Visualizing Information Space
Maeda @ Media

Jeff Howard
Graduate Design Studio
Carnegie Mellon University

December 8, 2003

The Project Brief

This project was about visualizing information space. The directive was to thoroughly explore the nature of an assigned artifact and to leverage that understanding to explain its content, structure and navigation to someone unfamiliar with the actual piece.

I was assigned a 450-page book by John Maeda of the MIT Media Lab entitled *Maeda @ Media.*

My first step was to read the book cover to cover. Despite its intimidating size, the content was fairly easy to approach. To my surprise, I found that the entire book could be read in less than three hours, as it documented his visual work mainly with pictures, with little narrative text.

As I explored the organization of Maeda's book, I began to notice a pattern to its structure.

In order to gain an overview of this pattern, I began marking the chapters with post-it notes, and diagraming relative sizes and chapter content.

John Maeda

MAEDA & MEDIA

Foreword by Nicholas Negroponte

Universe

John Maeda

MAEDA & MEDIA

UNIVERSE

Early Visualization

Maeda was very methodical in the organization of his book. Each chapter is a perfect multiple of sixteen-page signatures.

In the colophon, he notes that if there wasn't enough material to account for a full sixteen pages, he designed more to make up the difference.

The content itself falls broadly into five categories. Each chapter alternately takes narrative or project documentation as its focus. I felt that a direct mapping of content types to page counts might be informative.

My initial approach was to abstract the pages of the book into a series of 450 stacked lines, organized by chapter and color-coded according to content.

This design proved unworkable. Given the constraints of a modern 1024x768 computer screen, there wasn't enough space to easily interact with the content.

While the design might hold merit for a smaller artifact such as a magazine, my book simply had too many pages to display.

init

begin

electric dust

reactive

paper

static

four colors

online

NOISE

Now

space

computer

ACKNOWLEGMENTS

Narrative text
Narrative images
Digital Projects
Print Projects
Sketches
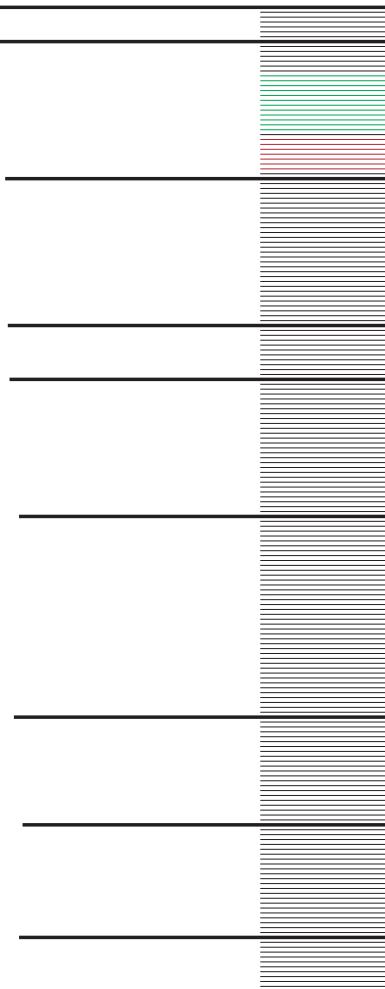
Expanding the Design

I began searching for a way to adapt my organizational principle to the constraints of the screen.

My approach was to view the content as icons of actual pages. I translated my previous chapter visualization into a narrow grid of sixteen-icon signatures.

In addition to showing the book in macroview, I realized the potential for a microview of the content of individual chapters. This approach would strengthen the comparison of disparate content types by showing the actual pages of each chapter adjacent in space rather than stacked in time. I began designing an organizing grid to support this idea.

The mathematical precision with which Maeda organized his book facilitated a structured view of the chapters and their content.

Informed by the limitations of my previous design, I sketched a series of layouts that respected both the content of the book and the boundaries of the screen.

