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# Remixer le Flying Words Project

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## Abstract

Remixer le Flying Words Project is a digital art installation crossing the creative sign poetry of Peter Cook and Kenny Lerner with a Virtual Reality (VR) experience. We present here how we are designing the first version of the artwork investigating the idea of symbiosis. It appears to be the central pivot of this project mixing sign-art and digital art, video of the performers with visuals generated by performance-capture and point clouds in real time. Instead of adopting the idea of translating the poem in VR, we have created a passage from one art to the other as a fusion in order to create synesthesia. The method adopted is a "bricolage" between several scientific tools based on DIY practice, biomechanics, movement quality analysis, and on human perception, body referential to create a synesthetic experience. Analyzing the ways we address the first version of the VR experience reveals how the arts practice was crossed, the technologies were merged and the different backgrounds of the team members got synchronized.

## Keywords

Installation, digital art, deaf poetry, virtual reality, visual vernacular, synesthesia, performance-capture, motion-capture

## Background

The work in progress that we will discuss in this presentation is entitled Remixer le Flying Words Project. The idea of Symbiosis is the central pivot of this project around which is divided into several plans.

The Flying Words Project (Peter Cook and Kenny Lerner) is a creative poetry duo in American Sign Language. They privilege a specific genre within the literature in sign languages called the Visual Vernacular. The focus is to magnify the iconic capacities of these languages. As a performing art, Visual Vernacular enters into an intimate dialogue between cinema and graphic arts. Watching Peter Cook moving on stage is literally like watching a film sequence, close-ups, tracking shots, editing techniques, etc. [1]. Already, a first symbiosis.

Our approach, then, consists of immersing ourselves into a relationship with this art form by questioning the power

relations that exist between the hearing majority and the deaf minority, between the speaking majority and the signing minority. We seek, in our experimentation, to transform this relationship often considered hierarchical into a relationship of fluidity, of reciprocity.

For this, we started with the idea of translation. A translation, briefly, is a passage from one language to another. The existing translations between sign languages and oral languages remain marked by these asymmetries of power between the Deaf, confined in the role of the handicapped person, and the hearing people, reputed to be able to guide them, to give them access, to open the way for them. One of the traces of this imbalance arises from the difficulty of bringing down a language in movement, whose grammar is visuospatial, to writing with lines transcribed on a fixed page. The most frequent strategies tend to resort to what we know as poetry in vocal language. One will concentrate excessively on the narrative that it will be a question of transmitting. If a gesture is repeated, we will see a rhyme, if there is an image, we will try to transpose it into a metaphor. But to proceed thus, one amputates the work of its cinematic logic, of its kinesthetic force, of its spatial dimension.

The Visual Vernacular is a transmedial form of art that needs a transmedial translation. Its reception creates a multisensorial experience, which needs a translation that offers the visitor a synesthetic experience. We therefore propose remediation in Virtual Reality. Our piece will not be a translation that carries the narrative in the first place. We aim at entering into symbiosis with it that we seek.

## From verbal to visual world

Sign language artists don't just create poetry, they modify frames of reference that go far beyond specific forms of art. Artists such as Jolanta Lapiak [2] formulates it by saying that her approach is stretched by a desire to move from a logo- or phonocentric approach to a visual centric approach to the relationship to the world and to open the way through her approach. Under his leadership, a group of sign language artists wrote the manifesto "Deconstruction of phonocentrism" with the wish to create a movement.

Our approach seeks to respond to this invitation and extend it.

## From visual to synesthetic world

We hypothesize that in order to respond to the difficulty of translating an intermedial work, it is necessary to create an intermedial environment: an immersive installation in Virtual Reality. This is also an opportunity to propose a direct collaboration with the Flying Words Project which will create an original work for the realization of the installation.

