

POLLEN

A Multimedia Interactive Network Installation

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Figure 1: Pollen Logo.

ABSTRACT

This paper describes the development of an interactive 3D audio/visual and network installation entitled POLLEN. Specifically designed for large computer Laboratories, the artwork explores the regeneration of those spaces through the creation of a fully immersive multimedia art experience.

The paper describes the technical, aesthetic and educational development of the piece.

Keywords

Interactive, Installation, Network, 3D Physics Emulator, Educational Tools, Public Spaces, Computer Labs, Sound Design, Site-Specific Art

1. INTRODUCTION

POLLEN is an interactive 3D audio/visual installation for any number of computers connected to the network. Main aim of this artwork is to re-design and re-experience a now well known environment in our Educational Institutions: Computer Laboratories. In pursuit of this aim, we decided to experiment with one of the Computer Labs at the University of Limerick and more in particular the Macintosh Lab (MacLab) available to the students enrolled in one of our Digital Arts Courses. The MacLab consists of 36

^{*}web links:

- MashUp Research Lab
- Digital Media & Art Research Centre

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Figure 2: POLLEN exhibition at the University of Limerick (IRL) -Dec '09.

iMac Computers with built-in web-cam and running OS-X 10.4. A public exhibition has taken place in the first week of January 2009 where university, secondary and elementary school students were invited.

2. POLLEN - ANALYSIS

With the following, the authors will outline some of the aesthetic motivations, technical and educational aspects that informed the development of the piece.

2.1 Aesthetic Motivations

Site-Specific Art is 'concerned with practices which, in one way or another, articulates exchanges between the work of art and the places in which its meanings are defined' [Routledge 2000].

Many in history the examples of such art [7, 8]. In Pollen's case the set is a Computer Lab room.

With regards of Pollen's sound design instead, the artwork has been surely influenced by the soundscape's design criteria of *variety, complexity and balance* as described in Barry Truax's Acoustic Communication [9] as well as Albert Bregman's work on Auditory Scene Analysis [6] where number of sound sources, their location and characteristics play all an important role in defining a given space. In addition to it the interactive elements of the installation are in line with much of the experimental artworks created over the past decade by artist that have been taken full advantage of software tool such as openFrameworks [5], openCV [3], vvvv [4] and alike.

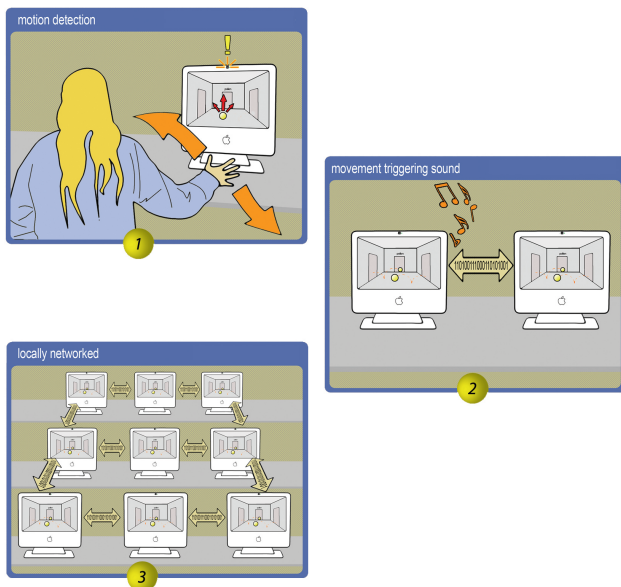


Figure 3: Graphical explanation

2.2 Technical Development

The Lab consists of 36 iMac with built-in webcam and running OS X 10.4. Each computer has its own network socket. No particular arrangement of the 36 machine was intended thus we left their displacement as per normal teaching hours (see Figure 2). Pollen has been developed using a combination of Max/Msp [1] and openFrameworks. The final application runs as standalone thus it is not required to install any additional software (other than Pollen itself) to run the installation.

What follows is a list of the application's main features (see Figure 3):

- A 3D physics emulator library¹ has been integrated into the 3D virtual world enabling pollen to collide and freely fly/bounce around. The four delimiting walls are fitted with narrow slits enabling the pollen to fly/bounce onto the adjacent computers (left, right, front, behind) [developed in openFrameworks]
- When the user move or pass in front of a computer the camera detects the movement triggering a small earthquake or wind effect into the virtual environment, thus enabling the pollen to freely move as lifted in the wind (see Figure 3 icon 1)[developed in openFrameworks + Max/Msp]
- Each computer, connected to its own speaker placed right next to it, will trigger an algorithmically generated sound when receiving one or many pollens from its neighbors. The displacement of the computers or speakers is responsible for the fully immersive 3D audio setup (see Figure 3 icons 2 & 3) Thus people can walk into the sound!² [developed in Max/Msp]

2.3 Pollen in Educational Institutions

Pollen has brought back to life/light a space considered (at least by the vast majority of students) anything but enjoyable such as Computer Laboratories.

¹ofxMSAPhysics

²The installation can run also using the iMac's internal speakers.



Figure 4: Audience having fun and interacting with the Installation

Pollen is opensource and can be easily set up in any computer Lab provided each computer has its own network connection and webcam. We publicly exhibited the work at the University of Limerick and had gladly noticed the installation had a great success over different groups of people with different age, sex and background knowledge. More in particular we noticed young kids between 5 and 13 years old were particularly enjoying the experience. We firmly think this artwork could spread interest between young generations in computer programming and Digital Arts.

3. CONCLUSIONS

In this paper we presented POLLEN: a multimedia network installation for Computer Laboratories. We have introduced the reader to the aesthetic motivations, technical aspects and values of the artwork. Video documentation of the public performance held at the University of Limerick in December 2009 can be found at [2] or here. At present Pollen runs only on Mac OSX 10.4 or 10.5 and we are currently working on the Windows version. If you are interested in exhibiting Pollen in your school please contact the author of this paper.

4. ACKNOWLEDGMENTS

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5. REFERENCES

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