Design and Research Projects

Swiss House (瑞士駐波士頓領事館數位空間部分設計, 2000)

Based in Cambridge, Massachusetts, The Swiss House is a new type of consulate for knowledge exchange of science and technology between U.S. and Switzerland. The essential concept is to facilitate frequent conversation of the two locations by breaking down the barrier of temporal and spatial separation. With the convergence of physical and networked virtual space in its architectural scheme, events and dialogues can take place in real-time or asynchronous manner at its pre-defined “knowledge cafe”, “kinetic arena”, or “digital wall”. As a designer of its electronic space, I was engaged in the creation of the web-based interaction functionality and mechanism. Users in the physical locations activate the identification tracking and data accessing features through mobile technologies. This project received the “Build Massachusetts Awards” in 2001.

The Bitscape – Virtual GSD (位元空間-虛擬設計學院, 2001)

The Center for Design Informatics, one of the research centers at Harvard Design School, founded this distance learning project in 2001. A multi-user virtual space is designed for students to digitally present their studio works in form of multimedia and models and interact with others in a three dimensional environment. Users are allowed to claim their virtual real estate inside the digital simulation of Design School building and personalize it as a showroom for self promotion. The entire digital environment is the spatial replica of GSD building and considered as a navigation system for retrieving space-specific data corresponding to its physical counterpart. For instance, resources such as the circulation information of books or real-time lecture broadcasting are available from object/space links within the virtual library and auditorium respectively. This research intends to go beyond flat data representations and maximize the use of 3D interfaces for learning conditions.
Interactive Structures Modules (ISM) (哈佛設計學院結構課程互動教學媒材介面與管理系統設計, 2002)

http://www.cdi.gsd.harvard.edu/research.cfm?id=6

The ISM project was launched in summer 2001 to develop web-based, interactive learning modules used to teach Structures to architecture students and at the same time develop an interface and database structure that may be applied to additional courses and expanded uses. Content categories include Lecture, Example, Case Study, Detail, Design Issue, Demonstration, Glossary, or Assessment. This content is grouped into topical Modules relating to the course curriculum, such as Reactions, Beams, and Trusses. The database-driven interface relates content across categories and modules. This interrelating of content through database associations will help bridge the gap between creative design thinking and purely technical questions by linking abstract examples to design issues, construction details, case studies, etc. The design of a database for content management also allows for the design of interactive tools, flexible re-use of content between related modules, tracking of student performance in online assessment, and ease of modifying content through an administrator interface.

BuildingEnvelopes.org (創新性建築表皮與環境系統之數位資訊管理系統, 2002)

http://www.buildingenvelopes.org

Buildingenvelopes.org is a web portal for a non-profit consortium of building industry companies, universities, and research centers joined to create an informative and useful web interface for the real estate / design / engineering / construction community. This portal aims to provide the building industry with innovative and state-of-the-art information leading to energy-efficient buildings. I was in charge of creating and managing the dynamic mechanism of this 5,000 member website which was the central project of the Center for Information Technology at Harvard Design School.

Harvard GSD StudioWorks online (哈佛設計學院學生網路作品集之互動介面設計, 2002)

http://studioworks.gsd.harvard.edu/browse/launch.htm

The aim of the Studio Works public web site is to capture the essential character of the design studio experience at the Harvard Design School, providing both an overview and vignettes of a year of studio coursework as well as an archive of selected students speculations and deliberations for a specific studio design project. Along with the public interface, an internal workflow management system streamlines the process of selecting students to be included, the upload of images and interactive portfolio layout by students, and review by Design School faculty and publication office. The content is collected from
students in the departments of Architecture, Landscape Architecture, and Urban Planning and Design. This web interface received the Best Visual Design Award in the 2003 Architectural Website Award.

**Digital Wallpaper**

Collaborated with Prof. Jeffrey Huang at Harvard GSD, who would have the inaugurate exhibition at the Carpenter Center for the Visual Arts to demonstrate the concept of “Interactive Wallpaper” for his class in Fall 2003, I was involved as an interaction designer and technology consultant in this project. The goal of this art work is to introduce the possibilities of applying dynamics in space and explore how it evolves space and social behaviors in it. The design concept is gathering visitor’s short speech through the 4 microphones in the exhibition room and transforming it into dynamic texts on a projection wall. The spoken words/sentences would be spinning and descending at the speed determined by their “weight” and piling up from the bottom. The collected words at the end of each day then turn into an interesting visual pattern as collective memory or dialogues from all visitors in the room and those who share their words remotely through the internet as well. Two webcams hanging on the ceiling were used as motion sensors to trigger interfering effects on patterns when a user is approaching the wall.

**Ticker Garden**

http://digitectonics.com

*Ticker Garden* is a stand alone application (U.S. Patent pending) that provides an intuitive and sentient interface to monitor stock market on the computer desktop. Through visual representations with color, height, and radian of animated blossoms, it displays the real-time performance of selected stocks. After setting up a collection of stocks, a user makes a personalized digital garden showing her/own investment portfolio. This program is the extended application of my academic project in the field of information visualization.

**Wavatar**

Wavatar represents “web” or “wave” avatar. This industrial design work is a new generation of ubiquitous communication device that integrates cell phone and webcam functions in a rolypoly-like physical avatar. Besides verbal communication, the device with sensing and actuating mechanism allows user’s haptic input such as squeezing,
touching, or tapping to express different emotions and the remote person will feel trembling or see glowing/swaying effect through an identical device. Remote communication via tangible expressions is meant to articulate affection beyond spoken words. This design project is the collaborative result with Jackie Lee at the MIT Media Lab.

**Information Park @ Seoul**

This is an ongoing design proposal aimed to redefine an urban park with the introduction of information technology. The existing structure of two old stadia in the central business area of Seoul will be remodeled to provide public space for citizens with the new functionality in order to rejuvenate the vicinity. The main themes of the design are the following in terms of the use of digital media and cutting-edge communication technologies in this particular locus: 1) Collective browsing 2) Remote public participation 3) Sociable gaming, and 4) Digital nature. These design foci intend to turn the image of traditional picturesque park into a more dynamic urban playground and blur the boundary of collocated public space with connected one. Experimental but feasible ubiquitous technologies like wireless smart phones, ambient devices, semantic data, or RFID sensors are deployed to form a multi-functional convergent space where people can interact with others through mediated public/shared-private information.