Artist Pointer

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Abstract
Artist Pointer is critically questioning the role of the artist in a process of exhibiting digital art, no matter if being a piece of software or if the work became physical through digital manufacturing, like 3D printing, 3D milling or laser-cutting.
Artist Pointer, like any digital art, has a digital DNA, no matter if it exists as software only or if it becomes physical in an exhibition through digital manufacturing. Therefore, digital art can be downloaded and exhibited everywhere and by everybody who has internet access and theoretically even without the artist's involvement. That enables to easily clone the work without referring to its creator. This is fundamentally different to analogue art, where usually an autograph is indicating the creator of an art work.

With *Artist Pointer* I am questioning the artist's visibility in digital arts.

Artist Pointer is a location sensitive replacement of the artist's autograph as it will – where ever the exhibition is and I (the artist) am – always point at me.

Author Keywords
Installation; kinetic sculpture; digital signature; pointer.

ACM Classification Keywords
H.5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

Introduction

The value of art is traditionally highly correlated with the reputation of an artist at the art market, galleries, and the art scene [2]. Consequently, art - if not being of cultural or historical interest – has a strong connection with the artist who created the work.

A signature on a painting is more than just providing information about the artist's name. Signing art is the process of clarifying what artist made an art work, to whose oeuvre the work belongs, and consequently, how much the art work would cost at the art market.

The autograph of the artist on the art work not only determines its value, it also ensures that the honor for the work is given to the right artist. Counterfeiting art has a long tradition, and works of famous artists were copied with much effort and advanced craft skills to sell the copies for the price the original work would be sold for.

In the era of digital art, we have to face the fact that copying art works does neither require any effort nor advanced skills. Hence, copying and counterfeiting art became easier than it ever was. Clones and copies of infinite number can be produced through the capabilities of digital information. Moreover, any work out of digital files may be distributed through the internet around the globe within seconds.

The work presented here is asking how to clarify who created a specific art work. *Artist Pointer* does not claim to provide a secure solution for referring to a work's creator. It rather aims to generate awareness of the need to refer to the creators of art work. It demonstrates the creative ownership in a clear and physical manner by using a pointing gesture performed by the art work itself to identify the artist it is made by.

As such, *Artist Pointer* is relying on gesticulation, which is a cross-cultural language understood by humans from anywhere.

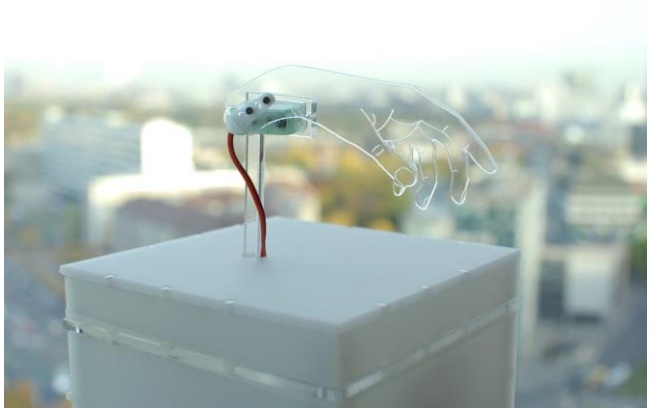

Figure 1: *Artist Pointer* is a kinetic sculpture with a hand constantly pointing at me. The sculpture contains an Arduino which connects to Dropbox, where an App running on my phone constantly saves my GPS position data. Hence, the index finger of the sculpture will constantly be adjusted using two servo motors to point at me through a direct targeting vector.

Pointing

Pointing embodies various associations that the audience may refer to when watching *Artist Pointer*.

First, using the index finger for pointing towards a point of interest might be the first gesture humans use. Hence, we consider that gesture to be intuitive for pointing, even if things usually do not point.

Second, the posture of the hand of *Artist Pointer* is referring to the posture of Adam's hand (the creation) in the moment his creator is touching his hand to finalize his work and to make it being alive, see Fig. 2.

Figure 2: 'Adam's Creation' by Michelangelo. Published under creative commons: *CC* BY by Wikimedia user Erzalibillas.

Third, however, it is commonly known that 3D or mid-air pointing lacks in accuracy [1]; pointing is the most dominant gesture used for human-computer interaction. As such, this work also can inspire HCI researchers and practitioners to use pointing gestures for smart and actuated things.

Pointing Concept

While gestural pointing at persons and things of interest as well as pointing as input technique refer to relatively close-by targets; *Artist Pointer* has to be able to refer from any location on earth to any other. Only such tolerance in target acquisition ensures that the art piece can be exhibited anywhere while I as artist can in the meanwhile am at any other global position.

Humans usually point roughly at a target; and if the target is out of sight, they point using a vector of

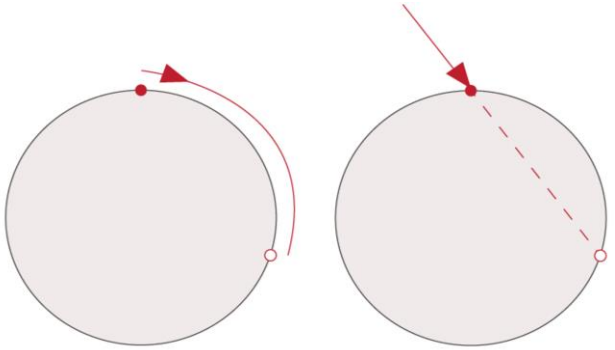

Figure 4: Pointing approach: vector pointing in parallel orientation to the ground (left) and directly through the ground to any target on earth (right).

horizontal orientation in parallel to the earth surface. Such pointing gesture does not refer to a single target but to an infinite number of targets that are located around the earth at that vector, see Fig. 4, left. Hence, the *Artist Pointer* is pointing with a direct vector at targets through considering the sphere shape of the earth, see Fig. 4, right.

