Dynamic
Media
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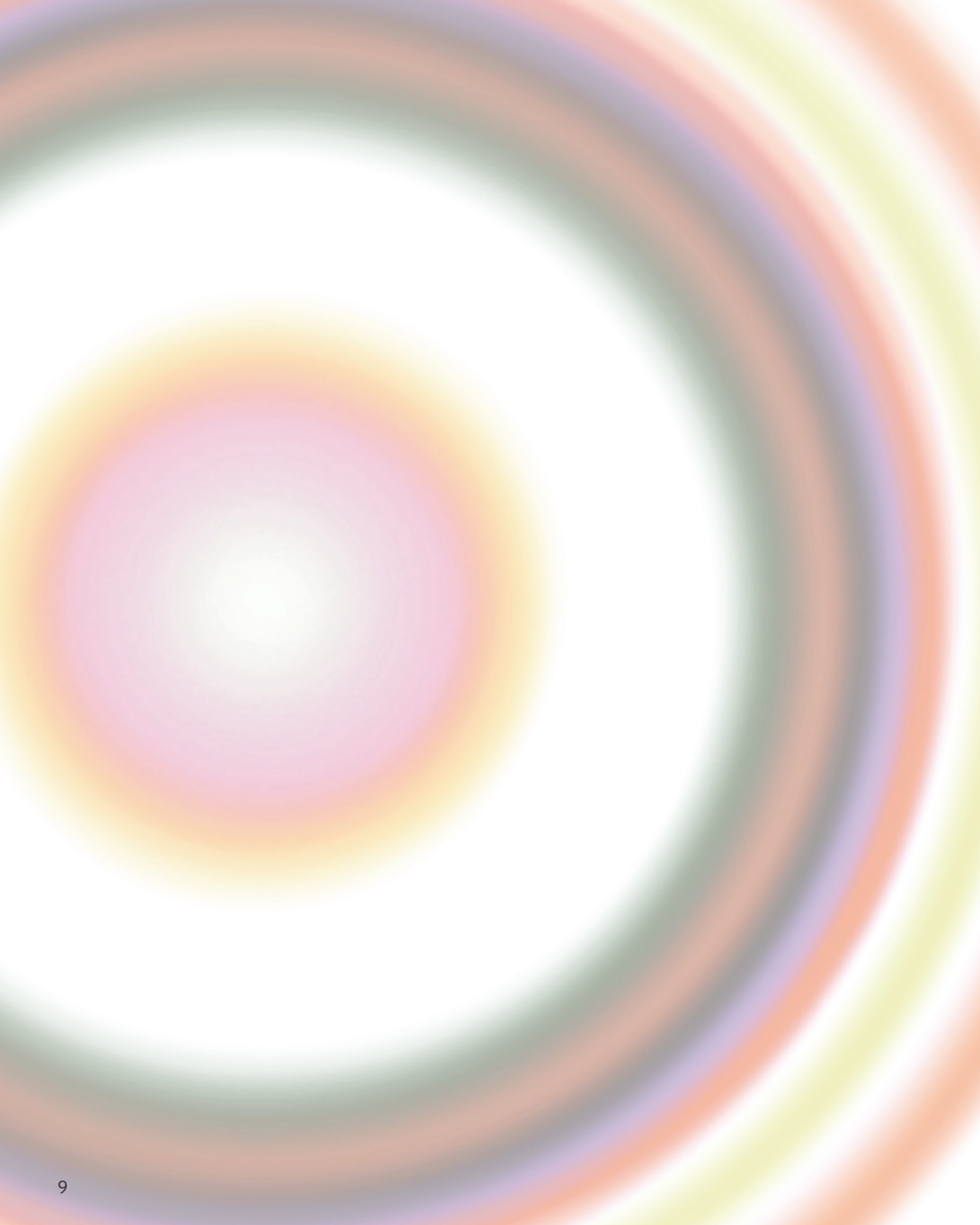# ARTIFACTS

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# DATA ARTIFACTS

Meghan Quinn

# DATA ARTIFACTS

**Meghan Quinn**

*Massachusetts College of Art and Design,
Dynamic Media Institute*

May, 2022

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# ABSTRACT

Data is analytical, impersonal and intimidating making it hard to decode. Alberto Cairo stated, " we've all heard a picture is worth a thousand words, but what if we don't understand what we're looking at? " Data is our real world behaviors translated into bar charts or spreadsheets—visualizations some struggle to make sense of. Behind these digital representations are people. A text exchange between strangers or friends has a hidden collection of data. Behind this lies people, emotions, connection and stories.

My work creates something that is naturally fluid to overpower the rigidness of data. My work seeks to explore what the input of data looks like as an output. Through the use of visualizations and input/output systems, I am abstracting data and reinterpreting it into a valuable artifact as opposed to a mere statistic. Through this process I am re—filtering data to create a new more nuanced meaning and a new representation that leaves room for interpretation within the space between data and humans.
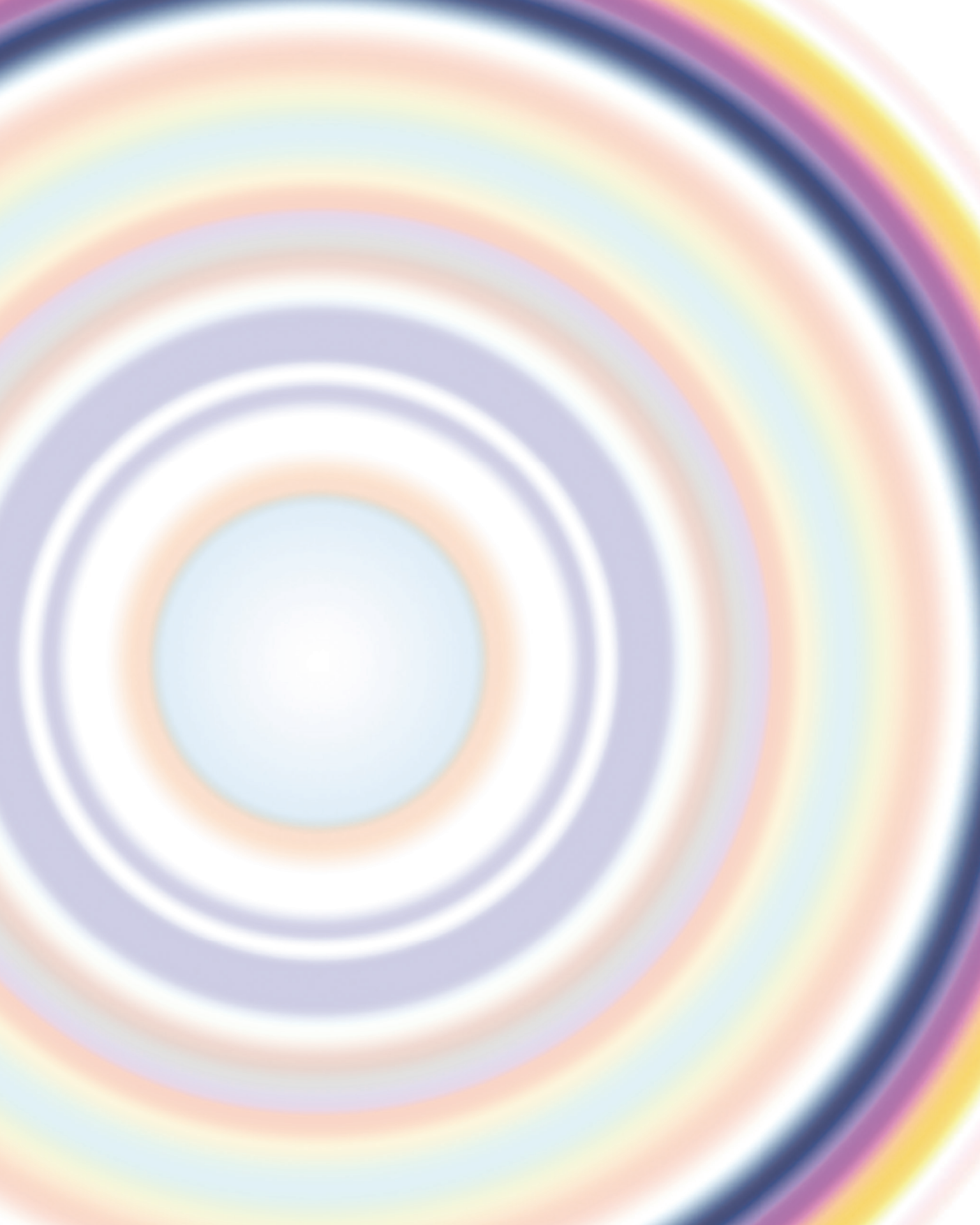
# INTRODUCTION

*I often think to myself, why*. What is the reason for the fascination with decoding data? What purpose is this serving? *Is there even a purpose behind these artifacts*? I always had an intense desire to understand complex situations. I always questioned why and how and what does any of this even mean. I think people get into art because they want to make sense of the unknown or they can't adequately communicate what they want to say. These people turn to painting, illustration or any other form of art. Drawing was one of the first ways humans communicated. This was how cavemen and women made sense to one another. They drew symbols and images on the cavewalls in order to communicate, decode and tell a story.

