2/4), have more angular shapes. Simple time has an even subdivision of each beat, which works well with the binary up and down motions of the bow. Compound time has a triple subdivision of each beat leading to an asymmetrical division of the bow strokes. Generally, the strong beat is a down-bow and the weak beat is an up-bow. We still, on occasion add asymmetry to the bow strokes in the performance of reels. However, in observing examples of my own playing, I maintain a greater proportion of symmetry in the bowing of a reel. When considering how I bow a jig, there are far more asymmetrical bow-strokes with common sequences of long, short, short that contribute to the curly lines and stylised figure eights.

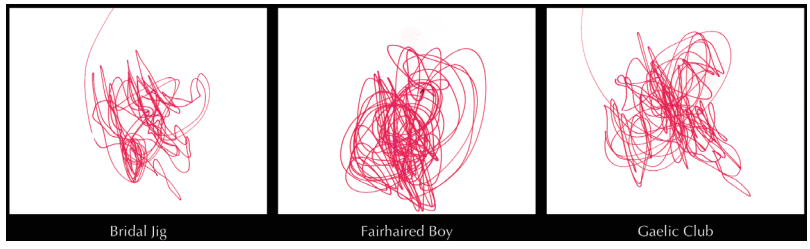

Figure 8 Jigs.

In Figure 7 (reels), we can compare the kinetic drawings of 'The Mason's Apron', 'Growlin' Old Man and Old Woman', and 'The Swallow's Tail'. Although there are some circular forms in each of these, there is a profusion of angular lines; all three reels have a similar visual vocabulary. However, 'Growlin' Old Man and Old Woman' has an increased density of the circles and sweeping gestures which, indicate an abundance of string crossings, not common to the other two reels.

If we compare three jigs, 'The Bridal Jig', 'The Fairhaired Boy', and 'The Gaelic Club' in Figure 8, we notice that the lines contain more curly shapes and stylised figures of eight. This is indicative of the asymmetrical bowing used in playing the jigs. This comparison of the three jigs confirms the asymmetry of the bowing produces the lilting rhythm and characteristic feel of the jig music.

Figure 9 shows three examples of slower tunes: two waltzes, 'Snow in April' and 'The Lone Pine Waltz', and one air, 'The Bunch of Keys', for comparison. It is evident that with these slower tunes, the drawings are less dense, and the predominant gestures indicate longer bow strokes with many curls and stylised figures of eight. The gestures are similar to those in the jigs (Figure 8) yet they are looser and on a larger scale. This corresponds with my use of the bow in slow airs and waltzes. I use much more bow, incorporating some bow strokes which travel the full length of the bow, from heel to tip and tip to heel. They are interspersed with shorter bow strokes as well, providing variation and emphasis. The use of the whole bow makes the gestures more expansive in these kinetic drawings of slower tunes.

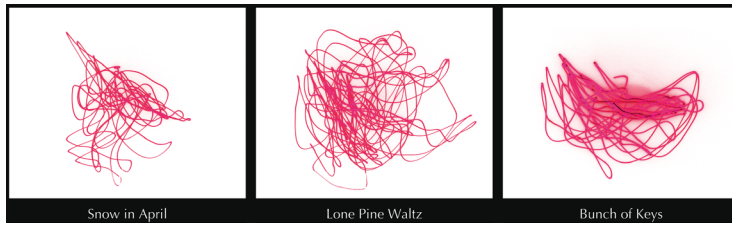

Figure 9 Slow Tunes.

In the first stage of the FiddleLights Project, experimentation was conducted with recording music performance on the fiddle through a static visual image. I discovered how different dances incorporate diverse gestures both in the movement of the body and the sound of the music. Through examination of the lines in the time lapse photos, visual signatures of pitch, tempo, and the use of symmetrical and asymmetrical bow strokes can be observed.

Figure 10 'Growlin' Old Man and Woman'.

Videos

The static images of the FiddleLights drawings are the entry point into a time-based, animated experience through video. In the static image, it is often difficult to find the starting point and the end point of the drawing. It is one thing to look at the finished drawing and

imagine how it sounds. Another dimension of information and experience is incorporated when a recording of the tune is played while observing the static drawing. The next step was to record the music and the gesture with video. Initially I experimented with video capture of the point moving in space, but this did not give the sense of line found in the drawings. The moving dot needed an afterimage to show its path.

To accomplish this, I experimented with several methods and programs which did not provide a high enough resolution in the finished result. Dr Alan Dunning, one of my professors at ACAD, suggested that I process the video with Quartz Composer. This is a computer program which can add a delay to the video. This leaves a trail long enough to give the viewer the sense that they are watching a drawing being made of the bow hand movement. This now enabled the kinetic signatures to be observed concurrently with the unfolding of the music audio.

