The tBox: An Interactive Transparent-Display Box  
for Artistic Exhibitions

| 1st Author Name  Affiliation  Address  e-mail address  Optional phone number | 2nd Author Name  Affiliation  Address  e-mail address  Optional phone number | 3rd Author Name  Affiliation  Address  e-mail address  Optional phone number |
| --- | --- | --- |

# ABSTRACT

Paste the appropriate copyright/license statement here. ACM now supports three different publication options:

* ACM copyright: ACM holds the copyright on the work. This is the historical approach.
* License: The author(s) retain copyright, but ACM receives an exclusive publication license.
* Open Access: The author(s) wish to pay for the work to be open access. The additional fee must be paid to ACM.

This text field is large enough to hold the appropriate release statement assuming it is single-spaced in TimesNewRoman 8 point font. Please do not change or modify the size of this text box.

We present the tBox – a transparent-display box supporting the exhibition of artifacts at an art gallery. The tBox attracts visitors toward the exhibit, highlights physical regions of interests in the physical artifact, and provides access to related digital resources. The tBox tracks proximity and orientation of a visitor and adjust the visualizations in order to capture and maintain their attention. At the box, visitors can obtain information both as unobtrusive labels or in rich format including images and video. This paper focuses on the design of the tBox and presents three contributions: First, based on user-centered design approach we present a series of characteristics a transparent showcase should support for an art gallery setting. Second, we describe the tBox, including our attention management framework and the solutions to the problems of tracking calibration and binocular parallax. Finally, we present preliminary feedback on the tBox from the perspectives of the artist, the curator and the gallery visitors based on an ongoing deployment at an art gallery, and propose a design space definition for transparent display exhibit boxes.

## Author Keywords

Transparent Displays, Museum Setting, Binocular Parallax, Attention Management

## ACM Classification Keywords

H.5.2 [Information interfaces and presentation]: User Interfaces – Graphical user interfaces.

# INTRODUCTION

Artifact arrangements protect the artifact and provide information about it. Users see the object, compare the information to the artifact, discuss the others, point to places of interest, etc. Paper labels, posters, images, diagrams, etc. Supporting the museum visit/learning.

The museum visiting experience is being redefined by novel technologies aimed at boosting different aspects of it such as attracting visitors, learning, in depth information, pre-post visits and group engagement.

Interactive technologies benefit the museum visit experience. However, many instances of such technologies interfere with the other aspects of the experience: take space in crowded areas, take the attention from the exhibited artifact, prevent the social experience, and present interaction mechanisms designed for other settings.

In this paper we introduce the tBox, a transparent display exhibition box providing the information needs of the museum visiting experience [see figure 1]. With the tBox we avoid introducing novel devices into the art gallery, rather we augment the transparent cases being used today, with the information and interaction capabilities enabled by a transparent touch and gesture-enabled display. We present the design and implementation of the tBox focusing on the particular hardware and software challenges we faced. Based on our fieldwork, the experience building the tBox, and preliminary feedback from curators, artists, gallery administration and visitors, we propose a design space for the design of similar transparent-display boxes that support information access in an art gallery.

# RELATED WORK

# VISITING AN EXHIBIT

The artist

The gallery

The curator

The visitor

## SYSTEM OVERVIEW

Intro

## The tBox

## Attention Management

## Information Access

Gesture

Touch

## Conditions of a Gallery Visit

## Object versus Content

## Post Visit Support

# Technical Implementation

The Box

Software

Visitor Detection

Binocular Highlights

Calibration Routine

# Preliminary Feedback

# A design SPace for INteractive Art cases

# COnclusions

# Acknowledgements

# REFERENCES

1. Adobe Acrobat Reader 7, Be sure that the references sections text is Ragged Right, Not Justified. http://www.adobe.com/products/acrobat/.
2. Anderson, R.E. Social impacts of computing:   
   Codes of professional ethics. *Social Science Computing Review 10*, 2 (1992), 453-469.
3. How to Classify Works Using ACM’s Computing Classification System.  
   <http://www.acm.org/class/how_to_use.html>.
4. Klemmer, R.S., Thomsen, M., Phelps-Goodman, E., Lee, R. and Landay, J.A. Where do web sites come from? Capturing and interacting with design history.   
   In *Proc. CHI 2002*, ACM Press (2002), 1-8.
5. Mather, B.D. Making up titles for conference papers. *Ext. Abstracts CHI 2000*, ACM Press (2000), 1-2.
6. Schwartz, M. *Guidelines for Bias-Free Writing*.   
   Indiana University Press, Bloomington, IN, USA, 1995.
7. Zellweger, P.T., Bouvin, N.O., Jehøj, H., and Mackinlay, J.D. Fluid Annotations in an Open World. *Proc. Hypertext 2001*, ACM Press (2001), 9-18.

**The columns on the last page should be of approximately equal length.   
Remove these two lines from your final version.**