As I've grown older, I've come to realize that everything has a story behind it. The person five feet away from you in a coffee shop has a story. The man you walk by everyday on your dog walk also has a story. The people you are chatting with online have a story. All of these stories have a common thread. Each person is connected by data. Their data tells a story. My Iphone data knows enough about me that between the hours of 12pm–3pm Monday—Friday it will suggest the quickest route to the coffee shop down the road from me. What does that say about me? I could input this information and mapping into a complex analytical chart. I could make a bar graph and pinpoint when exactly the big comfy chair in the corner will be available. What artifact, if any, can come from that behavior?

While in Dynamic Media, these thoughts led me to creating data artifacts. **There is a space between the data and the human.** You can find the beauty within the data without having to be analytical and super specific. This beauty calls for interpretation and new meaning. Taking an image and changing it with a text exchange creates a new artifact. Data tries to make complete sense of human behaviors and conversations, but because of this we are forgetting about the human behind it.

# COMMON THREADS

The common themes in my thesis are narrative, data, data visualization, data humanism, sound, and user experience. *I want to know if each persons' data can tell a story.* What would this story sound like? Is each and every algorithm tied to a narration — and if so; what does that look like?

## History

I have always been an illustrator. Illustration is based off of observation. I grew up surround by the constant noise and foot traffic of a park. I found myself in the window people watching. I would wonder who they were or their relation to whoever they were with. Watching how they would interact or not interact with one another, making up false or very real narratives in my head. Creating a strong narrative is reliant on observation and facts.

My interest with data began at Mass Art. I soon realized our data was observing us. Our algorithms watching us more than the people inside windows of houses across from parks. I began to wonder how to visualize these facts by creating a feeling. I then connected data to sound. My in person observations have sound to them, so my algorithm and data must. Jan Kubasiewicz stated that, "graphic designers and information architects, filmmakers and writers, music and programers all offer diverse points of view and use different languages of their respective professionals fields in describing the human experiences of communication," — I believe this communication is driven off of data. With that, we need visuals in order to stay stimulated within the domain of sight, sound and data.

## You Are Here

Data visualization is an interdisciplinary field that deals with the graphic representation of data. It is an efficient way of communicating when the data is
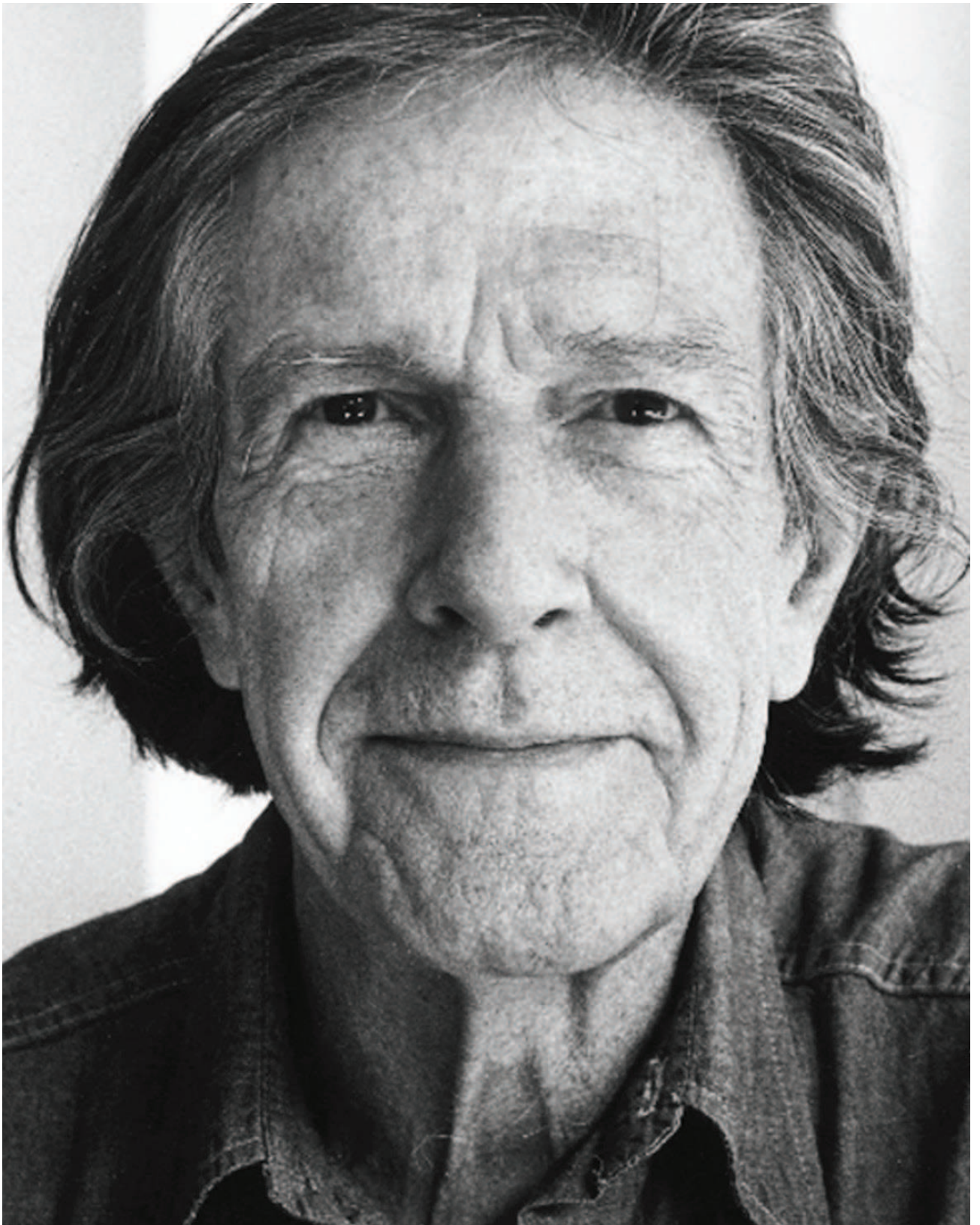
Felver, Christopher. "John Cage". *Berliner Festspiele*, 2012, berlinerfestspiele.de

numerous. An exmaple of this is a time series. To redefine this definition within the context of my thesis work; data visualization is being used to create a narrative and connect the humans that generated the data. This can also be termed as <u>data humanism.</u> For this specific project the data focused on movement, people and places. This data built the narrative of someone's where abouts throughout the day. This created conversation and brought awareness to daily patterns as well as observational narratives. This data was presented as visual experiences via AR filters and video. I aimed to challenge the standard definition for data visualization as something that is impersonal and intimidating to something that can be used to tell a narrative and create connection through visual reproduction.

Sound was also an important factor in creating an experience for the user. The sound was generated through a series of questions answered by the user. This was implimented to question whether or not the sound paired with the visuals effected the user .Throughout this project, I was focused on the physical places the data was being generated from. I was concerned with the overall form the content was presented in.

" graphic designers & information architects, filmmakers & writers, music & programers all offer diverse points of view & use different languages of their respective professionals fields in describing

# THE HUMAN EXPERIENCES OF COMMUNICATION

I wanted to know if the form and content was unified in a way that had an effect on the user.

**John Cage Project**

This particular project does not deal with data, but with sound. I wanted to explore how humans process visual information when paired with sound. I questioned if we have a relationship with sound, with image, or to both. Technology as experience was also a big theme explored in this project. I used a computer generated voice and distorted it to where it was almost unrecognizable. What if it goes out of control or what if the sound of a well known computer simulated voice becomes distorted — is it recognizable, does it invoke lack of control over communication or sensory overload or does it feel familiar?  I wanted to see if the distortion of the sound invoked a loss on control within the user. I combined computer generated images based off of the recorded playback wavelength visual image and paired them with the computer generated sound to invoke a psychological or emotional experience for the user.

### Hinge Data

This project contains the data information that was selected from five user profiles. The information was pulled from their matches.json file supplied by *Hinge*.

Each data file will has their own visualization to accompany the sound. Each chat data file has three keys in common; match, chat, remove. These also have a commonality of what the user said and when they said it. From there I took that data and input it into Max to create a music file based off of each word pattern. Is there a rhythm to how each person interacts? The visualization was based on the musical note points and sound waves. I then combined sound and visuals of each set and added them into video animations. I was interested in seeing if the users have the same feeling towards online dating as they do to the sound their files create. I aimed to confront the interaction between real self and digital self by comparing these two outputs.



Bahn, Claire. "How Hinge Works, The Dating App for Serious Relationships." *Onlineprofile.pros*, 2021.

# CONTEXTUAL RESEARCH

Data in the form of statistics, code, infographics — it is a pillar of our economy. Data represents key factors and events  in our lifetime. As we evolve, the way we relate to data is all evolving. Data is our past, present and future.