My video examples demonstrated this relationship between the path of the bow and the music. Video 1 (Figure 10), representing 'Growlin' Old Man and Old Woman', revealed synchronisation of gestures and music, while the still photo shows the accumulation of the gestures over the entire sixteen bars of music. Similar relationships were found with my comparison of Video 2 with Figure 11 ('The Fairhaired Boy') and Video 3 with Figure 12 ('The Swallow's Tail'); a remarkable nuance of gesture can be seen with the processed video.

Figure 11 'The Fair-Haired Boy'.

The FiddleLights Project thus far has been comprised of three major components: time-lapse photos, still photo with background audio and digitally processed video. Each of these components allows the viewer to gain deeper insight into fiddle performance through an

intersection of the audio experience with the visualisation of the exact movements used to produce the sound on the fiddle.

Figure 12 'The Swallow's Tail'.

Value as visual art

While the above analysis is concerned with music interpretation, the outcome of this process can also be appreciated on its own as a visual abstraction of aesthetic merit. The kinetic signatures, in the form of stills, with their curvilinear, organic shapes suggest form and meaning through repetition and variation. The contrast of the black background with the red drawing leads to a perception of vitality in the pieces. Viewed as a collection, these digital photos vary from the quiet curvilinear forms of the waltzes and airs, the playful curls and circles of the jigs, to the very intense, layered mark-making created by the reels. The videos, viewed without sound, suggest purposeful movements: there is rhythm and repetition, yet the speed at which the marks are made vary. It references handwriting, suggesting meaning, and yet is ephemeral, as the drawing disappears even as it is being created. To appreciate the stills or the videos as works of abstract art, it is not necessary to know the origins of the mark-making which are the foundation of the process.

Further research

All of the drawings which I have discussed in this paper are the documentation of one fiddler: myself. This is a record of my personal gestures and my personal style. The kinetic

drawings of my airs, waltzes, jigs and reels reflect my own movements, and although there would be some similarities between fiddlers, this is only a glimpse of the variations which can be explored.

As every fiddler has a unique sound and interpretation of a tune, every kinetic drawing will record the exact movements made in the manipulation of the bow. This becomes a unique signature, generating a unique visual reference of the artistic expression of each individual fiddler. I suggest that every genre of fiddle tunes will also have its own particular set of gestures. A Hardanger fiddler will have different elements in the line than will be found in those of an Irish fiddler or a Scottish fiddler. Styles also vary widely within any national tradition, with regional diversity from north to south and east to west. Because of this, the possibilities for the exploration of gesture between and within style sets are endless.

This work also informs us pedagogically, providing more clues in our pursuit of the performance of different styles. It can become another facet of learning, along with listening to, and watching other fiddlers play. A laser pointer taped to the bow hand uses commonly found technology in a simply, yet highly effective way, and can easily be integrated into the music teaching studio. New music compositions could also find departure points for these techniques. After seeing the results of the FiddleLights videos, I wondered what it would be like if I could compose my own music thinking of the gestures, so that the ultimate result would be a synchronisation of the drawing and the music, in process as well as result.

To further develop all of these concepts, I am hoping to work with Dr Sheelagh Carpendale at the University of Calgary with the Vicon MoCap System. It is a machine and computer programme which tracks movement in 3D. This will present more possibilities for recording the movements of individual fiddle players. Although my documentation of bow movement through the FiddleLights Project gives a true representation of the bow-hand movement of the fiddler, it neglects to incorporate the movement of the whole body of the fiddler. Rather, the fiddler must remain at the same angle to the wall, with the light pointing at 90° to the wall, which can be restrictive for the player. This new imaging system will record the movement of the entire body of the fiddler in 3D, allowing complete freedom of movement.

Conclusion

The corporeal experience of the fiddler, in which the manipulation of the bow creates the sound on the fiddle, is something which is largely known only through a kinaesthetic sense experienced by fiddlers themselves. The FiddleLights Project enhances the haptic experience of fiddling into a visual realm of documentation. For non-fiddle players, the only connection to this experience is visually, through watching a fiddler play. With the FiddleLights Project, deeper insight through the visualisation of kinetic signatures is open to all. The kinetic drawings and videos of the FiddleLights Project also present examples of abstract visual art as impactful images created with intention and aesthetic merit.

The video and audio can be accessed at: http://www.elisaserenojanz.com/NAFCO_2012.html