

Design of Design

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Abstract

In this article I describe recent topics of my research projects on design language, design tools, and furniture design.

Introduction

Design has been the central topic of my research. The biggest problem in design field (e.g. product design, graphic design, landscape design, etc.) is, what is ironical, lack of design. History of design can be backdated only a hundred years and so far designers have not had their own language to describe their designs. Thus the first goal of my research was set to make dictionary of design languages.

Before showing my recent works, let me share a brief view about what design is. New Oxford American Dictionary describes “design” is: 1. a plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is built or made; the art or action of conceiving of and producing such a plan or drawing; an arrangement of lines or shapes created to form a pattern or decoration. 2. purpose, planning, or intention that exists or is thought to exist behind an action, fact, or material object. As we see, there are a couple of concepts in the word “design” : a plan, and drawing. After I illustrate my research projects we would probably have impressions that I have been doing some support for drawing pictures or creating models, however, the core of my research has these both sides: plan and drawing.

My research projects are classified into three categories. Discovering design language, developing design tools, and future furniture are topics of my current interests. In “discovering design language” category I and my colleagues are challenging to find rules, or syntax, of visual designs. A world-class graphic designer is supporting one of our project. In “developing design tools” category I and my colleagues are developing novel tools for aiding product designs. Another world-class product designer is supporting one of the projects in this category. In “future furniture” category we are making new furniture that can interact with people surrounding them. These works has been operating with fresh designers, named themselves Studio Mongoose, in Tokyo.

Discovering Design Language

In “discovering design language” category, we are challenging to find rules, or syntax, of visual designs. The following projects are undergoing.

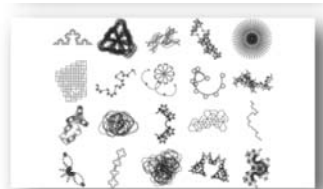
Kansei Shape Retrieval

On computer systems you can search texts, images, musics, videos... but there exists one thing you cannot search: shapes. The Kansei Shape Retrieval engine considers our impressions on shapes and returns best-fitting result of searching. This project is cooperated with Yukihiro Kouda.



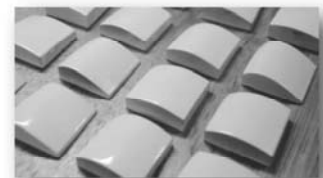
Pattern Designer

The pattern designer is designed to synthesize and analyze aesthetic graphic patterns. Its built-in L-system based fractal pattern generator is able to synthesize infinite graphic patterns that are good-looking. Irena Khaikin, a world-class graphic designer and a design director for The Plaza of NYC, has been supporting us development of this software. This project is also supported by Takeshi Sakamoto.



Classification and Generation of Aesthetic Surfaces

This research aims to figure out difference of our impressions on curves that are used in form designs, and also contribute industrial designers by implementing a smart computer aided design (CAD) system that have as same feeling on curves as human designers have. The proposing K-vector is a mathematical form of classifying such curves by designers’ impressions. This project is cooperated with Yuya Nakano.



Design Tools

In “developing design tools” category I and my colleagues are developing novel tools for aiding product designs. Mixed Reality technology allows us creating and modifying physical models as easy as digital models. (MR is one of technologies derived from conventional Virtual Reality technology; and unlike conventional VR, MR is aiming augment real world by mixing reality and virtuality, not aiming completely replace real world with virtual scene.)

HYPERREAL

The HYPERREAL design system allows users to modify physical object as if it were digital object. Mixed Reality technology gives actual feeling of physical object to viewers while computer graphic virtual shade gives pseudo stereoscopic effect to viewers' eyes. This project is undergoing with advice of Professor Kazuo Kawasaki, a world-class product designer, and also cooperated with Masaru Hisada.



Zero User Interface

The Grasp interface is a smart interface that detects user's gripping form. Using the proposed interface, the user can modify the object's appearance freely as if it reads user's intention, without choosing icons or switching input devices for changing operation mode. The display subsystem of the system controls the virtual shape of real objects with shade-pattern projection. This project is cooperated with Keiko Yamamoto.



Hyperdraw

The canvas of Hyperdraw has already known what you intended to draw and give you assistant guideline. The drawing action is tracked and predicted in real time by the system, and projects lines and curves on the canvas by using Mixed Reality technology. This project is cooperated with GK Kyoto design studio and Hirokatsu Sou.



Future Furniture

In "future furniture" category we are making new furniture that can interact with people surrounding them. The concept of the future furniture comes from ancient Japanese habitat. They believed that Gods lives everywhere and then even talked to the Gods inside stuffs of everyday's life, e.g., kitchenware, houses, and furniture. The future furniture we have developed is capable to talk with their users, as ancient Japanese used to do.

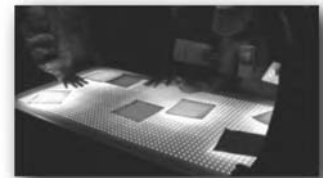
Fuwapica Suite

Fuwapica is breezing furniture. It illuminates slightly brighter and darker in slow tempo. When you sit on one of fuwapica chairs, it gradually illuminate much brighter. The colour of illumination is borrowed from stuff (e.g., your bag) you put on the table. When you keep sitting, your colour is slowly affect the next chairs. This project has been operating with Studio Mongoose, Japan.



RGBy Desk

This desk copies and illuminates colour of stuff on which you put. As a future work, we shall make another desk and make them connected via the internet so that each desks reflect the other sides. This would provide new communication for people in long distance; for example, they would be able to share shade of their dining table so that they would know what they were doing while keeping their privacy. This project has been operating with Studio Mongoose, Japan.



Concluding Remarks

All these research projects are aiming to support designers and users to draw their internal images intuitively. The design language research projects are to build up a design dictionary. Design tools are to support designers for drawing and planning products. The future furniture are intended for non-designers to express their images to other people. As a matter of fact, my interest is in emotional side of design. As the word motion can be split into e-motion, I am deeply interested in motion and my researches are reflecting my preference. This makes me difficult to express my research projects on static sheets of paper. Please visit my website for several movies of my researches. My website is at <http://www.pineappledesign.org/>.