Hi!

There are important things you need for this work-shop to go smoothly.
Please go to tinyurl.com/hex-fa2020-drive.
Follow the instructions in the file named READ ME, and download the file named DOWNLOAD ME.
We'll begin at 3:10!



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WORKSHOP AGENDA

- A crash course on typography. (1)
- Creating a MS Word template file, with 2
 - better typography.
- 3 Special case: typography for your résumé.



WORKSHOP AGENDA

- A crash course on typography. (1)
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WHILE WE'RE HERE...

To get the most out of this workshop, you'll need Microsoft Word and the Adobe Creative Cloud Application (or a good font you like).



WHAT IS TYPOGRAPHY?

Typography is purp on a page to facilitat to think of it as the the way we arrange guage has a big effec

- Typography is purposeful visual design of text
- on a page to facilitate reader attention¹. I like
- to think of it as the user interface of language:
- the way we arrange and use the symbols of lan-
- guage has a big effect on how it's perceived.

¹ Matthew Butterick, *Typography for Docs*



ELEMENTS OF TYPOGRAPHY

You have three basic tools:

- Your font, and its features. (1)
- 2 Line and paragraph formatting.
- (3) Hierarchy and layout.



ELEMENTS OF TYPOGRAPHY

You have three basic tools:

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(3) Hierarchy and layout.



Almost twenty-five barrels? *IvyPresto Display: Thin*

Almost twenty-five barrels?

IvyPresto Display: Light

Almost twenty-five barrels? *IvyPresto Display: Regular*

TvyPresio Display: Regular

Almost twenty-five barrels?

IvyPresto Display: Semibold

Almost twenty-five barrels?

IvyPresto Display: Bold

Almost twenty-five barrels?

IvyPresto Display: Bold Italics

FONT CONSIDERATIONS

A high quality font will come in a FONT FAMILY. This allows you to access different weights, and italicized versions of each weight.



Almost twenty-five barrels? *IvyPresto Display: Thin*

Almost twenty-five barrels?

IvyPresto Display: Light

Almost twenty-five barrels? IvyPresto Display: Regular

TvyPresio Display: Regular

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IvyPresto Display: Bold Italics

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WHILE WE'RE HERE...

Some people refer to fonts as "typefaces". That's because originally, TYPEFACE was the term for a family and a font was a member of said family.



What do we think about when choosing a font?



fib vs. fib Kalfka vs. Kalfka often vs. often _{Ligatures}

FONT CONSIDERATIONS

LIGATURES are special characters that combine two individual letterforms into one. They are usually made for pairs where the two individual symbols collide, or where they clearly look better as one.

It's nice to have these to make text, especially large text, look more elegant.



fib vs. fib Kalfka vs. Kalfka often vs. often _{Ligatures}

LANATA: Ligatures Are Not Always The Answer

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Ligatures

frost vs. **frost** LANATA: Ligatures Are Not Always The Answer

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Nº 9¼ R_X ∴ §8.2 f k ₩ Π Ωι % $\int \infty \Sigma$ A S % % O_{OO}

Let's talk about FONTS.

Small caps

FONT CONSIDERATIONS

Fonts will also have varying other symbols, like common fractions and currency symbols.

SMALL CAPS are capitals with the height of a lowercase letter. They're a better alternative to bolding or underlining - more on that later.