The pointing concept used works best when the artist is not close to the art work. Otherwise, the pointing gesture will be a vector oriented in parallel to the ground, which again will not refer to a unique location on earth. However, the unique pointing vector used here is rather a matter of concept than a pointing gesture that will be tracked. Hence, pointing should in the context of this work be understood as metaphor and consequently, lack in accuracy of pointing direction at the artist's position is irrelevant.

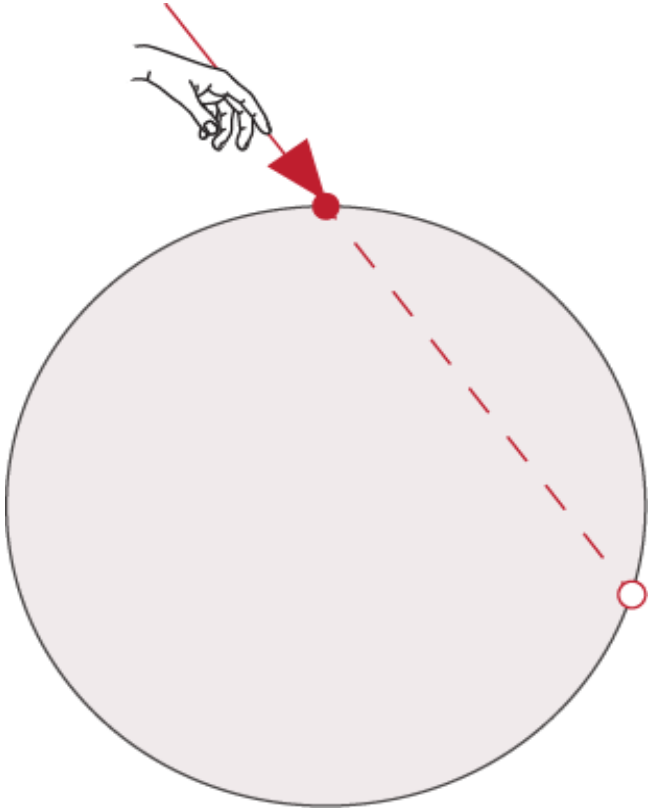

Figure 5: As pointing into a direction in parallel to the horizon would target infinite positions on earth, the pointing algorithm considers the earth being a sphere which allows for directly pointing at unique positions when using vectors that go through the earth's surface.

Pointing Implementation

The index finger of the sculpture is used as vector origin to point at me, the artist, as shown in Fig. 5.

The setup consists out of:

- A mobile application installed on the artist's phone used to detect the location of her. That location is sent permanently to a Dropbox folder and saved as GPS coordinates.
- All other components are placed at the exhibition space.
- A computer that runs a Processing script is permanently checking for changes in the GPS position data. Hence, the computer has to be connected to WIFI. If there are changes, the script moves two servo motors connected to the computer via Arduino.
- The Arduino Uno is placed in a white box.
- One servo motor is placed inside the white box to rotate a stick on that the hand is mounted. That rotation results in a horizontal orientation change of the hand.
- The second servo motor connects the hand to the vertical stick and its rotation allows for tilting the hand to point through the ground.
- The hand, the stick, and the box are laser-cut out of Acryl glass.

A schema of the sculpture in an exhibition is shown in Fig. 6.

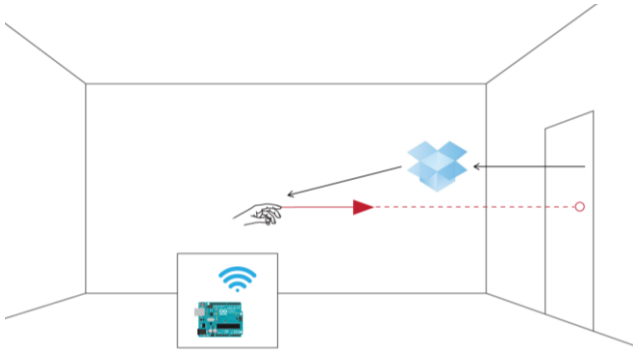

Figure 6: The *Artist Pointer* is supposed to be exhibited at any kind of exhibition space. The Arduino is hidden within a white box mimicking to be a sort of pedestal. A computer connected to the Arduino is constantly checking if my position data stored in Dropbox are changing. In case the position data changes, two servo motors adjust the index finger of the *Artist Pointer* to point at the new position.

Conclusion

Artist Pointer is an artist's autograph, which refers to the creator of this kinetic sculpture. The sculpture takes the artist's position as implicit input [3] and dynamically adjusts the posture of a hand and thus its pointing direction.

As such, this work aims to critically question the way authorship in digital art is organized.

Acknowledgements

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