

# FOUNDATIONAL DESIGN SKILLS

Interaction Design Studio | Section A  
September 2018

WILSON YU

# the process

3 Typography

6 Grids

10 Color

12 Information Architecture

14 Tangible User Interfaces

# SEEING WHITE SPACE

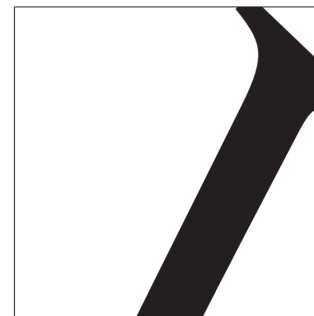
The first design I was tasked with was analyzing the intricacies of type by focusing on the anatomy of a single character, zooming in and rotating it.

The process of altering the letter began to reveal life in the white space as the letter gradually became more abstract. Admittedly, I never paid attention to white space - it was just emptiness as far as I was concerned. But now, the white space had become its own.

The interactions between the letter's body and its surroundings were most prominent in serif fonts - the wide range of thicknesses and edges made for an interesting visual.

White space surrounding by sharp black edges jumped out to the foreground. Skinny lines were squeezed in by the sea of white on either side. The curves on the serifs seemed to gently redirect the flowing white current, while that same current would come crashing into those thick, black walls.

The next step was seeing how these characters worked with each other to make words, how those words made lines, and then how those lines formed text blocks.



**Variations of a Minion Pro 'W' showcasing different levels of abstraction and the dynamics between white space and form.**



# TYPE AS FABRIC

Times New Roman. 12 point font. Double spaced. That was the standard for all of my English classes, so that's what I did.

I hated it.

The spacing between the lines was way too big. The jagged edges hanging off of the right side were distracting, and it was hard to find the next line. Typeface designers may have optimized the white space to the most minute details to build single characters, but that's worthless if we don't position those characters properly in text.

This was when I was introduced to a new concept that changed the way I looked at text - **that text is texture**. Treating text as if it were a fabric weave just made sense - something so intuitive, yet unnoticed.

Gaining control of the triad of **line length, point size, and leading** enabled me to design more readable and visually appealing text, even within the constraints of a certain genre.

There are professions more harmful than industrial design, but only a very few of them. And possibly only one profession is phonier. Advertising design, in persuading people to buy things they don't need, with money they don't have, in order to impress others who don't care, is probably the phoniest field in existence today. Industrial design, by concocting the tawdry idiocies hawked by advertisers, comes a close second. Never before in history have grown men sat down and seriously designed electric hairbrushes, rhinestone-covered file boxes, and mink carpeting for bathrooms, and then drawn up elaborate plans to make and sell these gadgets to millions of people. Before (in the 'good old days'), if a person liked killing people, he had to become a general, purchase a coal-mine, or else study nuclear physics. Today, industrial design has put murder on a mass-production basis. By designing criminally unsafe automobiles that kill or maim nearly one million people around the world each year, by creating whole new species of permanent garbage to clutter up the landscape, and by choosing materials and processes that pollute the air we breathe, designers have become the most powerful tool with which man shapes his tools and environment. This demands high social and moral responsibility from the designer. It also demands more insight into the design process by the public. Not a single book on design that considers the public in this way, has ever been published.

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**A variety of textures, ranging from almost illegible to something easy to read. The trick is finding a good spacial balance - text can't be too squished together, nor too spaced out.**

# DIRECTING THE EYE

## INDUSTRIAL DESIGN

### *A Dangerous Breed*

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**Three examples of a page composition exercise. My goal was to create different ways for the reader to seamlessly enter the text, using the interactions between titles, subtitles, and their positions.**

**The positioning and fabric of the text helped create different feelings and genres. The top-left composition looks more academic, while the top-right example looks more like a blog post on the internet, and the bottom-left composition somewhere in between.**

You probably found it weird to find the beginning of this section here. You probably read the title first, and then, you looked around for what you were supposed to read next. You were probably annoyed by having to move your eyes up to read this oddly placed text.