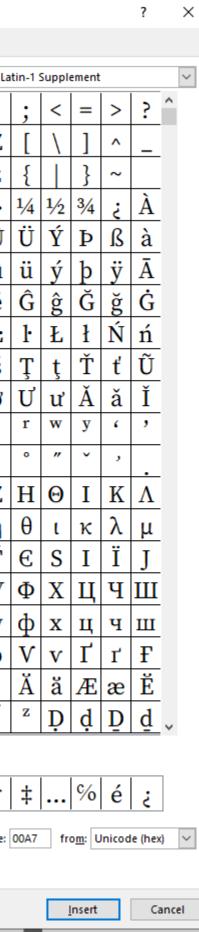


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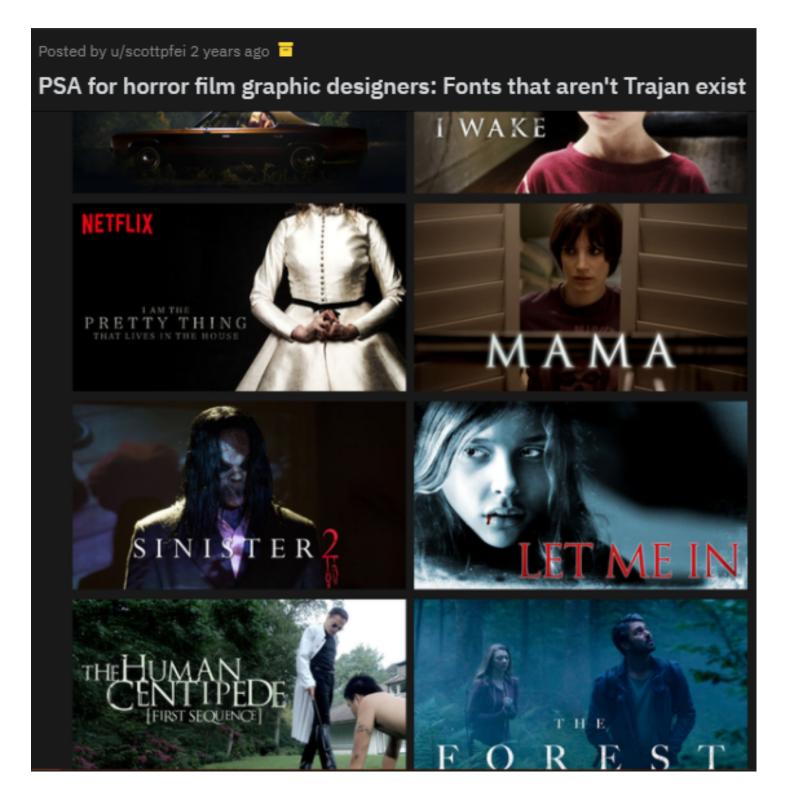
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AutoCorrect... Shortcut Key... Shortcut key: Alt+0167









Printing House Square expressly for use in *The* intended to illustrate, by comparison, the *Times.* The size you are now reading will be superior legibility of the fount used in the left. used for the principal sections of *The Times*. The several complementary sizes are equally well proportioned for the respective services in the paper. The new fount will be employed on and after October 3, 1932. *The Times*, for generations the best printed paper, will, by present-day enticel standards be the most comfortably read optical standards, be the most comfortably read- founded, The Times was largely read in coffeeable journal in the world. All the new founts houses ; in the nineteenth century it came to have been tested by the highest ophthalmic be read in trains ; to-day it is largely read in authority.

of the contemporary reader, The Times believes | must newspaper typography remain const that it is anticipating a general public demand Advances in English craftsmanship have now which sooner or later will be made upon made possible the designing and engraving of journalism at large.

The improvement in the ease of reading may adjoining column. be immediately seen by a comparison of this The use of the fount in which these words column with the adjoining matter set in a similar are set will terminate in the issue of The Times size of the superseded fount.

This is The Times New Roman, designed at | This specimen of the superseded fount is cars and airliners. Reading habits, dependent on By this adjustment of its columns to the needs | social habits, will not remain constant. Neither

the supremely readable fount to be seen in the

for October 1, 1932.

TNR was invented to be used by printing presses. It's optimized for that, not modern office printers and device screens.

FONT **CONSIDERATIONS**

Please, please don't use default fonts. No Calibri, Arial, or Times New Roman. While Helvetica isn't a default font, it's also not creative.

Find a good font: one with the right features, some character, and something that doesn't come installed with your computer.



ELEMENTS OF TYPOGRAPHY

You have three basic tools:

- Your font, and its features. (1)
- 2 Line and paragraph formatting.
- (3) Hierarchy and layout.