Electric Dot (3)

3. electric Dot

- ☑ Narrative Text
- ☑ Narrative Images
- ☑ Digital Projects
- ☑ Print Projects
- ☑ Sketches

INIT

BEGIN

Electric Dot

REACTIVE

PAPER

STATIC

FINE COLORS

ONLINE

NOISE

NOW

SPACE

COMPUTER

ACKNOWLEDGEMENTS
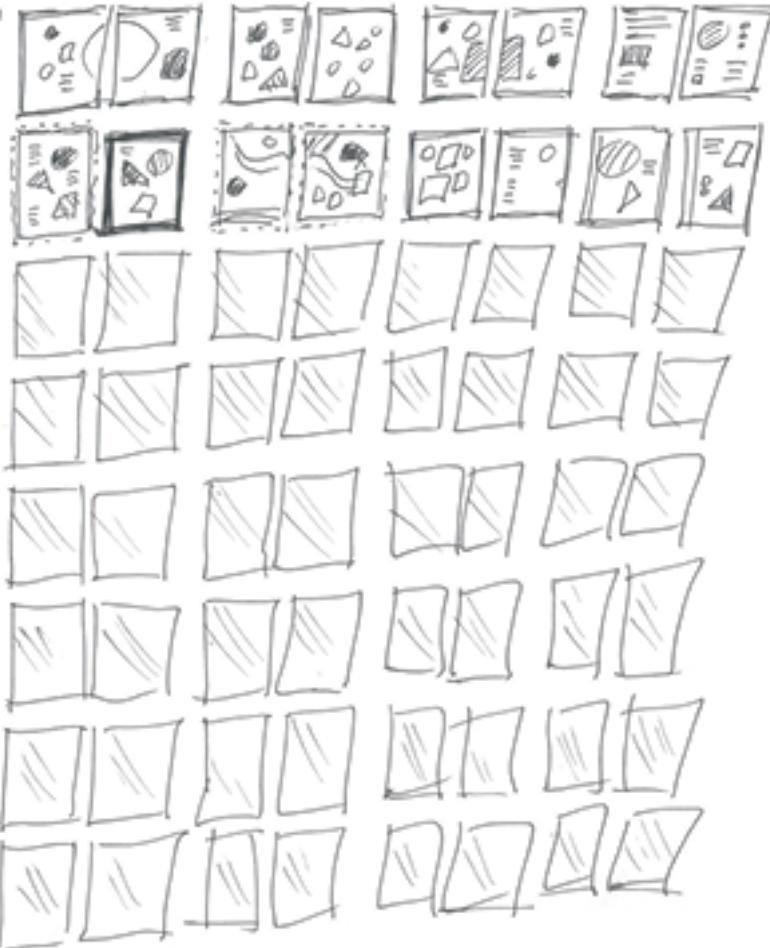
Proof of Concept

Satisfied with the direction of my paper sketches, I began to test the viability of my layout with real pixels. Designs that work on paper don't always quite work on screen. To find out, I mocked up the most promising layout in Illustrator as a mood frame.

In order to approximate the final design, I gathered screenshots of the book from Amazon.com and began populating a grid of pages, evaluating the range of chapter densities the design would be required to support. This allowed me to understand the strengths and weaknesses of the layout and to precisely communicate the concept to others.

The digital comp allowed rapid iterations of multiple layouts. This allowed me to test different relationships between the main image, book and chapter icons.

Positive feedback on this design encouraged me to explore a more detailed execution.

John Maeda

MAEDA @ MEDIA

Foreword by Nicholas Negroponte

Universe
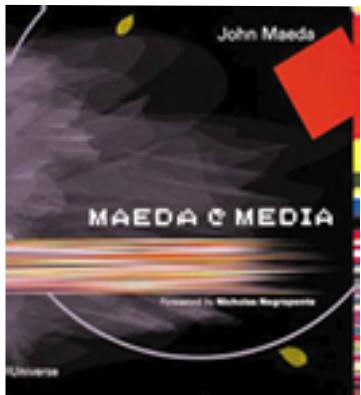
- Show Narrative Text
- Show Narrative Images