The corner of this text box is not gracefully surrounded by a welcoming, guiding white space. It is not located where text had appeared in earlier pages. It makes no sense that it started up there. It's just distracting having to redirect your eyes up there.

And that's precisely what I've learned from studying white space. As with all good design, **we often take the visual path that the designer set out for us for granted.** We don't notice it when we can easily read through a page's content. But when something looks bad and we have to make the conscious effort to find what we're supposed to read next, then there's a problem.

In making several page compositions, I've learned more about designing something that users can read effortlessly. Using the natural left-to-right, top-to-down writing system that native English speakers have been using their whole lives made for a seamless transition - though not always the most interesting. Using subtitles also helped direct the reader to the text while also serving as an attention-grabber and/or summarizer

# WORDS PER LINE

I never liked reading newspapers (even before the fake news!). I mean, there would only be about five words per line and every other paragraph would have an obnoxious river from the justified alignment.

At the same time, there were Word documents with 11 point Times New Roman and half inch margins that I never liked looking at either. There were just too many words on each line. And, for the programmers out there - **if you've ever read a line of code with more than 100 characters**, you know you just wanted to **slap the person who wrote it**.

Recently, I've learned that around **10-12 words per line**, or 50-60 characters, is the optimal line length. I'd make it my goal to adjust the text fabric to fit these numbers.

But, sometimes, the page is just too wide. Nobody wants to read 25 words on a line but they don't want to read in

24 point size either. So that's where columns come into play. With practice, I've learned to use columns strategically to divide up very wide sections to keep these roughly 10-12 word lines intact.

Columns keep things readable, and, as long as you don't try to fit five columns like the New York Times, you'll probably end up with something easier to read than one very long line.



# WORDS PER LINE (cont.)

Here are some examples of using columns. I prefer using just two columns, as the lines in a three-column grid are too short.

However, extra columns give us some extra flexibility. In the bottom-right example, I added an extra column for highlighting quotes from the text.

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In an age of mass production when everything must be planned and designed, design has become the most powerful tool with which man shapes his tools and environments (and, by extension, society and himself). This demands high social and moral responsibility from the designer. It also demands greater understanding of the people by those who practise design and more insight into the design process by the public. Not a single volume on the responsibility of the designer, no book on design that considers the public in this way, has ever been published anywhere.

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# HIGHLIGHTING INFORMATION

Working with basic, essay-like text is trivial. The only things we have to prioritize are titles, subtitles, and some key words and phrases here and there.

But what if we are working with something that has an abundance of information? **People don't have the attention span to read everything, so we have to prioritize information.** But what should we prioritize? I spent a lot of time fiddling around with an advertisement, highlighting different parts of it.

I've learned that **bigger contrast between important information and no-so-important information makes that important information all the more important.** So I used a wide range of point sizes and bolding.

My main goal was to have the most important piece of information somehow the first thing a person sees, because it's the biggest, or boldest, or put in the right position. Then, I wanted the viewer's eyes to naturally redirect to the second most important thing, using those same principles.

THE SMITHSONIAN LECTURE SERIES PRESENTS

**Don Norman**

Director, Design Lab  
University of California, San Diego

*Thursday, September 17*  
The Design of Everyday Things

*Monday, September 21*  
The Paradox of Technology

*Tuesday, September 22*  
The Human-Centered Design Process

7:30pm

*Thurston University Art Gallery*  
831 Oxford Road  
Darlington, Connecticut

## FREE ADMISSION

The Smithsonian Lecture Series features thought leaders from around the world. The aim of the series is to give members of the community the rare opportunity to learn directly from those who have excelled through innovation and dedication to their work.