Music, according to this, is mathematical patterns. You can measure the precise data value of every symphony, song and howl, and determine which is the richest. The experiences they create in humans or wolves don't really matter.

Music, according to this, is mathematical patterns. You can measure the precise data value of every symphony, song and howl, and determine which is the richest. The experiences they create in humans or wolves don't really matter.

Music, according to this, is mathematical patterns. You can measure the precise data value of every symphony, song and howl, and determine which is the richest. The experiences they create in humans or wolves don't really matter. 26pt font 26pt line spacing

Too tight!

26pt font 36.4pt line spacing

Good.

26pt font 44pt line spacing

Too loose!

TEXT FORMATTING

LINE SPACING (also called leading) is the vertical distance between two lines of text in a paragraph.

The best line spacing for readability is between 120% and 150% of the font size.

140% is generally regarded as the sweet spot.

Leading is important for making your body text less exhausting.



SUPERIOR No extra tracking

SUPERIOR +20 Tracking

TEXT FORMATTING

LETTERSPACING (a.k.a tracking) is a property that affects the horizontal space between every letter in a block of text.

When you use all or small caps, some extra horizontal spacing is needed. Increase the LETTER-SPACING (there's no formal rule for how much. Follow your gut, but don't go too far)



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SUPERIOR +20 Tracking

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WHILE WE'RE HERE...

In an advanced typography class, we would cover KERNING (letterspacing for individual pairs of letters). But because this is a workshop of practical tips for Word, etc., we'll skip it.



TEXT FORMATTING

Emphasis is pretty important, but there are a couple of do's and dont's¹.

- Don't underline things. It breaks the flow and distracts the eye.
- Italics are okay. I don't like bold, but that's technically okay too. But you should only use one or the other.
- Small caps are ideal (for one or two words): easy to ignore when reading a different line, but noticable when you're reading the "target" line.

¹ Matthew Butterick, *Practical Typography*



The first stage began with the cognitive revolution, which made it possible to connect unlimited sapiens into a single data-processing network. This gave sapiens an advantage over all other human and animal species. Although there is a limit to the number of Neanderthals, chimpanzees or elephants you can connect to the same net, there is no limit to the number of sapiens.

Underlining distracts the eye and makes it hard to focus on the other text.

The first stage began with the cognitive revolution, which made it possible to connect unlimited sapiens into a single data-processing network. *This gave sapiens an advantage over all other human and animal species*. Although there is a limit to the number of Neanderthals, chimpanzees or elephants you can connect to the same net, there is no limit to the number of sapiens.

Italics don't break the block of text like a big line does, but provides emphasis when your eye gets there.

TEXT FORMATTING

Emphasis is pretty important, but there are a couple of do's and dont's¹.

- Don't underline things. It breaks the flow and distracts the eye.
- Italics are okay. I really don't like bold, but if you are certain you need it then it can be allowed. But you should only use one or the other.
- Small caps are my favorite (for short phrases): easy to ignore when reading a different line, but notice-able when you're reading the "target" line.

¹ Matthew Butterick, *Practical Typography*



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§2.3: The Cognitive Revolution

The first stage began with the cognitive revolution, which made it possible to connect unlimited sapiens into a single data-processing network. This gave sapiens an advantage over all other human and animal species. Although there is a limit to the number of Neanderthals, chimpanzees or elephants you can connect to the same net, there is no limit to the number of sapiens.

Combining too many emphasizers drags my eye to the header when I try to read the line around it.

TEXT FORMATTING

When it comes to headings, it's easy to go overboard. There shouldn't be too many levels of headings (at least visually).

Just like text emphasis, having too many forms of heading emphasis can be garish or distracting.



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§2.4: The Cognitive Revolution

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Increased spacing before and after, combined with a mild increase in font size, provide an elegant and subtle heading.

TEXT FORMATTING

My favorite strategy is to increase the font a little bit, and use spacing to my advantage. One thing to note here: the heading should be distinctly closer to the paragraph of its own section than the one before it.