- Show Digital Projects
- Show Print Projects
- Show Sketches

INIT

BEGIN

ELECTRIC DOT

REACTIVE

PAPER

STATIC

FOUR COLORS

ONLINE

NOISE

NOW

SPACE

COMPUTER

ACKNOWLEDGEMENTS
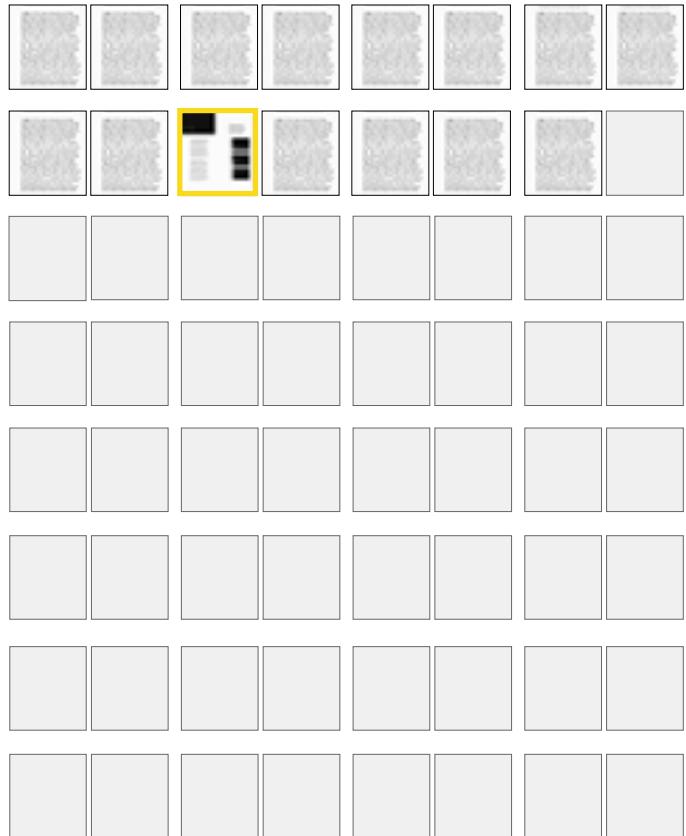
Tackling Production

A major hurdle for my design was the acquisition of hundreds of page scans necessary for the visualization. In order to complete the project on deadline, I began the scanning process while the details of my interaction were still being finalized.

Since the spine of the 450-page book prevented it from lying flat on a scanner, I purchased my own copy of John Maeda's book and broke it into signatures.

Subtle imperfections in the trimming of the book meant that I needed to build a scanning brace for the pages to square them to the scanner.

I stored each page of the book in high resolution to give myself the greatest flexibility in using the images. For creation of the icons, I used Photoshop's automation batch processing to generate multiple image sizes, optimized for screen presentation.

Crafting the Interaction

I begin by leading the viewer through the arrangement of the book by chapter. Images of each page flash by on the left as the middle column of page icons is populated. Once the book loads, a series of five checkboxes is presented, allowing the content to be filtered by type according to narrative, project or sketch.

The presentation is fully interactive. Clicking any of the icons in the middle column loads the corresponding page in its chapter context at right.

Further, clicking any of the pages in the chapter view loads a large detail of the page. These details can be navigated by clicking their upper corners—an interaction designed to echo the dog ears of a physical page.

As the design progressed, I made subtle variations based on the results of user tests.

I also explored the potential for music to add weight to the experience. I experimented with several tracks of electronic music as an ambient soundtrack.
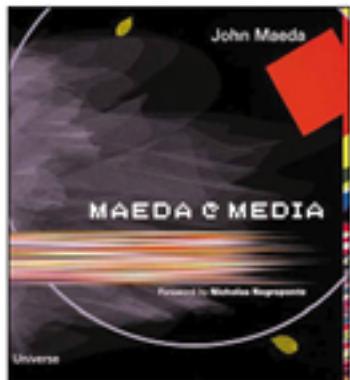
Maeda @ Media — John Maeda. Foreword by Nicholas Negroponte. Universe.

- ☑ Narrative Text
- ☑ Narrative Image
- ☑ Print Projects
- ☑ Digital Projects
- ☑ Sketches

INIT

BEGIN

ELECTRIC DOT

REACTIVE

PAPER

STATIC

FOUR COLORS

ONLINE

NOISE

NOW

SPACE

COMPUTER

4. Reactive

Feedback and Refinements

Though I retained the core of my original design, I experimented with changes based on feedback during my presentation.

For instance, I coded an alternate navigation concept that enforced progressive granularity on the user's selections.

The only major change to my original design concerned how the page icons are presented.

Originally, the central page icons were "filled up" with content as the interface loaded. This proved to be unclear due to the use of light gray surrounded by a dark outline, denoting only a partially filled container.

My solution was to abandon the uniform gray texture of the icons in favor of a design that mapped the variable density of content types on each page.

The new visualization conveyed an additional level of information while maintaining the original intent of the design.

Maeda @ Media

John Maeda

MAEDA @ MEDIA

Foreword by Nicholas Negroponte

Universe

- ☑ Narrative Text
- ☑ Narrative Image
- ☑ Print Projects
- ☑ Digital Projects
- ☑ Sketches

INIT

BEGIN

ELECTRIC DOT

REACTIVE

PAPER

STATIC

FOUR COLORS

ONLINE

NOISE

NOW

SPACE

COMPUTER