Tango Apart: Moving Together

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Abstract

Tango Apart: Moving Together is an interactive digital art system that has two or more communicating parts in different locations. Although each part is able to work independently, they also operate together, connecting the different locations and providing an aesthetic communication channel and creative participation. In particular, the work will connect CHI2016's Interactivity with its Art Exhibition. Through the addition of mobile phone components, CHI participants will be able to join and experience the work throughout the conference, out and about in San Jose and back home afterwards.

Author Keywords

Interactive art; Communication; Distributed

ACM Classification Keywords

H.5.m. Creative interactive interface architectures

General Terms

Design; Human factors

Introduction

The primary aim of this proposal is to install an artwork that is shown both in CHI2016 Interactivity and the Art Exhibition. It is an artwork that connects the two events together and provides a communication channel between them. Whilst it is not a simple direct video-link it does include the transmission of images between the two locations. As the exhibition lasts much longer than the conference a third element is included so that the coherence of the work is maintained throughout the Art Exhibition. This third element will be in Leicester, England.

The key issue that this artwork addresses is the aesthetics of distributed connected interaction. It explores the creation of new aesthetic experiences in and around connected spaces: Interactiivity and the Art Exhibition on the one hand, San Jose and Leicester on the other.

Tango Apart: Moving Together is an artwork that is in many parts (with a minimum of two elements, or 'nodes') that are distributed. That is to say each node is in a physically distinct location, perhaps different rooms in the same building or, equally, different cities or continents. It is a development from *Cities Tango 2,* first shown in 2015. In both works, each node interacts with active participants, and people who pass by, in their locations and also interacts with the other nodes across the Internet. The colours and the images seen are influenced by, and show, the partner nodes, forming a **virtual tango** between, in the case of *Cities Tango 2*, Leicester and Rio de Janeiro. *Tango Apart: Moving Together* also connects San Jose with Leicester but, more significantly, it connects CHI2016's Interactivity with the Art Exhibition, providing a virtual connection between the two related components of CHI. Interactivity will communicate with the Art Exhibition.

An additional element of the work is the availability of unlimited extra nodes on smart phones in which preferred colours can be selected by touch that then influence the colours at all the other nodes, from Leicester to San Jose.

Historical Context

Tango Apart: Moving Together is an extension of *Cities Tango 2,* which was itself a development of *Communications Game* by Edmonds, first shown in 1971, and his recent *Cities Tango* Internet version [2]. Both *Tango Apart: Moving Together* and *Cities Tango 2* incorporate recent work by Sean Clark with this historical development.

Communications Game
Communications Game, originally a proposal for the Computer '70s trade exhibition, was based on the idea that the core of the artwork would be people interacting with one another through a network. Being 1970, the network idea was not, of-course, based on any concept of the Internet.

The proposal provided stations for a maximum of 15 participants and for a minimum of two participants. The stations are arranged such that a participant can only see one, two, three or four stimulus-providing units within his station and a station is part of the group activity only when it is occupied by a participant. Each unit can be acted upon by the participant in response to a given stimulus. No instructions are given to participants on the manner in which the system of units operates.

The first realization of the *Communications Game* was shown in the Invention of Problems II Exhibition at the City of Leicester Polytechnic (now De Montfort University) in 1971. Only three networks of units are used and each unit is equipped with an input switch for turning on lights in units of the same network and a single light for output. For each participant, the lights provide the stimuli and the switches are the means for the participant to respond.

Cities Tango
The artwork, *Cities Tango: between Belfast and Sydney* [3] is an example of the recent works, based on the core concepts of *Communications Game*, that use the Internet to implement distributed interactive art. In this case, the two cities, Belfast and Sydney, interact with one another across continents and time zones. In particular, the colors, stripes and timings used are driven by

movements at the remote location, so that in the European day Belfast may see 'night' colors, for example, and Sydney may see 'day' ones. On the other hand, the display, from time to time, of real time images from the remote location is influenced by the local audience.

Immediate responses to movement are seen by the 'audience' in their own location. The live connection is sensed through the real time images. It created a small stir, for example, when people in the Sydney gallery recognized Ernest Edmonds appearing on their display. He was, of-course, in Belfast.