ELEMENTS OF TYPOGRAPHY

You have three basic tools:

- Your font, and its features. (1)
- 2 Line and paragraph formatting.
- ③ Hierarchy and layout.



left to right and reset continuously. benefit of room for side notes!

- Line length is important for reducing reader
- exhaustion. Having the lines in a block of text
- be 45-90 characters reduces the eye strain
- that your reader feels as they move their eyes
- The bigger side margins also add the extra



Having long lines of text makes your document visually exhausting, since my eyes have to travel further. The third stage kicked off with the appearance of writing and money about 5,000 years ago, and lasted until the beginning of the scientific revolution. Thanks to writing and money, the gravitational field of human co-operation finally overpowered the centrifugal forces. Human groups bonded and merged to form cities and kingdoms. Political and commercial links between different cities and kingdoms also tightened. At least since the first millennium BC - when coinage, empires, and universal religions appeared - humans began to consciously dream about forging a single network that would encompass the entire globe.

This dream became a reality during the fourth and last stage of history, which began around 1492. Early modern explorers, conquerors and traders wove the first thin threads that encompassed the whole world. In the late modern period, these threads were made stronger and denser, so that the spider's web of Columbus's days became the steel and asphalt grid of the 21st century. Even more importantly, information was allowed to flow increasingly freely along this global grid. When Columbus first hooked up the Eurasian net to the American net, only a few bits of data could cross the ocean each year, running the gauntlet of cultural prejudices, strict censorship and political repression.

But as the years went by, the free market, the scientific community, the rule of law and the spread of democracy all helped to lift the barriers. We often imagine that democracy and the free market won because they were "good". In truth, they won because they improved the global data-processing system.

So over the last 70,000 years humankind first spread out, then separated into distinct groups and finally merged again. Yet the process of unification did not take us back to the beginning. When the different human groups fused into the global village of today, each brought along its unique legacy of thoughts, tools and behaviours, which it collected and developed along the way. Our modern larders are now stuffed with Middle Eastern wheat, Andean potatoes, New Guinean sugar and Ethiopian coffee. Similarly, our language, religion, music and politics are replete with heirlooms from across the planet.

If humankind is indeed a single data-processing system, what is its output? Dataists would say that its output will be the creation of a new and even more efficient data-processing system, called the Internet-of-All-Things. Once this mission is accomplished, Homo sapiens will vanish.



Having shorter lines of text make the document less exhausting to read, and also give me space for side notes.

AbcdefghijklmnopqrstuvwxyzAbcdefghijklmnopqrstuvwxyzAbcdefghijklm

The third stage kicked off with the appearance of writing and money about 5,000 years ago, and lasted until the beginning of the scientific revolution. Thanks to writing and money, the gravitational field of human co-operation finally overpowered the centrifugal forces. Human groups bonded and merged to form cities and kingdoms. Political and commercial links between different cities and kingdoms also tightened. At least since the first millennium BC - when coinage, empires, and universal religions appeared - humans began to consciously dream about forging a single network that would encompass the entire globe.

This dream became a reality during the fourth and last stage of history, which began around 1492. Early modern explorers, conquerors and traders wove the first thin threads that encompassed the whole world. In the late modern period, these threads were made stronger and denser, so that the spider's web of Columbus's days became the steel and asphalt grid of the 21st century. Even more importantly, information was allowed to flow increasingly freely along this global grid. When Columbus first hooked up the Eurasian net to the American net, only a few bits of data could cross the ocean each year, running the gauntlet of cultural prejudices, strict censorship and political repression.

But as the years went by, the free market, the scientific community, the rule of law and the spread of democracy all helped to lift the barriers. We often imagine that democracy and the free market won because they were "good".



Having shorter lines of text make the document less exhausting to read, and also give me space for side notes.