When do we begin to question the impersonality of a seemingly technical approach to data? When do we begin to design in a way that connects people to numbers and behavior? We structure our daily lives off of data — time, movement, schedule; it's all data. We have begun to measure our productivity and efficiency based on input and outputs throughout our day. The simple fact that you are sitting somewhere, some place reading something I have typed out on a screen is data. Data makes all things possible, but complicated. In the era of data — is more more or is more different?  Data is our real world in a visual representation. According to Giorgia Lupi, "it is a snapshot of the world, in the same way that a picture captures a small moment in time;" the information being represented by numbers or points on a graph are all placeholders for something more. Where it be a point of view, or who is ahead in an election map — things get lost in translation. Visual presentation of information plays a critical role in every aspect of life. Numbers and statistics are a foreign world to me. Data and Data Visualization are topics that make my brain signal an alarm. The thought of statistics, maps and diagrams is a foreign concept to me. Data visualization was always associated with complex software or mathematics in my mind. How can we begin to break down data to make it more readable and relatable. How can data be less scary and easier for a user to understand as a visualization?

## History of Data

### Ancient History of Data

Data is facts and statistics collected together for reference or analysis. Similarly, data is the quantities, characters, or symbols on which operations are performed by a computer, being stored and transmitted in the form of electrical signals and recorded on magnetic, optical, or mechanical recording media (Data Education). If we breakdown this statement, data is characters and symbols based on a quantity of something — or data is input and output from point A to point B. If User 1 walked 3,552 steps, we could make 3,552 single straight lines to represent their data. Now of course we have computers and mapping systems to log this information so that is not necessary, but what about before the computer?

The first act of data collection and storage began with a tally stick. The Ishango Bone was a notched baboon tool created around 19,000 BCE. Palaeolithic tribespeople would mark notches into sticks or bones, to keep track of trading activity or supplies. They would compare sticks and notches to carry out rudimentary calculations, enabling them to make predictions such as how long their food supplies would last (Marr). This was also the first documented record of humans logging numerical information to be used at a later date.

Around 2400 BCE the abacus was created. This was the first dedicated device constructed specifically for performing calculations. The first libraries also appeared around this time, representing human's first attempts at mass data storage. The ibrary of Alexandria is notably one of the first and largest collections of data. The library housed up to half a million scrolls. Although it was a gradual evolution, humans have always had the ability to store and analyze information.

The Antikythera Mechanism is described as the oldest analogue computer. This was used for astrological purposes and the tracking of the Olympic Games. This may be the first device in history that had tracking capabilities, but it is still unknown. This machine consisted of 37 interlocking bronze gears that followed the movements of the moon and sun through the zodiac to predict astrological behaviors, eclipses and to model the orbit of the moon.

During the 1640s, the word 'data' first saw English use. Derived from Latin, 'data' meant 'a fact given or granted' — often as the basis for calculation.

### Emergence of Statistics

It was John Graunt that conducted one of the earliest records of data analysis. Graunt studied the death records kept by London parishes during the plague. From these records, Graunt was able to make observations about the death rates between genders and furthermore predict their life expectancies. This act later became known as statistical data relating to the population and particular groups within it or otherwise known as demographics.

Moving into the 1800's, The US Census Bureau faced an issue. It was estimated that it would take 8 years to analyze all the data collected in the 1880 census. It was predicted that the data generated by the 1890 census would take well over

10 years to produce. Herman Hollerirth produced Hollerith Tabulating Machine, which used Joseph Jacquard's invention of the punch card to reduce 10 years' worth or work to 3 months. Hollerith's machine made it possible to process and analyze large amounts of data, which sped up the process of the census by being able to analyze large inputs of data. Hollerith became known as the father of modern automated computation and later went on to found IBM.

Banker Henry Furnese carved out an advantage over his competitors by collecting and analyzing information that was relevant to his contemporaries and business activities. Richard Millar Devens created the term 'business intelligence' based on this data driven behavior by Furnese. The actions of Furnese were the first study of a business using data analysis for commercial purposes. Today, that is a widely used function of business based on data.

## Beginning of Modern Data Storage

In an interview with Colliers magazine conducted by John B. Kennedy, Nikola Tesla states that, "When wireless technology is perfectly applied the whole Earth will be converted into a huge brain, which in fact it is, all things being particles of a real and rhythmic whole … and the instruments through which we shall be able to do this will be amazingly simple compared to our present telephone." He further went on to state that, " a man will be able to carry one in his vest pocket. We can begin

to see each other through television and the telephone and hear one another as we would as if we were face to face despite the distance." Tesla also went on to state that, "When the wireless transmission of power is made commercial, transport and transmission will be revolutionized." Followed by, "already motion pictures have been transmitted by wireless over a short distance. Later the distance will be illimitable, and by later I mean only a few years hence. Pictures are transmitted over wires — they were telegraphed successfully through the point system thirty years ago. When wireless transmission of power becomes general, these methods will be as crude as is the steam locomotive compared with the electric train."

The history of modern data storage was merely being predicted with these statements. Tesla went on to discuss the modern day newspaper becoming a digital copy that would lie within one's home. He spoke of wireless power transmission, flying from New York to Europe within hours time span. Tesla's dream of the democratization of opportunity though technology is capable because of data. For example, the "thought camera" he believed could "read" the image in a person's mind is the precedent for the mind-reading algorithms today that can analyze the electrical impulses in the human brain and reproduce approximate "images" from the mind based on the brain's signals (Fowler). Tesla dreamed of a digital electrified world. With the

pandemic forcing us into a digital realm, we are one step closer to this dream.

Jumping back from modern day, Fritz Pfleumer invented magnetic tape for recording purposes. This can be known as a way to collect and store data magnetically. This idea would last through the creation of hard disc drives, floppy disks and recording tapes that would be enabled by magnetic data storage systems.

"The ability to apprehend the interrlationships of presented facts in such a way as to guide action towards a desired goal.
— Hans Peter Luhn

### Beginning of The Data Driven Business Intelligence Platforms and Centers

Inventor and Data Scientist, Hans Peter Luhn demonstrated a series of electromechanical machines that were not designed to work based on numerical data and statistics, but off of words and sentences. According to an article written in IEEE Spectrum "one machine that drew particular attention implemented an algorithm that Luhn called KWIC, for Key Word in Context. Taking in a large number of texts — typically, articles from 500 to 5,000 words in length—the KWIC system could quickly and automatically construct a kind of index" (Stevens). Luhn revolutionized the way in which we would classify & organize written information by creating a system built into an intelligence system for businesses. This was designed to identify and deliver information from or to a specific individual within an organization. This was the equivalent of a search engine which allowed users at the time to locate the information they needed. Luhn also worked on creating machine-readable type written documents. During this time, specific types of identification numbers like Social Security and credit cards were beginning to become an important part of public and private life. Luhn created a handheld computer to transcribe and verify that the numbers were correct using a checksum algorithm. The computer would perform a series of 5 steps:

Double every second digit

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If any result is 10 or greater, add up the digits of that result to get a single digit number. (for example, "16 would become 1 + 6 = 7")

---

Add up all 10 digits of the new numbers

---

Multiply by 9

---

Take the last digit of that result

In later versions, the check was simply appended to the original number as a final digit, so that you could easily verify that the final digit matched the check number produced by his machine. The underlying sequence of calculations, now known as the modulus 10 algorithm, is still widely used. The International Mobile Equipment Identity (IMEI) numbers assigned to cellular phones are verified in this way (Stevens). This is important because pieces from this became the foundation of one of the most important algorithms—the hash. A hash algorithm is a function that converts a data string into a numeric string output of fixed length. The output string is generally much smaller than the original data. Hash algorithms are designed to be collision-resistant, meaning that there is a very low probability that the same string would be created for different data (Federal Agencies Digital Guidelines). To break down this idea, Hans used a math problem to organize data into easily searchable portals. Searching for data is a widespread problem in computing and hashing algorithms have become vital to graphics, telecommunication and cryptography. Sending credit card data or using online word processing dictionaries are because of hash functions.