**A fancy advertisement intended for a more sophisticated audience that probably cared most about the speaker, the topics, and the times.**



# HIGHLIGHTING INFORMATION (cont.)

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**An advertisement whose main concern is about promoting the lecture series itself, and using the fact that the event is free to draw interest**

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**A tech-like advertisement with the main goal being to highlight the topics themselves, and the fact that the event is free to generate interest.**

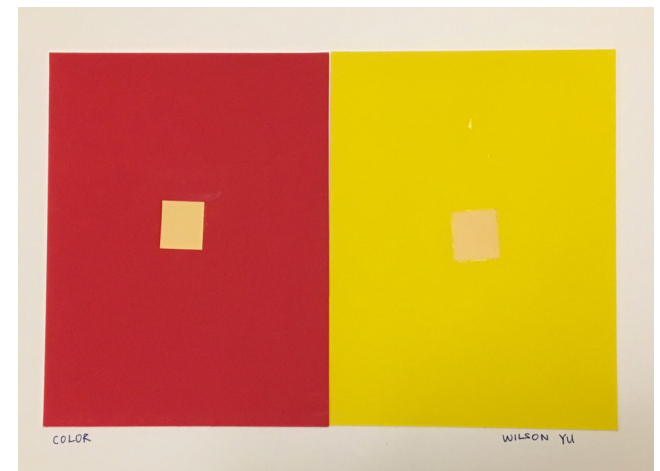
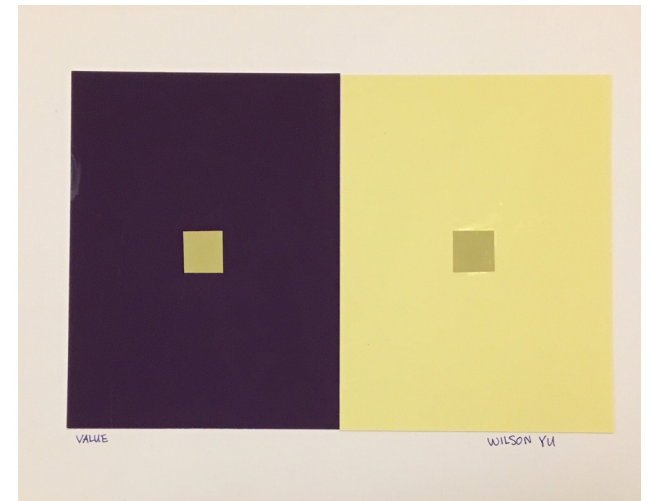
# INTRODUCING COLOR

Although we can make information pop out with point size and styling, using **color adds a whole new dimension to design**. Colors can add hierarchy to a page, increase contrast, and just make things look more interesting.

**One thing I've known about but never knew was used in design is how colors can appear differently - in hue and/or value - when surrounded by other colors.**

**In the top picture, the squares on the inside are the same exact color, but the one on the right looks much darker.**

**Similarly, the colors are identical in the bottom picture, though the square on the left seems more yellow than the one on the right, which seems washed out by the more saturated background.**



# COLORFUL INFORMATION

Revisiting my old designs for the advertisement (which, in hindsight, I felt like didn't convey enough contrast, importance, and urgency), I created a new advertisement with color.

In the assignment, I was prompted to use a lot of colors - many more than two or three - which is what I would usually limit myself to. Though I was irritated at the assignment at first, I found that **this constraint forced me to become more creative.**

I had always just used neutral tones as a way to accent the design, because I couldn't stand how obnoxious bright colors appeared on screens. If you've ever made given an HTML div a background color of #0000FF, you know what I mean.

Fortunately, I've learned that, if used sparingly and strategically, highly saturated colors can actually make the design look better. Furthermore, I've learned that colors are not just there for decoration - they are a vital part of conveying information.