AbcdefghijklmnopqrstuvwxyzAbcdefghijklmnopqrstuvwxyzAbcdefghijklm

The third stage kicked off with the appearance of writing and money about 5,000 years ago, and lasted until the beginning of the scientific revolution. Thanks to writing and money, the gravitational field of human co-operation finally overpowered the centrifugal forces. Human groups bonded and merged to form cities and kingdoms. Political and commercial links between different cities and kingdoms also tightened. At least since the first millennium BC - when coinage, empires, and universal religions appeared - humans began to consciously dream about forging a single network that would encompass the entire globe.

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WHILE WE'RE HERE...

An easy way to check your line length on the fly is to use the alphabet as your measuring tool.

2-3 alphabets is 52 - 78 characters.



Lists! Fun in documents, not fun in Java.

font.

WHILE WE'RE HERE...

The numbering font I use in these slides is called Concourse T3 Index. It was designed by Matthew Butterick, whose web book is my go-to quick reference (and where a lot of this material came from).

The main point I want to make here is: please don't use the default lists. They're boring and bland. In any modern document software, you can change the bullet symbols and the numbering



The 48 Laws of Power is a book written by Robert Greene. It's a very notorious book, and was actually banned from several U.S. prisons. Here are the first few laws:

- Never outshine the master. (1)
- (2)
- (3) Conceal your intentions
- Always say less than necessary. (4)

The prisons banned the book, describing it as:

- » subversive
- » manipulative
- » machiavellian

Never put too much trust in friends, learn how to use enemies.

Interesting bullet and number symbols show effort and elegance.

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The best way to lay out all the text on a page is by using a GRID SYSTEM. A grid is a system of horizontal and vertical lines that can guide layout choices¹, and has been used for many centuries.

We'll look at some examples, but like a lot of tools, it only works if you use it in moderation.

¹ Matthew Butterick, *Practical Typography*

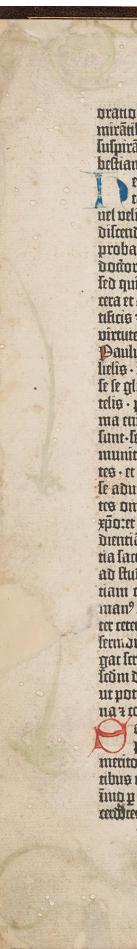
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The Gutenberg Bible used a four column grid system.

If you're writing a normal essay or paper, one column is fine (and probably best).

But, if you're making a more complex document with levels of hierarchy and images, then multiple columns are great¹.



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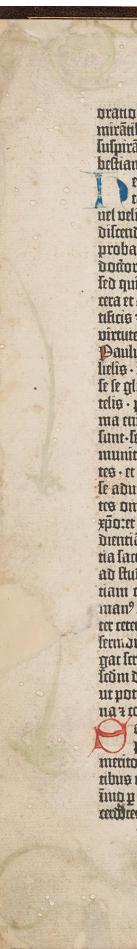
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¹ Not every column in a grid needs to be a body text column. You can use it for images, side notes, etc.



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	every digital image or mark is	grid of neatly bounded blocks. The	every digital image or mark is	every digital image or mark is	continuous tones, every digital		after World War II, graph	ic designers built a total	design methodology	or mark is constructed	-ultimately-from a grid	digital image or mark	is constructed—
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The above images were taken from THINKING WITH TYPE, a website with lots of useful reference information. Some columns are used for body text, and others for captions. Notice that the images still line up with the grids.



Ethical Management of Hierarchies

BY SAHIL SANGHVI | HISTORY C184D | MAY 6, 2020

In 2016, a *New York Times* exposé brought to light a massive surveillance system recording email and web traffic at a high level of detail (sufficient to trace traffic back to a specific person) within the networks of UC schools¹, and the staunch opposition by a group of Berkeley faculty. As a direct result of hackers stealing medical data at UCLA, UC President Janet Napolitano instituted a secretive surveillance program that monitored *all* network traffic in *all* UC campuses – something that didn't sit well with faculty at Berkeley, a school which prides itself on being a bastion of freedom of both speech and academia. They feared an intrusion of privacy and censoring of academic research into topics the UCOP (UC Office of the President) didn't agree with.