Edgar F. Codd presented his framework for a "relational database". The model provides the framework that many modern data services use today, to store information in a hierarchical format, which can be accessed by anyone who knows what they are looking for (Gray). To break this model down, users can directly state what information a database contains and what information they want to pull from it.
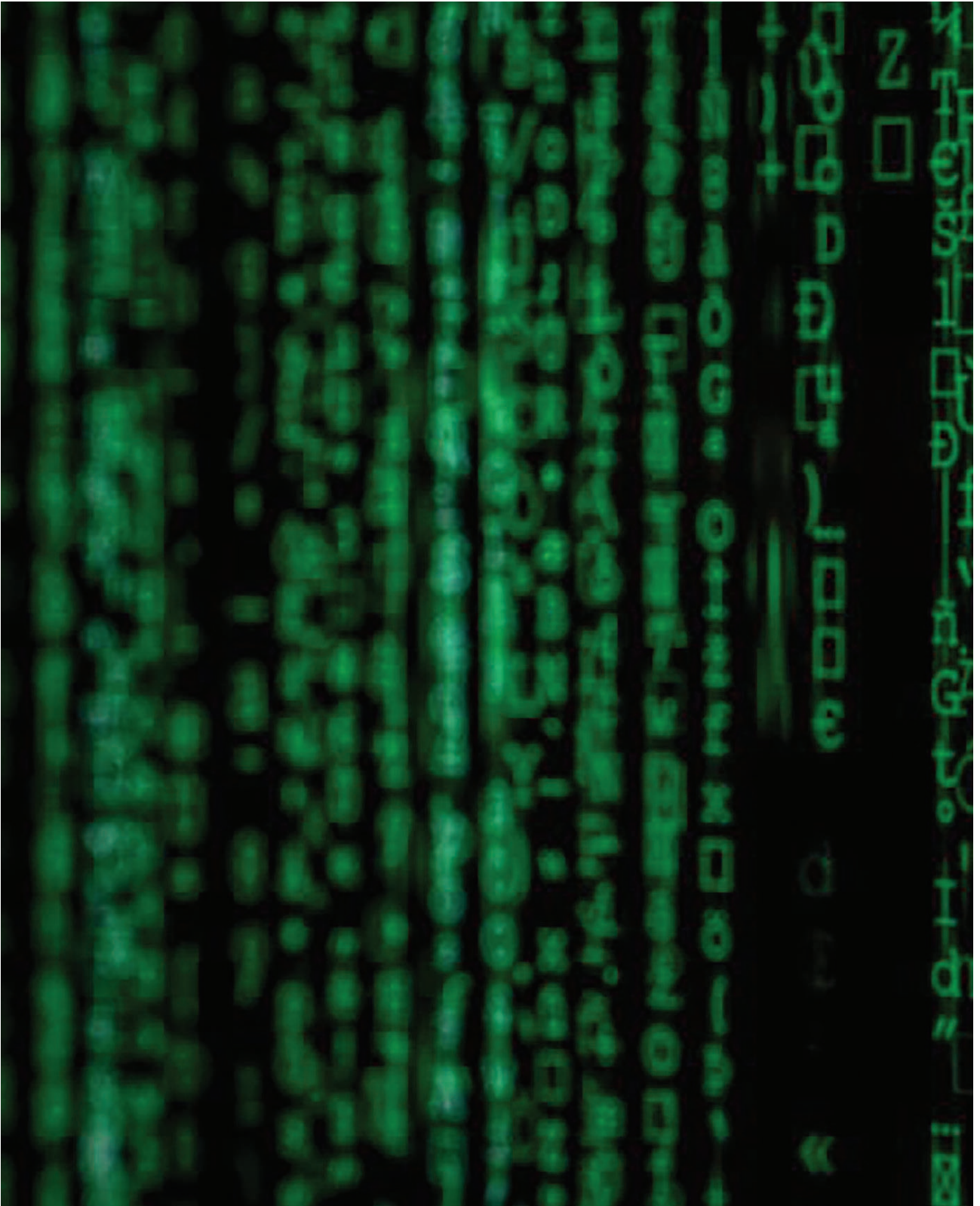
Spike, Markus, Upsplash.

## The Internet, World Wide Web and The Early Ideas of Big Data

Erik Larson, an international best—selling author, began the questioning of the potential benefits and risks that are associated with data and data collection. Each molecular piece of data may or may not reveal a whole person's identity, but in combination will be added together like a puzzle, it will be revealed.

According to *Profiting from the Data Economy: Beyond Big Data*, rather than speaking in terms of census tracts, we can now talk in terms of individual households or, better yet, members of the household. Retail purchase records from scanners in grocery stores, once was heralded as a major advance for the marketing profession, pale in comparison to the amount of data produced by consumers visiting websites and making purchases online (Schweidel). None of what we are talking about today would be possible were it not for technological advances discussed above .As history progressed,the data side of business intelligence discussed above is now being used to target the consumer. This is in direct result of newly emerging softwares and systems both used for commercial and operational purposes to gain access to the user. The most noteworthy invention within the history of data was the World Wide Web. Sir Tim Berners—Lee created hyperlinks and hypertext which enabled data sharing worldwide. This would not be possible without the internet. The first workable prototype of the internet came into play with the creation of ARPAnet, otherwise known as Advanced Research Projects Agency Network. ARPAnet used packet switching which allowed multiple computers to communicate within a single network. ARPAnet sent its first message ( a node-to-node communication) from one computer to the other. One computer was located at UCLA and the other, Stanford. The first message 'LOGIN' crashed the network. This technology continued to grow with the help of Robert Kahn and Vinton Cerf who developed TCP/IP otherwise known as Transmission Control Protocol and Internet Protocol. This was a communication model that set the standards for how data was transmitted between multiple networks. ARPAnet and TCP/IP merged, assembling the networks or networks or the modern day internet. Berner's invention of the hyperlink and hypertext helped popularize this.

CONTEXTUAL RESEARCH

"THE KEEPERS OF BIG DATA SAY THEY ARE DOING IT FOR THE CONSUMER'S BENEFIT. BUT DATA HAS A WAY OF BEING USED FOR PURPOSES OTHER THAN ORIGINALLY INTENDED.

ERIK LARSON

### Brief History of Data Viz

Each data visualization consists of three components: exploration, analysis and presentation. Exploration is used to show trends and patterns in quantitative or qualitative information. Analysis aids in generalizing, synthesizing and testing these patterns. The presentation of this information is responsible for conveying conclusions and narrative, creating communication, making or arguing a point and stimulating thoughts.

The visualization of quantitative information dates back into the histories of the earliest forms of map making. Early forms of data visualization existed in the realm of maps, displaying land markers, cities, roads and resources. As time progressed, better visualizations were needed. This later went on to progress into statistics, statistical graphs and even medicine in which these all intertwined with one another. The catapult for progressing these visualizations was and is new technologies for drawing and reproducing images. New developments within data collections and mathematics are also advancements that contributed to newer visualizations.

The initial step in portraying the history of data visualization was a simple chronological listing of milestone items with capsule descriptions, bibliographic references, markers for date, person, place, and links to portraits, images, related sources or more detailed commentaries (Friendly, 2). Each data milestone has a story behind it — a purpose to communicate to the world. What is the communication goal? What is the story? The purpose? What does the reference signify? What does a data set actually mean?

Treehouse Technology Group. The Psychology Behind Data Visualization. treehousetechgroup.com
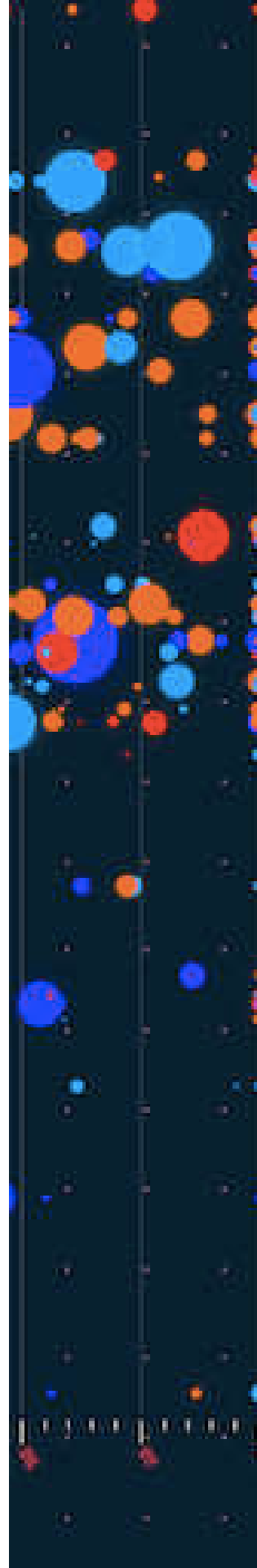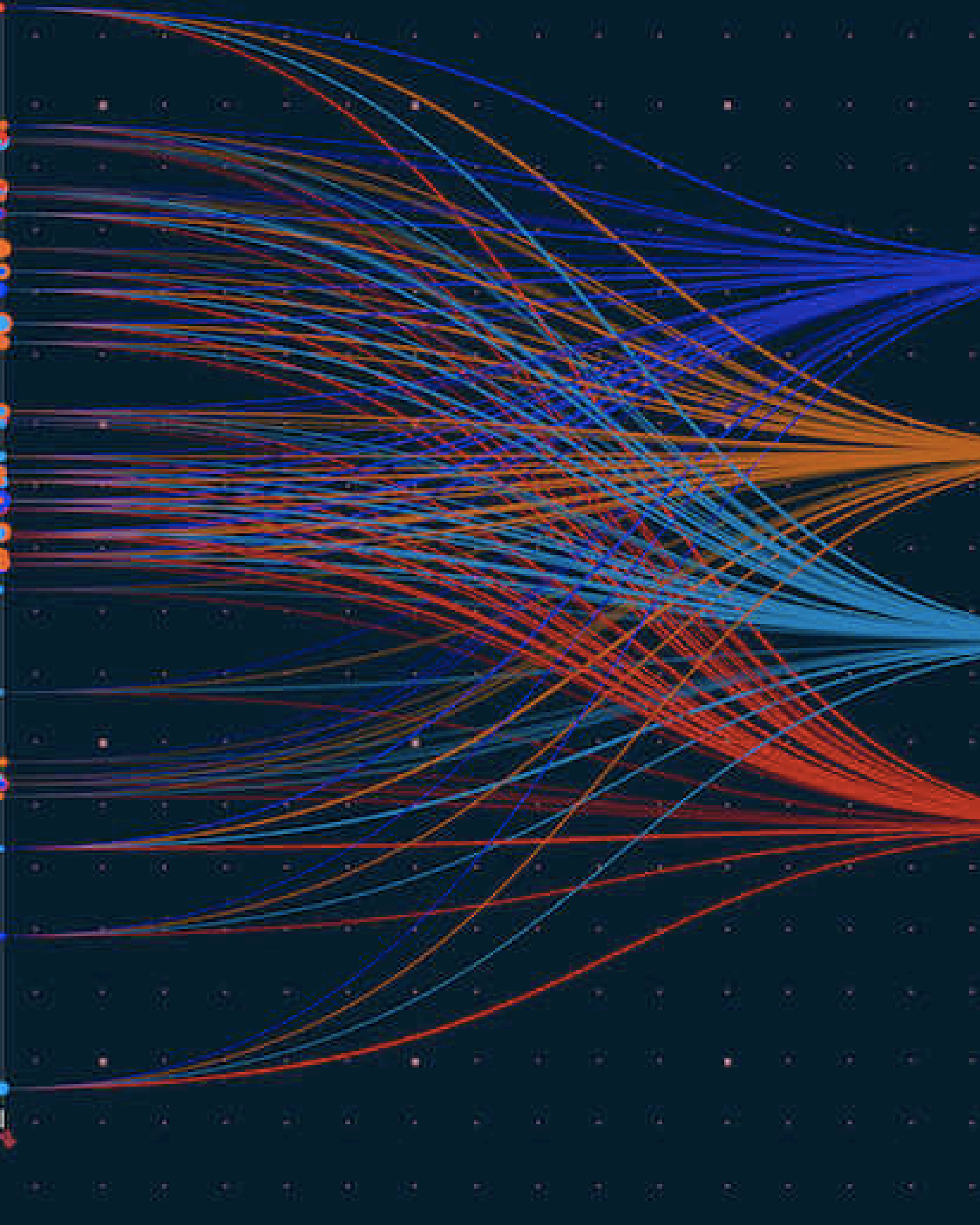
Langren's 1644 graph of determinations of the distance, in longitude, from Toledo to Rome. Source: Tufte (1997, p. 15)