### Idea of translation

Thus, we are not trying to situate creative works in sign languages within a literary genre known to vocal languages, we are rather trying to grasp them by their elementary material constituents. Works in sign languages are thus understood as made up of five aesthetic components modulated by the artists: space, images (kinetic or graphic), movement, linguistic material and, that which infuses the other four, performance. This referential reframing allows us to get away from what we already know and to adopt a receptive posture that is as broad, free and open as possible [3].



Figure 1. Top: Performance-capture of Peter Cook including body and face. Bottom: Depth video capture of the performance of Peter Cook and Kenny Lerner in the studio.

## Method

We are crossing Sign-art and Digital art, two forms of art that look very different but with a common interest in research on body movement and expressivity. To create this symbiosis, we are bringing together the collective ideas which emerged from the reception workshop we organized with different scientific methods.

The scenario we are designing is gathering different ways to experience the reception of the sign-art performance. The first element we want to keep present at all times in the field of view of the participant is the video of the performance filmed on a black background. We then mix it with the visual synesthetic elements we imagined collectively.

To do so, after attending the real performance, we first express our raw feelings and vision on paper writing or drawing. Then we shared them with each other and defined common main visual ideas and aesthetics such as visualizing the space around the performers as "thick air," exaggerating the movement of the deaf poet, playing with time compression or acceleration for instance.

### Development

The virtual environment we propose is composed of the video of the performance that remains visible at all times and several volumetric visual effects based on movement. Regarding the "thick air" aesthetics, we propose to generate volumetric fog with fluid mechanics which interacts with the virtual performer and the participant movement to fill the virtual world.

In order to capture the movement of the performers, we choose to use a performance-capture system that includes a face recognition (using the depth camera of an iPhone) and inertial motion-capture suit (Perception Neuron) which also records body joints and finger movements (figure 1, top). In the idea of frugal innovation [4], we wish this system to be as portable, light and low cost as possible. Thus we have created a DIY facial performance-capture system as a symbiosis of low-cost hardware and a fusion of the data capture in the real-time 3D engine we used.

The biomechanics model we use is able to recreate the virtual double of the skeleton and the face of the performers. We also use depth cameras (Microsoft Azure, Kinect 2 and Intel Realsense) to capture the envelope of the performers to be rendered as a point cloud in real time (figure 1, bottom).

Regarding the visual effects, we are currently experimenting with different anthropomorphic body rendering using particle systems as proposed by Takahashi [5] or trail effects of body part movement quality from Jogo et al. [6]. We also wish to bring interactivity in the visuals with the participant using for instance swarm effects

controlled by the body of the participant in resonance with the volumetric fog.

Since VR allows the participants to move around the virtual space, we wish to let them choose how to perceive the poem, one could stay in front of the virtual performers or could move around to literally adopt their point of view. This switch of body referential allows us to investigate how the audience could adopt a sympathetic frame of reference to an empathic one as defined by Berthoz et al.

[7].

About the hardware and software, we choose to create a virtual environment in the software Unity 3D with the Virtual Reality headset Oculus Quest 2.

### **Collaborative process**

When we analyzed the way we worked, we realized the symbiosis of the members of the team who all come from different backgrounds (actors, visual artists, researcher directors, sound engineering...). This revealed how dependent on each other we are.

The residency we organized for the recordings appears to be a moment of synchronicity of the creators when we took the time to exchange, discuss to better enter each other's singular worlds: Sign Language Poetry, Linguistics, Motion-capture, Virtual Reality.

### **Perspective: Performing the artwork**

The first version of the artwork we are currently developing focuses on experiencing actively in Virtual Reality with the video of the performance on which we superimpose body movement effects such trails and particle systems, switch from different points of view and interact with swarm effects in order to create a form of synesthesia.

Since we consider immersiveness depends on the participant activity and not just on the Virtual Reality application itself, the scenario we defined invites the participant to move around to better perceive the content of the sign-art piece in the virtual world. Thus, we expect this virtual artwork to gather with real movement deaf poetry and curiosity of the audience in a common symbiotic performance space.

## **Acknowledgements**

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