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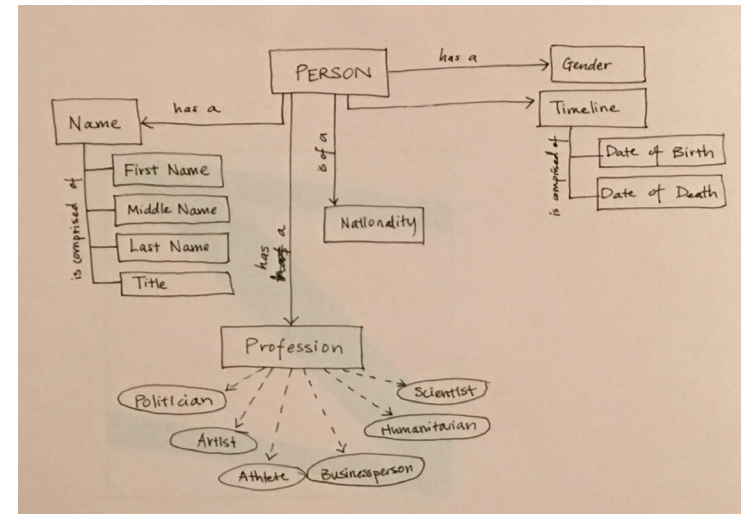
**I took inspiration from my past designs to create a bolder one. Then, I used colors to further highlight words like "FREE" and as a background to group similar elements.**

# ORGANIZING INFORMATION

Having touched upon most aspects of visual presentation, **the next logical design skill to improve upon was verbal organization and communication.**

Throughout these lessons, I've learned about the exact organizational schemes in information architecture: alphabetical, chronological, geographical, and the subjective: categorical, audience-specific, metaphorical, etc.

Information organized by these schemes can be **more easily found by the user**, and may **reduce the amount of detail that needs to be included** in the composition without losing too much of the original information.



**This is how I organize and model information. I like using a database-modelling-like visual because it's very graphical and intuitive.**

# A CASE STUDY IN INFORMATION ARCHITECTURE

As an exercise, I had to organize a list of 100 famous people in some nested scheme. For each person, I was given a full name, date of birth/death, a nationality, and profession.

My first thought was to group by profession, because, after all, famous people are usually famous for what they do. Thus, most users would know exactly where to look for the person they have in mind.

It was also a good idea because profession was also the most (unnecessarily) detailed attribute. By grouping by profession, we can then just remove those extra details. After that, a simple alphabetical sort by first name made it easy to find the person's information based on what you would usually identify a famous person with - their full name.

One problem with this approach, however, was that some famous people are famous for multiple reasons - take, for example, Leonardo da Vinci, the celebrated polymath who excelled in art and science. I had to make the decision to include him in one category but not the other.

Despite this system's imperfections, it does a good job for the vast majority of cases.

## 100 FAMOUS PEOPLE

### POLITICIANS

#### Democratic

Abraham Lincoln (1809 - 1865)  
Aung San Suu Kyi (1945 - )  
Barack Obama (1961 - )  
Benazir Bhutto (1953 - 2007)  
Charles de Gaulle (1890 - 1970)  
Donald Trump (1946 - )  
Eva Peron (1919 - 1952)  
Franklin D. Roosevelt (1882 - 1945)  
Indira Gandhi (1917 - 1984)  
Jacqueline Kennedy Onassis (1929 - 1994)  
Jawaharlal Nehru (1889 - 1964)  
John F. Kennedy (1917 - 1963)  
Lyndon Johnson (1908 - 1973)  
Margaret Thatcher (1925 - 2013)  
Mikhail Gorbachev (1931 - )  
Nelson Mandela (1918 - 2013)  
Ronald Reagan (1911 - 2004)  
Winston Churchill (1874 - 1965)  
Woodrow Wilson (1856 - 1924)

#### Dictatorship

Adolf Hitler (1889 - 1945)  
Fidel Castro (1926 - )  
Joseph Stalin (1879 - 1953)  
Mao Zedong (1893 - 1976)  
Vladimir Lenin (1870 - 1924)

#### Monarchy

Chlopatra (69 - 30 BCE)  
George Bush Jr. (1946 - )  
Halle Selassie (1882 - 1975)  
Prince Charles (1948 - )  
Queen Elizabeth II (1926 - )  
Queen Victoria (1819 - 1901)