### Measurement, Theory and Form

Measurement and theory was the more prominent problem of the 17th century. Physical measurements like time, distance and space were common concerns. Astronomer Michael Florent van Langren created the first visual representation of statistical data. The graph showed the difference in longitude between Toledo and Rome.

During the 18th century, new graphic forms such as isolines and contours were invented. The mapping of physical quantities, economic data and medical data began. Economic and political data began to be collected and visualized into a readable form, so the data could "speak to the eyes". According to Milestones in the History of Data Visualization: A Case Study in Statistical Historiography, William Playfair (1759–1823) is widely considered the inventor of most of the graphical forms widely used today — first the line graph and bar chart (Playfair, 1786), later the pie chart and circle graph (Playfair, 1801). Playfair used three parallel time series to show the
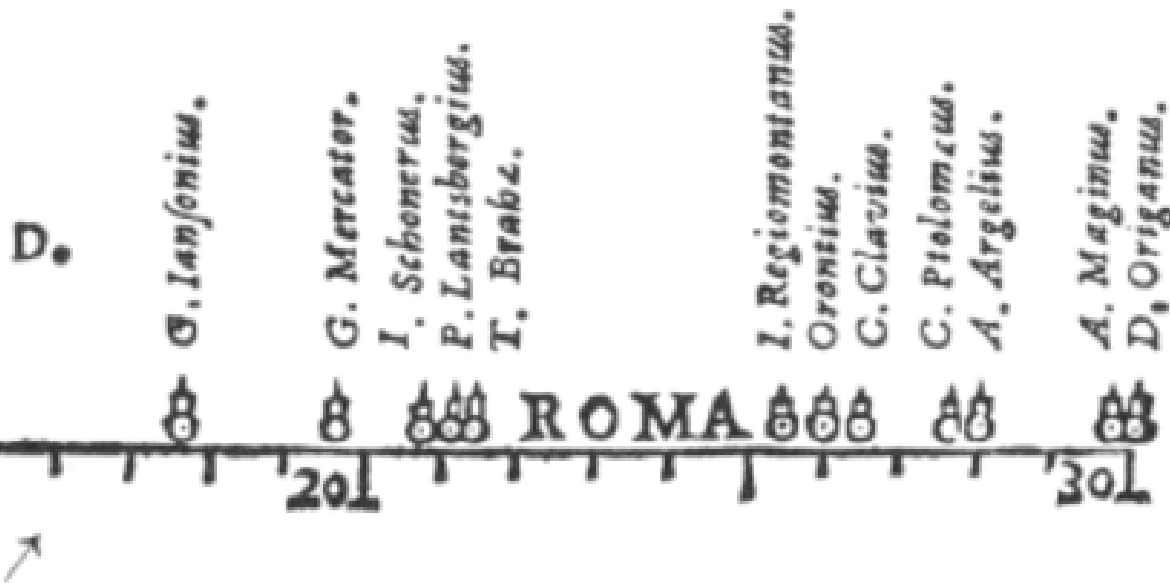
price of wheat, weekly wages, and reigning monarch over a 250 year span from 1565 to 1820, and used this graph to argue that workers had become better off in the most recent years (Friendly, 2005).

### Beginning of Graphics and Statistical Graphs

During the first half of the 19th century an eruption of statistical graphs and charts occurred. All of the current forms of data visualization were invented — the bar graph, pie charts, histograms, line graphs, contour and scatter plots. Data visualizations on economic, social, moral, medical and physical introductions occurred as well. The Tableau-Graphique" by Charles Joseph Minard is the perfect example to illustrate these forms. Mosaic plots descend from bar charts, but Minard introduced two simultaneous innovations: the use of divided and proportional-width bars so that the area had a concrete visual interpretation (Friendly, 1994).
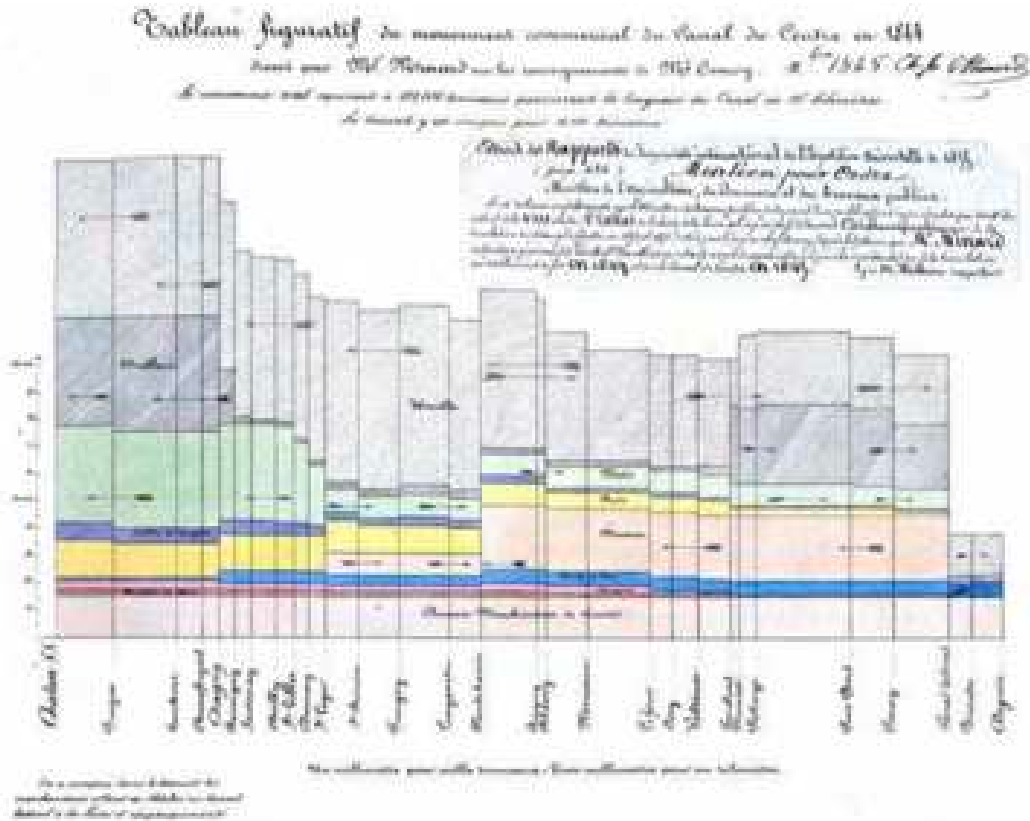
Minard's Tableau Graphique, showing the transportation of commercial goods along the Canal du Centre (Chalon–Dijon)

The graph displayed the route commercial goods took along the canal route in France. The graph depicted the variable — width, which was visualized using bars. The width of each vertical bar showed the distance along the route.

Two famous examples of data visualization from that era referred to as *The Golden Age of Statistical Graphs* include, John Snow's map of the cholera outbreaks in the London epidemic of 1854 and Charles Minard's 1869 chart showing the number of men in Napoleon's 1812 infamous Russian campaign army, with army location indicated by the X-axis (Dundas).

