The Serendiptichord: Reflections on the collaborative design process between artist and researcher
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THE SERENDIPTICHORD:
REFLECTIONS ON THE
COLLABORATIVE DESIGN
PROCESS BETWEEN ARTIST
AND RESEARCHER

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Abstract

The Serendiptichord is a wearable instrument,
resulting from a collaboration crossing fashion,
technology, music and dance. This paper reflects on
the collaborative process and how defining both
creative and research roles for each party led to a
successful creative partnership built on mutual
respect and open communication. After a brief
snapshot of the instrument in performance, the
instrument is considered within the context of
dance-driven interactive music systems followed by
discussion on the nature of the collaboration and
its impact upon the design process and final piece.

As the lights dimmed before a packed
audience of conference goers in the au-
ditorium of Berkeley Art Museum, a
large black box took centre stage, halooed
with light from above. Dancer Heidi
Buehler subsequently appeared onstage,
and with an air of mischievous curiosity
proceeded to open the solitary container.
One by one she extracted the red modu-
lar elements that make up the
Serendiptichord. As she liberated the
curvaceous leather headpiece from the
box the audience became aware of the
link between her manipulation of the
object and shards of sound filling the
auditorium. Intrigued by her newfound
influence, she then investigated each
component on and around the body,
releasing ribbons of sound with every
move. When she allowed the instrument
to slip over her shoulders, she experi-
enced its power and its possessive nature
through to a vociferous climax. Realizing
its seemingly irresistible domination she
tore it off her body, hurling it into the
box. The Serendiptichord, now tranquil,
seemed enticing once more but Heidi
resisted, sealing the box from which it
came.

The Serendiptichord (Fig. 1) is a
wearable musical instrument designed to
entice the user to explore a soundscape
through touch and movement [1]. It is
the result of a cross-disciplinary collab-
oration between Mainstone, an artist who
combines technology, fashion and per-
formance, and Murray-Browne, a PhD
candidate investigating the use of narra-
tive within interactive music systems.

Performances incorporating generative
sonic interpretation of dance have been
undertaken with a number of different
techniques and motivations. Camurri et
al. [2] developed a platform which uses a
camera to interpret a dancer’s gestures,
shape and emotional intention. Different
mappings were developed alongside
dancers and composers in a summer
workshop for a concert combining musi-
cians, dancers and generative sound. As
an alternative to computer vision, wire-
less motion sensors have been used in
systems such as [3] and Sensesemble [4],
a multi-user system drawing on correla-
tions of movement between dancers.

Work produced for these systems is
often driven by a desire to demonstrate
the possibilities of a sensing technology
(e.g. [4]). In contrast, this project drew
on current research into different con-
ceptual approaches to interactive music
systems with an aim to explore its possi-
bilities within current artistic practice.
Consequently, development was art-led
rather than technology-led [5: 62] in that
technology was developed to satisfy
artistic goals rather than art developed to
explore new sensing methods.

The Collaborative Process

The initial purpose of this collaboration
was both to further artistic practice and
to transfer knowledge between different
fields. However, by not adhering to the
traditional roles apportioned to artist and
researcher, some of the common pitfalls
of an artist/assistant relationship [5: 61]
were avoided. From the outset,
Mainstone’s extensive background of
sculptural, tactile and interactive work
and Murray-Browne’s in sound installa-
tion led to distinct creative roles oversee-
ning the sculptural and sonic aspects of
the work. Similarly, having spent a num-
ber of years in a research environment
combining art and technology,
Mainstone’s role is of researcher as well
as artist. Consequently, each party took
great interest in the other’s work, desir-
ing to learn how it may play a part in
future work.

Early communication between the col-
laborators chiefly focused on how each
other’s ideas related, technical feasibility
and indications of preference among
developing themes, allowing an under-
standing of the issues and possibilities to
develop openly. Where these areas
met—conceptual development and inter-
action design—a greater amount of col-
laborative brainstorming took place, with
the artist suggesting how physical com-
ponents might sound and the researcher
how sounds might be invoked.

As in any artistic project, ideas were
often pursued or dropped based on intui-
tion informed by past experience and
personal objectives and tastes. Whilst not
blocking this process, collaborating
shaped it by requiring decisions to be
explicitly justified, enforcing a form of
intellectual rigour.