#### Film

Alfred Hitchcock (1899 - 1980)  
Angelina Jolie (1975 - )  
Audrey Hepburn (1929 - 1993)  
Grace Kelly (1929 - 1982)  
Ingrid Bergman (1915 - 1982)  
Katharine Hepburn (1907 - 2003)  
Marilyn Monroe (1926 - 1962)  
Oprah Winfrey (1954 - )  
Peter Sellers (1925 - 1980)

#### Art

Coco Chanel (1883 - 1971)  
Leonardo da Vinci (1452 - 1519)  
Pablo Picasso (1881 - 1973)  
Vincent Van Gogh (1852 - 1890)

### ARTS

#### Music

Bille Holiday (1915 - 1959)  
Bob Geldof (1951 - )  
Duke Peckley (1832 - 1877)  
John Lennon (1940 - 1980)  
Ludwig Beethoven (1770 - 1827)  
Madonna (1958 - )  
Michael Jackson (1958 - 2009)  
Paul McCartney (1942 - )  
Sting (1951 - )

#### Writing

Anne Frank (1929 - 1942)  
C.S. Lewis (1896 - 1963)  
Ernest Hemingway (1899 - 1962)  
George Orwell (1903 - 1950)  
J.K. Rowling (1965 - )  
J.R.R. Tolkien (1892 - 1973)  
Leo Tolstoy (1828 - 1910)  
Oscar Wilde (1854 - 1900)

### HUMANITARIANS

#### Religious

Dalai Lama (1938 - )  
Mary Magdalene (4 BCE - 40CE)  
Mother Teresa (1910 - 1997)  
Pope Francis (1936 - )  
Pope John Paul II (1920 - 2005)

#### Political

Demond Teta (1931 - )  
Leon Trotsky (1879 - 1940)  
Lord Baden Powell (1857 - 1941)  
Mahatma Gandhi (1869 - 1948)  
Malcolm X (1925 - 1965)  
Martin Luther King (1929 - 1968)

### SCIENTISTS

Albert Einstein (1879 - 1955)  
Amelia Earhart (1897 - 1937)  
Charles Darwin (1809 - 1882)  
Christopher Columbus (1451 - 1506)  
John Maynard Keynes (1883 - 1946)  
Louis Pasteur (1822 - 1895)  
Neil Armstrong (1930 - 2012)  
Plato (423 BC - 348 BC)  
Sigmund Freud (1856 - 1939)  
Thomas Edison (1847 - 1931)

### BUSINESSPEOPLE

Bill Gates (1955 - )  
Henry Ford (1863 - 1947)  
Richard Branson (1950 - )  
Steve Jobs (1955 - 2011)  
Walt Disney (1901 - 1966)

### ATHLETES

Babe Ruth (1895 - 1948)  
Bille Jean King (1943 - )  
Carl Lewis (1898 - 1962)  
David Beckham (1975 - )  
Jesse Owens (1913 - 1980)  
Lionel Messi (1987 - )  
Michael Jordan (1963 - )  
Muhammad Ali (1942 - 2014)  
Pele (1940 - )  
Roger Federer (1981 - )  
Tiger Woods (1975 - )  
Usain Bolt (1986 - )

**This is the final product of the model shown in the earlier page. The information is grouped by profession, then subgrouped to split up the very large groups of politicians and artists. After that, the people were sorted alphabetically by first name**



# THE THIRD DIMENSION

All of this time, we've been working in just two dimensions. Considering the prevalence of computers and screens nowadays, that's not a surprise. But **there is also design to be done in the physical world.**

In order to practice building physical, tangible prototypes, I crafted a cuboctahedron using foam board based on a paper model.

To make strong edges, I only cut through the foam part, leaving one of the paper layers intact, whenever possible. While assembling the model, I both glued and taped the edges together.

The structure was fairly robust by the time I had to make the "last seam." However, I was unable to find any way around taping up the last seam, so I decided to tape around every other edge as well. Although doing so left a discoloring, I did it neatly so it didn't look too bad, and the tape also made the edges convex where they were concave earlier.

**Images of the final cuboctahedron model are on the next page**