The industrial revolution which created the modern business, official government statistical offices, recognition for social planning, commerce and transportation was a leading factor in the 'golden age' of statistical graphing. Statistical theory also provided evidence to make sense of larger data sets.

By the 1930s there were far and few graphical innovations and the interest and enthusiasm for visualizations had dwindled. Pictures were — well, just pictures: pretty or evocative, perhaps, but incapable of stating a "fact" to three or more decimals. Or so it seemed to statisticians (Friendly). During this time period, statistical graphics became the main stream for data visualization. This was the standard form of data visualization. It was found in textbooks, government, commerce and science.

## Data Visualization Reborn

From the 1950's to the 1970's, the interest of data visualization began to rise. There were three main contributions to highlight that brought this interest back.

1. John W. Tukey began the invention of a newer, simpler form of graphic data displays. Tukey called

this the rubric of "Exploratory Data Analysis." According to *Milestones in the History of Thematic Cartography, Statistical Graphics, and Data Visualization*, Tukey issued a call for the recognition of data analysis as a legitimate branch of statistics distinct from mathematical statistics; shortly, he began the invention of a wide variety of new, simple, and effective graphic displays, under the rubric of "Exploratory Data Analysis" (EDA). Tukey's stature as a statistician and the scope of his informal, robust, and graphical approach to data analysis were as influential as his graphical innovations.

2. Jacques Bertin published the *Semiologie Graphique*. This organized the visual and perceptual elements of graphics according to the features and reactions in data (Friendly, Denis).

3. Computer processing data had begun and offered the possibility and construction of old and new graphic forms via computer programming. This was when high-resolution graphics were invented. Although developed, it would be some time before high-resolution graphics became common use.

To implement data as visualizations or graphics, computer science research software tools such as C language and UNIX would combine components in data analysis and display input and output technologies. Input technologies such as pen plotters, graphic terminals, digitizer tablets and the computer mouse were common forms. Utilizing these developments and combinations, new paradigms and languages for software packages were implemented using statistical ideas and data

graphics. This all led to a new growth, methods and techniques in data visualization. Other themes began to emerge, mostly as initial suggestions: (a) various visual representations of multivariate data ; (b) animations of a statistical process; and (c) perceptually based theory (or just informed ideas) related to how graphic attributes and relations might be rendered to better convey the data visually (Friendly).

## Breaking Down Data

We spend all day with data. Our data tracks us. Our algorithms watch our each and every move. Having this realization may make data less scary in terms of comfortability. If we become comfortable being tracked and surveilled, how does that change our relationship to data? If we can question the history of data and how it is presented, we can begin to approach and see data in a different way.  Data visualization is an interdisciplinary field that deals with the graphic representation of data. It is a particularly efficient way to communicate and understand. We can read graphs and charts as just numbers, points and lines — or we can think and use data to create connection. Data is a human generated formation. Numbers, charts, points and lines are cold and impersonal, often intimidating or analytical for the user to look at. The cold graphical visualization of data removes the human completely. The information being represented by numbers or points on a graph are placeholders for something more and need to be viewed as so. If the human is put back into the data, it will become more readable and relatable. If we can somehow turn it into an understandable visual representation and maybe even sound — there will be more connectability.

"DATA HUMANISM," IS A VISUAL MANIFESTATION OF BIG DATA THAT DOESN'T BELONG TO A DISTANT DYSTOPIAN FUTURE; IT'S A COMMODITY & AN INTRINSIC & ICONIC FEATURE OF OUR PRESENT — LIKE DOLLARS, CONCRETE, AUTOMOBILES, & HELVETICA

GIORGIA LUPI

## Data Humanism

This is where the term data humanism comes into focus. According to information designer Giorgia Lupi, data humanism," is a visual manifestation of big data that doesn't belong to a distant dystopian future; it's a commodity and an intrinsic and iconic feature of our present – like dollars, concrete, automobiles, and Helvetica." Lupi goes on to state that, "the ways we relate to data are evolving more rapidly than we realize, and our minds and bodies are naturally adapting to this new hybrid reality built of both physical and informational structures."We see dollars, concrete, automobiles and probably Helvetica everyday. We don't realize it. Just like we see birds, time and water everyday. All of this is data, but we do not realize. There is a human factor within each of these. My interest with data lies within this fact. In my own term — data humanism is adding the human back into the equation so that the human can begin to understand something so analytical and cold and turn it into something that is our present.

We are creating and producing giant amounts of data everyday. Data that tells something about our identity and our habits. Walking from point A to point B, how many times we apologized in a day, looked at the time or even blinked — is all data. All of this information creates a visualization of everyday life. Can we say that we can deduce our life to the amount of data collected in one single platform or throughout our daily activities? Data is not simply numbers and graphs, but rather a narrative that contains a vital component to effectively communicating information and insights. There is a humanistic side to this, a correlation between data and

stories: from the stratification and constant repetition of data, real narratives are generated (Hub). Paired with visual elements we can create a story made of personal information.

Most people who work with data are typically very analytical minded individuals. Being able to present data in an effective way is a useful tool in careers, the stock market, elections and pandemics to name a few. Yet, the people creating these impractical visual tools for the public are more equipped in reading them. For example, election maps in particular are telling big lies about small things. To the average citizen, the data for each election is either red or blue. By looking at the visual supplied by the data for the 2016 election, it looked as if it was going to have a different outcome. Was that because we are being presented with poor visuals? Was it because there was much more information and narrative behind these red and blue visuals? What type of story was this telling a nation? More importantly, what story did this tell after?

Data visualization may not be as relatable as data storytelling. Data visualization and data storytelling, while intertwined, are two very different practices; the former involves creating a visual representation of collected information, and the latter is about using human communication to help an audience develop a connection to that information (DiFranza). This would require humans to analyze a visualization. Certain types of software and programs are available for data visualization, yet they do not focus on data storytelling or data narrative. Data analysts can begin to use techniques that storytellers use to engage an audience, create a connection and create a user experience.

**Using the 2016 election as an example of how narrative and human connection gets lost in data, we can look at Gustav Freytags, "Freytag Pyramid." According to Freytag, most narratives have plot points than can be outlined into seven phases:**

# Exposition
# Inciting Incident
# Complication
# Climax
# Reversal
# Resolution
# Denouement

Exposition is a comprehensive description and explanation of an idea or theory. Based off the data visualization the world was seeing, there was the idea and theory of who was in the lead. The inciting incident of a story is the event that sets the main character or characters on the journey that will occupy them throughout the narrative. Typically, this incident will upset the balance within the main character's world. Obviously, the outcome of this data upset the balance with not one person, but many. Complications within the presented data arose. Smaller

**2016 presidential election map**

■ Hillary Clinton (232)   ■ Donald Trump (306)

Business Insider, 2016.
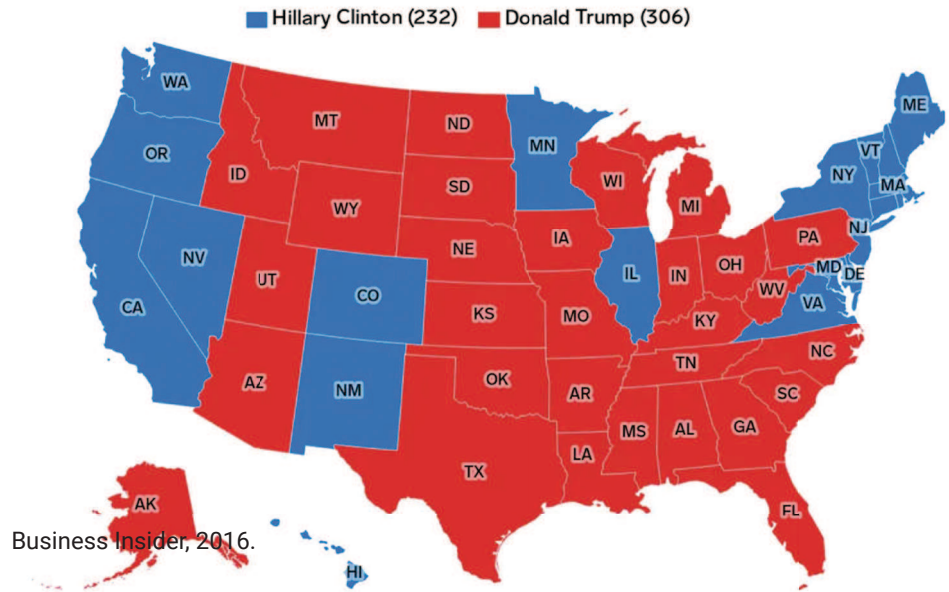
states and urban counties, when re visualized, proved to hold their own against the more sparsely populated parts of the country. Instances like these explained why the outcome did not match the visualization. The moment of reversal is also called the peripeteia.The reversal is that moment in which the protagonist's fortunes change irrecoverably for the worse. (Freytag). Perhaps this specific point isn't relevant within this data set or how the visualization was crafted. But we can draw a conclusion that this popular vote visualization contradicted an electoral vote visualization resulting in the reversal of perceived outcomes. The resolution and denouement is and always will be called

for new visualizations and new counting of data when the original results do not match and marry the broadcasted visualization. Election data may be  the biggest commodity iconic feature of our present and most prominent data sets. So why can't we understand them? Humans have an innate desire to engage, relate and understand with presented information. How does something so monstrous to our quality of life become something so misunderstood time and time again? . Data visualizations are a vital component to effectively communicating information and insights — so they need to be understood.