The program was discovered several months after it had begun spying on the networks, and faculty were outraged at the lack of transparency about where their data was going. Even Berkeley IT and cybersecurity staff, who keep the massive campus networks secure, were against the program; however, they were ordered by UCOP to maintain the secrecy and comply. The issue was only revealed to the public when a group of senior faculty members at Berkeley leaked information about this intrusive monitoring², which is able to gather data on a level comparable to spyware.

This situation is symptomatic of a larger 21st century issue. As the risks from data leaks rapidly grow, organizations take increasingly larger liberties with the amount of surveillance and power they have over users of their digital devices and networks. As a result, when hierarchal structures in these organizations cause ethical disagreements, the minimization of corporate and operational risk often prevails at the cost of individual rights and liberties. Reconciling the differences between different ethical standards

sahil sanghvi | ethical management of hierarchies 1

HIERARCHY AND LAYOUT

What does that look like in actual schoolwork? Well, not too crazy, unfortunately. We can't drastically alter the grid of a college paper¹, but the other things we've learned together do apply!

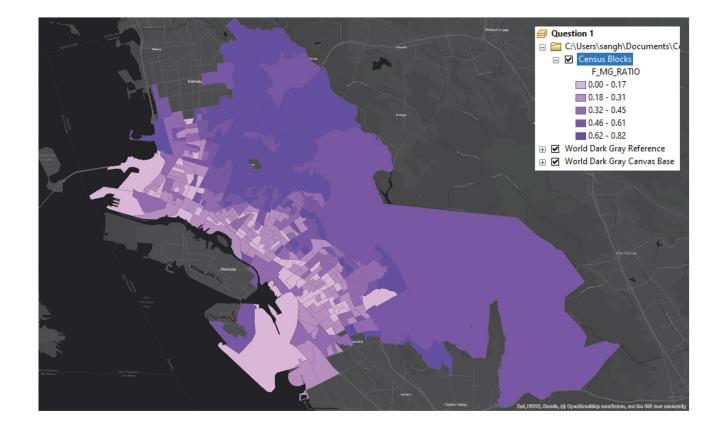
¹ Yes, even a one-row, one-column grid is a grid. One could argue that this is a three-row, one-column grid though.



¹ At Berkeley, a New Digital Privacy Protest. The New York Times.

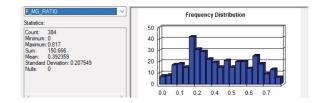
² UCOP Ordered Spyware Installed on UC Data Networks. Remaking the University.

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Question 1

In the map above, we can see the number of women employed in "Management, Professional, and Related Occupations" divided by the number of employed females within the census block. In the statistics below, we see that on average, a census block in Oakland has about 39.2% of



their employed females working in our selected occupation (management, etc.). We can also see that the highest value this percentage takes is 81.7%, meaning that there is at least one census block where 81.7% of the employed females work in management, etc fields.

In the graph on the left, we see a frequency histogram of the F_MG_RATIO field. The mode is a little less than 0.2, and the mean is 0.29.

Geography C188 Lab 2 Sahil Sanghvi, Section 104

HIERARCHY AND LAYOUT

What does that look like in actual schoolwork? Well, not too crazy, unfortunately. We can't drastically alter the grid of a college paper, but the other things we've learned together do apply! However, next time you work on a lab writeup (or anything more complex), think about the grid of your document!



Time to apply these tips to a real document!



So ... résumés.

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THE DEAL WITH RÉSUMÉS

While typographic rules and tips are great, we need to apply them with discretion. A couple of considerations:

- Most recruiters are *skimming*, not reading. So our el-(1)ements need to be exaggerated accordingly.
- The first thing I get asked is when I'm graduating. (2)So that goes right up top by my name.