Developing the Concept

Murray-Browne came to the project aim-
ing to apply his research on the place of
narrative (i.e. macroscopic structure)
within interactive music systems: how
can a composer both develop musical
ideas and provide interactional freedom?
The enticing and provoking nature of
Mainstone’s work offered potential to
address this dichotomy by coaxing a
listener through a canonical narrative.

Fig. 1. Heidi Buehler with the Serendiptichord at the ACM Creativity & Cognition Con-
ference 2009. (© Di Mainstone and Tim Murray-Browne. Photo: Deirdre McCarthy.)
Mainstone arrived with a series of concepts referencing sound, exploratory movement and connection within public space (Fig. 2), a direct response to her current work in New York. As the collaboration developed these themes filtered, focusing on the sense of movement, narrative and sound. Both parties shared a fascination with narrative. Mainstone uses story to develop a physical architecture around the body as well as to create potential for interactive scenarios, which complemented Murray-Browne’s research on the place of narrative when a soundscape is explored in a non-linear fashion.

The first month of the collaboration took place with Mainstone in New York and Murray-Browne in London through Skype and ‘PowerPoint ping-pong’—a virtual sketchpad emailed back and forth. Key words like narrative, exploration and space would resonate with both parties, suggesting where the two disciplines might converge. Developing an underlying concept in terms of both artistic and research ambitions allowed both of these aspects to inform each other. For example, the need for an instrument to be predictable [6] coupled with the desire for serendipitous exploration suggested a relationship between user and instrument akin to collaborative improvisation. This led to the instrument being thought of as a character with personality traits like unrestrainable, playful, illusive, which informed aspects of the design such as the ambiguous shape or the ‘animalistic’ audio effect applied to the swing of the trunk. It also led to different moods being defined through sound and movement and used to construct a story between ‘pioneer’ (our user) and object.

Concurrently, technical restrictions were considered and informed by the developing concept. A vision of serendipitous exploration made technology overly sensitive to environmental factors (e.g. computer vision) less appealing. Overly sensitive to environmental factors might converge. Developing a conceptual architecture around the body as well as to create potential for interactive scenarios, which complemented Murray-Browne’s research on the place of narrative when a soundscape is explored in a non-linear fashion.

**Design and Construction**

Both object and software were constructed simultaneously in close collaboration and small iterations. Keeping with the theme of serendipity, there was the aspiration that the instrument might be used in ways beyond its creators’ intentions, which required the interaction design to be as unprescriptive as possible. This required it to be intuitive, a demand tackled through embodied metaphors—metaphors of interaction as an extension of normal life [7]—created through body-centric development.

This approach to creating interactive art developed through Mainstone’s previous work Sharewear [8], a piece which evolved through creating modular components and observing how others used them. By keeping designs open-ended, users are encouraged to follow their intuition, which the artist may observe and learn from as the work evolves.

The Serendipichord was created around the body, guided by how its wearer felt it should feel and sound when moved and what further movements it should respond to. The wearer was influenced by the current shape and sounds of the instrument. This feedback allowed the aesthetic to evolve through short iterations of develop-and-test. Thus, the shape was defined through movement.

The mapping from movement to sound developed similarly with a more complex metaphor of exploring a ‘space of concepts’ being successively simplified to one of moving into sounds [9]. This resulted in less control over the organization of sounds. However, the instrument’s shape and physical response suggested further forms of interaction: detachable pods that could attach to parts of the body and an overlaid effect controlled by the natural swing of the ‘trunk’ (see Fig. 1).

At the first opportunity an open workshop was held where visitors could play and experiment with the Serendipichord as part of London’s Inside Out festival. Time constraints meant the instrument was shown with the upholstery half-complete and subject to ‘live debugging.’ But a benefit of this informal public outing was an atmosphere of ‘work in progress,’ encouraging constructive and enthusiastic feedback from those present. Observation and discussion revealed that the new mapping strategy embodied a metaphor of hitting percussive objects. This fed back into the sound design: sounds ‘hit harder’ should be louder.

Most enlightening, however, was observing the instrument in the hands of a contemporary dancer, whose instant connection showed the piece was unquestionably for dancers. This greatly influenced subsequent development and the nature of the final performance.

**Conclusion**

The creation of the Serendipichord was enhanced by both collaborators having distinct creative and technical roles. Each took leadership over their specialist domain, with conceptual coherency maintained through short development cycles.

This design process was enhanced by a short deadline which brought both a clarity of vision—sometimes clouded in longer research projects—and the alignment of each element that made up the creative process, meaning that both design and technical issues were addressed at every stage of development.

**References and Notes**