## Understanding Inputs and Outputs

Our data is input. Someone's shopping history on their MacBook is data being recorded. A conversation had on a web based application is being catalogued and stored away. Who controls this? When should and shouldn't data be collected? If we have access to and can develop a relationship with the data maybe we can understand the information being collected. If Apple's terms of service, say, were more intuitive, more designed, would we actually read them? What if there were tiny visualizations in the wall of text, guiding us through the legal maze? (Lange, 2019). Would we better understand what it is we're actually doing?

Input is the information data sets, softwares, online sources etc. get from the user. Output is defined as the act of producing something, the amount of something that is produced or the process in which something is delivered. Any information that is processed by and sent out from a computer or other electronic device is considered output. An example of output is anything viewed on your computer monitor screen, such as the words you type on your keyboard (Treinamento). The words the user is typing on a keyboard is the input.

# IF APPLE'S TERMS OF SERVICE, SAY, WERE MORE INTUITIVE, MORE DESIGNED, WOULD WE ACTUALLY READ THEM? WHAT IF THERE WERE TINY VISUALIZATIONS IN THE WALL OF TEXT, GUIDING US THROUGH THE LEGAL MAZE?

# CASE STUDIES

# YOU ARE HERE.

This project was titled You are here. If this pandemic didn't occur, where is my 'here'? I was inspired by the literal name. I wanted to get a better sense of everyone else's 'here's' throughout their day or week. I asked my peers, friends and family to track their walking path for a portion of time. I then asked them to send me their mapped data to see their patterns. Did their here cross my here?

This project took place in Fall '20 — the height of Covid. We were not on campus. Many of us had been confined to our homes for months. Our daily paths changed due to this pandemic. I thought about how I was sitting in a chair taking a class when in a 'normal' world I would have been in a classroom on Mass Art's campus. The pandemic affected my 'here' as it did to a vast majority of the population. Instead of carrying on with my daily activities like going to work and seeing friends; I was going to school and work right out of my own bedroom. My daily path of commuting came to a halt. I wanted to know my peers and created a sense of community and connection that we were all missing out on. Community

in general means, "a group of people living in the same place or having a particular characteristic in common, " or "a feeling of fellowship with others, as a result of sharing common attitudes, interests, and goals." For me, community resonates around common attitudes, interest and goals. A major part of the graduate school experience is meeting people with common interests. At this point in time — those days of going out after class or becoming friends with someone you sat next to in class were over.

I started out with an idea about being physically here. I am currently sitting in a chair at a desk with a laptop. The only movement I am creating is from my fingers. As my fingers race across the keyboard they create a shape. If I were to hit the letters 'm, y, v and m' that movement creates a triangle. As I sit here typing the motion my fingers are moving in is creating a pattern. I began to consider the idea that our movements are operating on an x,y axis's. These movements are data points within a mass system of communication we all use — a cell phone. We use our cell phone to communicate. This

Running course tracked via a movement app.
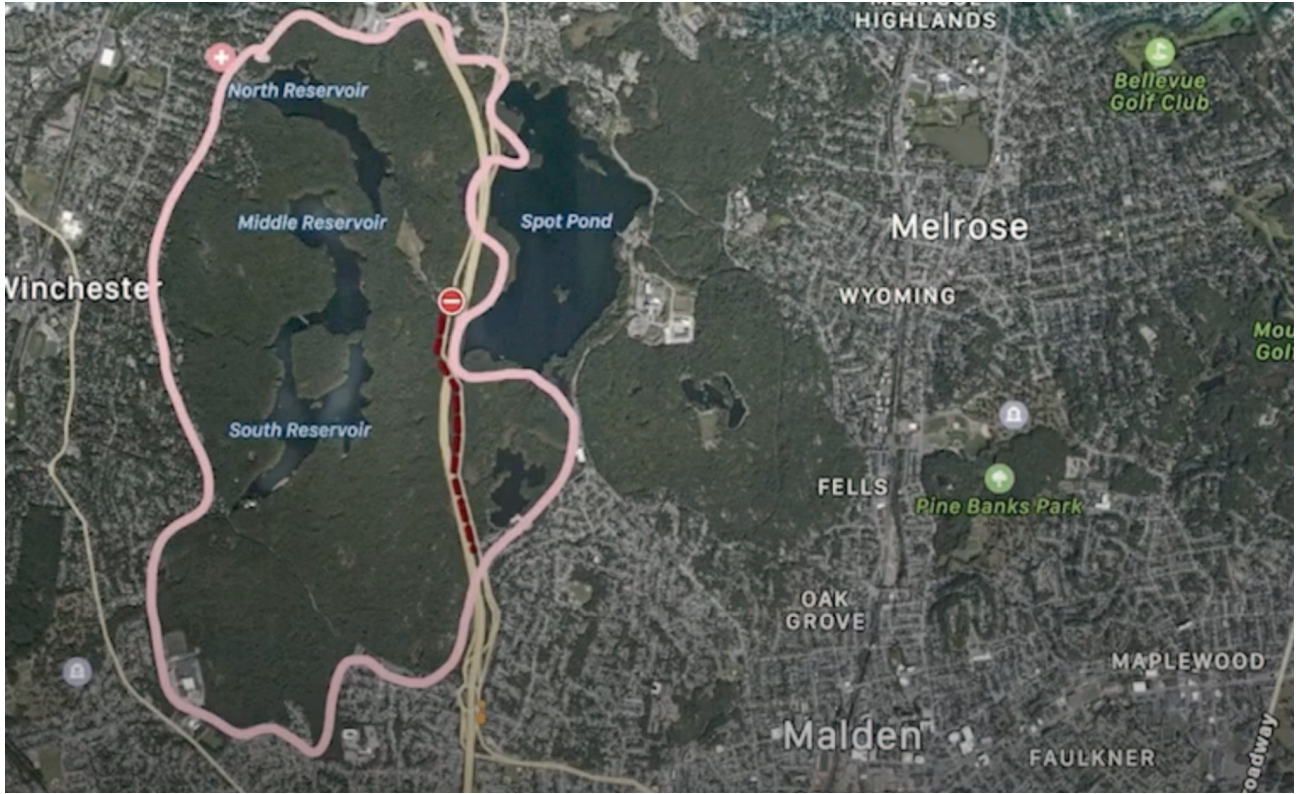
Tracked data shapes.

movement is a pattern being tracked on a cell phone and catalogued somewhere as data. Does this data have a narrative? What can you tell by someones walking shape? Is someone's personal data pattern a narrative?

Hiking, walking to the bathroom and back, driving in your car, walking your dog - any form of movement that created a pattern, I wanted. My goal was to have each shape representing each persons path throughout their day, theoretically, floating around in a space to signify data crossways. I collected each person's walking data from their Iphone maps.

I wanted to see how someones pattern of movement could be experienced by another person. What if my shape intertwined with someone else's shape? What if they were similar? Mass Art would have been a common point along the way for all of us. I began to wonder how many people we pass by on our daily commutes that we don't notice. I wondered if anyone's path from class would cross over mine at any point during the day. My theory was, we probably passed by a fair amount of the same people daily and didn't notice the connection. My hopes were that by seeing each and every persons data map displayed, there would be an intersection of points.

Once I had a mass of data shapes I needed to figure out how I would compile and present this data set. Flessuer states that "technical

images function in different way: They do not introduce traditional images back into life but, rather than replace them with reproductions, displace them and, rather than make hermetic texts comprehensible, as was intended, they distort them by translating scientific statements and equations into states of things, i.e images." Data can be presented as a visual experience. I wanted to turn something that is technical, traditional and analytical into something that can create a connection and tell a story. This project challenges the idea of data as something that is impersonal and intimidating to something that can be used to tell a narrative and create a connection through visual reproduction. My intention was for my audience to see their shapes and compare the similarities or differences. To simply create conversation. From conversation sparks narrative. One persons shape may cross a portion of somebody else's and maybe they go to the same coffee shop everyday without knowing. Someone's daily narrative has all of these tiny components that get overlooked. If we stopped to slow down and see these tiny components we would see they create a daily narrative for each person.

At the very beginning of the pandemic one of my only means for communication was a cell phone, a Zoom portal and social media. Communication through technological platforms was the new normal and face to face communication ceased to exist in the capacity that it once was. It only made sense to present this through these very platforms we were clinging to for communication and connection. I decided to take this data set virtual through the means of augmented reality. I wanted to share these shapes in the environments they were created in. Each shape collected was data of another persons movement. Each shape was used to create various filters that one can pull up on their phone. A walk in the park turned into a walk in the park with many. I decided to take it one step further. I wanted the audience to really experience someone else's data in a visual form.

I created a short series of ten second videos that represented a days worth of data, memories, sights and sounds one would hear while they were creating their daily data pattern. Adding sound into this data set created a fully rounded experience which created a sense of community.