SAHIL SANGHV B.A. DATA SCIENCE GRADUATING 2021

(123)-456-6789

sanghviss@berkeley.edu www.sahilcreates.com

LinkedIn: sahil-sanghvi

Experience

Software Engineer Intern

Microsoft Corporation, May 2020 - August 2020

- Built a plugin for a very popular CI/CD platform to enable developer teams to run Microsoft Credential Scanner as part of their build pipeline in a seamless end-to-end use case
- Added advanced features such as cloud storage support and guick-response tools from the CI/CD platform's UI itself, as well as cross compatibility with other plugins to further extend the capabilities of the product.
- Worked closely with project managers to ideate features and to discuss the user base and their needs.

Security Software Engineer

UC Berkeley Information Security Office, Jan 2019 - May 2020

- Full-stack development for UCB's centralized security operations and monitoring software. Projects include:
 - Synchronization scripts between incompatible applications.
 - Integration with a new intrusion detection system
 - Server-side pagination for faster record retrieval
 - UI theme development
- Used Ruby on Rails, PostgreSQL, Vue.js, and Sass.
- Used tools such as ArcSight to monitor for suspicious network activity and eliminate or mitigate discovered vulnerabilities.

Undergraduate Research Apprentice

UC Berkeley Division of Data Sciences, Sept 2019 - Dec 2019

 Co-developed an exploratory tool using a recurrent neural network with LSTM architecture to perform languageindependent phonetic transcription

Education

B.A. Data Science University of California, Berkeley Geospatial Information & Technology EMPHASIS

Electrical Engineering & Computer Science MINOE

- Probability Theory
- Data Visualization Discrete Mathematics &
- Artificial Intelligence Human Contexts and Ethics of Data Science
- Principles & Techniques of Data Science
- Introduction to Geospatial Technologies
- **Probability Theory** Data Structures &
- Algorithms
- User Experience Design
- Foundations of Data Science

Skills & Knowledge

Languages and Frameworks

- Python
- Java
- Ruby on Rails
- C++
- PostgreSQL
- HTML & CSS
- Comfortable in Linux/UNIX environments

Data Science & Analytics

- Standard Python data science libraries - Pandas, Numpy, Scipy, Matplotlib, etc.
- Tableau
- Jupyter Notebooks
- ArcGIS & QGIS
- Clustering, Classification
- (Learning) Tensorflow & Keras

Design Skills

- Fluent in the Adobe CC Suite
- Logo Design
- Print Design
- Slide Deck Design

Achievements

- 1st Place at IBM Watson Challenge, CalHacks 5.0)
- Leadership Award (Cal Alumni Association, Sept. 2017)

Personal Projects

StyleMe

Awarded 1st Place by IBM at CalHacks 5.0

Co-created a Python program that uses IBM Watson's Visual Recognition core and the OpenWeatherMap API to classify user's wardrobe and suggest outfits based on the weather.



THE DEAL WITH RÉSUMÉS

While typographic rules and tips are great, we need to apply them with discretion. A couple of considerations:

- ① Most recruiters are *skimming*, not reading. So our elements need to be exaggerated accordingly.
- 2 The first thing I get asked is when I'm graduating.So that goes right up top by my name.
- ③ The complexity of a résumé lends itself to a nice grid. The shape of this grid depends on the content.

SAHIL SANGHV B.A. DATA SCIENCE GRADUATING 2021

(123)-456-6789 sanghviss@berkelev.edu www.sahilcreates.com LinkedIn: sahil-sanghvi

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•	Human Contexts and Ethics		Probability Theory
	of Data Science	•	Data Structures &
•	Principles & Techniques of		Algorithms
	Data Science		User Experience Design
	Introduction to Geospatial		Foundations of Data Science
	Technologies		

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CREDIT WHERE CREDIT IS DUE

Most of today's material is from these two sources, which is where I learned this stuff myself.

- Other cool stuff:
- » r/typography

» *Practical Typography* by Matthew Butterick

» Thinking With Type (the website) by Ellen Lupton

» *Designing Type* (guess what this book is about)