Cities Tango 2
Cities Tango 2 is a collaborative artwork made by Ernest Edmonds and Sean Clark. It was first shown in the *Primary Codes* exhibition at Oi Futuro Flamengo, Rio de Jeneiro and at both De Montfort University and Phoenix Arts in Leicester, UK [5].

In this work, the *Cities Tango* concept was again used, but the colour stripes of the earlier work were replaced by the Transformations colour patterns by Sean Clark. This had the significant consequence that a mobile phone artwork was added to the network of nodes, making the possible number of interacting elements unbounded.

Transformations
Transformations is an artwork by Sean Clark that consists of a web page designed for use on a smartphone. The page displays 25 colored squares in a 5 by 5 grid. When the user touches one of the squares grid changes in response. The configuration of this new grid is dependent upon its previous state and the position of the square touched.
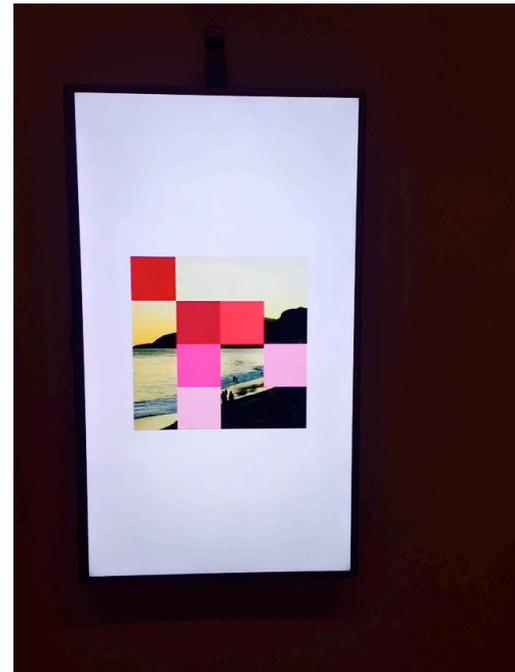

Figure 1: Cities Tango 2 in the Primary Codes exhibition.

More than one view of the *Transformations* grid can be active at the same time. If just one person is using it then the nature of the grid transformations, resulting from their interactions, are quite simple to identify. If, however, multiple people interact with it simultaneously then the transformations appear to be more complex.

When operating as an independent artwork, the color pallet of the *Transformations* grid does not change. From a starting state such as in Figure 2a, user interactions result in a change in the position of the colored squares, such as in Figure 2b.
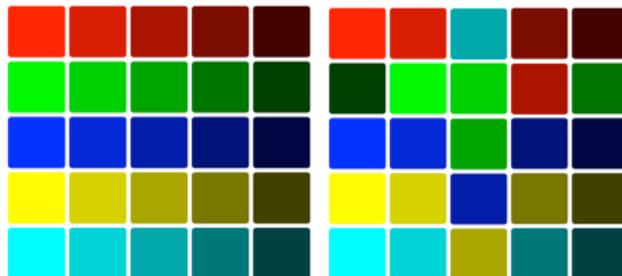
Figure 2: a) A Transformations starting configuration; and b) the same grid after a series of user interactions.

The artwork is typically accessed on a smartphone, with users in different locations having no direct communication with each other.

ColourNet

An important pre-cursor to this work, from another stream of development, was Edmonds and Clark's *ColourNet* systems artwork that was first shown at the Site Gallery, Sheffield UK, in 2012 [4] and also included in the CHI2013 Interactivity [1]. *ColourNet* takes the distributed interacting nodes idea used in all of the works from *Communications Game* to *Cities Tango* and extends it to include the possibility of different nodes being independent interacting artworks, initially exemplified by a fixed location work interacting with multiple smartphone/tablet based artworks. *ColourNet* thus influenced *Cities Tango 2* and the current work, *Tango Apart: Moving Together.*

Physical Realization

Tango Apart: Moving Together has, at its core, two or more nodes each of which consists of a standard screen hung in portrait orientation, a web cam and a computer, such as a MacMini, connected to the

internet. The software is based on web technology, so the hardware demands are very basic and general. One such node is placed in each location [Interactivity, Art Exhibition, Leicester UK]. All of the nodes communicate with a server that controls the complete system and passes information between the nodes.

In addition, the public is invited to scan a Tag to enable them to add instances of the work's nodes on their smartphones or tablets. In this way, extra moving locations are added to the network of communicating elements.

Acknowledgements

References

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