## Design Process

My design process began with a bunch of why's and how's. Why am I interested in this? What will this look like? Who is this for? How do I get my audience to see data differently? How can I have my audience track themselves in a user friendly way? This is when I realized every time I hiked with my dog - I was tracking the distance. I realized that a hike through the woods and up a mountain was a shape and my distance tracking app was visually recoding my man made data. So I asked my family, friends and peers at Mass Art to download a tracking app and send me their shapes.

As soon as I had dozens of shapes I wanted to sketch them all out together and see them all as a set. I took tracing paper and traced over them and eventually over my own tracings. I wanted to see if this could create one unique image or if some of the shapes would fit into others like a puzzle.
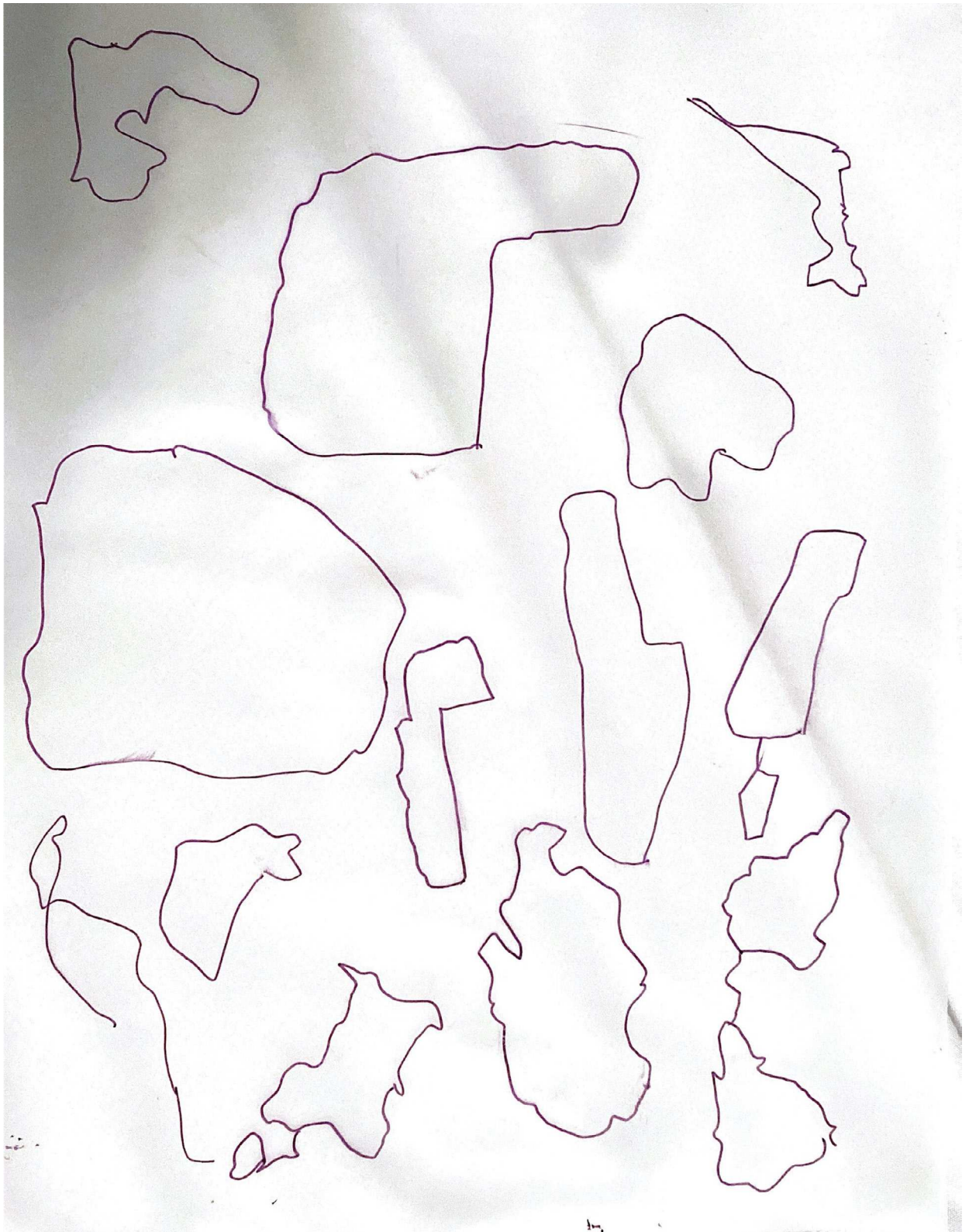
Shape map sketches.
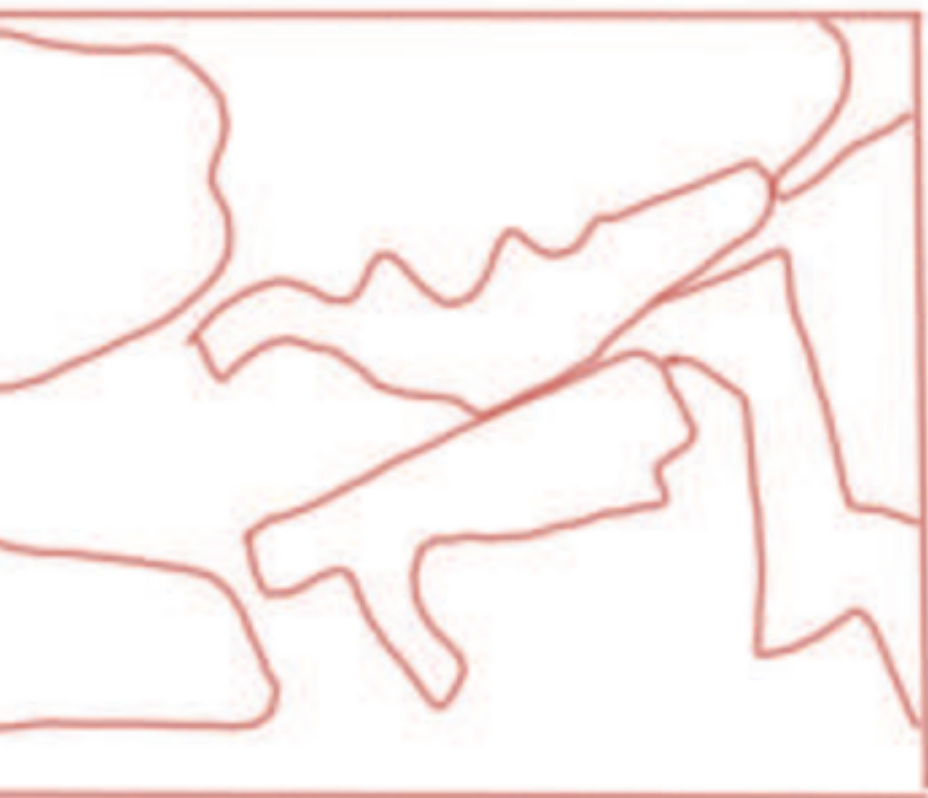
At one point in my process I was interested in the x, y axis's these operated on. I thought I could plug these in as data points on a grid through code. I began small coding sketches with regular un related shapes. These shapes were random sizes and colors. I ran into the question of; how will the user interact with this? Having an organic shape floating through a screen is cool, but it doesn't create any form of interaction or represent the data correctly. How would my audience know which data shape is their own?

From there I moved into color coding and digitally re creating this data as solid shapes. I sent out a survey to my peers asking which colors they see or saw while making these patterns. The results determined the colors of this data visualization. From there I started to play with Augmented Reality. I wanted to create filters based on this data set that could be pulled up at any given time on anyone's phone. The idea was to have someone else's daily pattern overlaying where you were to create a sense of community by having access to someone else's daily narrative through data. I then thought, what if I combine this data with video footage of where people go everyday? I sent out another survey of 6 questions to my peers.

What is something you see everyday?

What is something you do everyday?

What is a color you see everyday?

Where is somewhere you go once a week?

Where is somewhere you go at least three times a week?

What is a sound you hear everyday?

MY FAMILY // I SEE THE INGREDIENTS I COOK FOR MY FAMILY // PHONE // MY DOGS //PLANTS // MYSELF // MY COMPUTER // WORK EAT // **MAKE COFFEE** // WALK // DRINK COFFEE // PLAY VIDEO GAMES // GREEN // BLACK // BROWN // RED // ORANGE // BLUE // RED // TO A WALKING PATH IN MY TOWN IN THE WOODS // TO THE OCEAN // RESERVOIR // THE WOODS // OFFICE // BAKERY // MOMS HOUSE // TO MY KITCHEN // TO MY STUDIO // MY PORCH // THE BATHROOM // **I DON'T KNOW ANYMORE** // RESTAURANT // A PARK NEAR MY HOUSE // MEOWING // LAUGHTER AND SINGING // CARS // CARS RUSHING BY MY HOUSE // THE CRAZY LADY BELOW ME SCREAMING **FOR HER DOG TO "PEE PEE"** // CONSTRUCTION // MY ALARM // **THE ENTIRE WORLD & HOW THINGS ARE GOING IN OUR COUNTRY** // MY HEALTH // PHYSICAL APPEARANCE // HAVING ENOUGH TIME TO ACCOMPLISH EVERYTHING // **MY BAD FOOT ODOR** // MONEY //WHERE I WILL LIVE
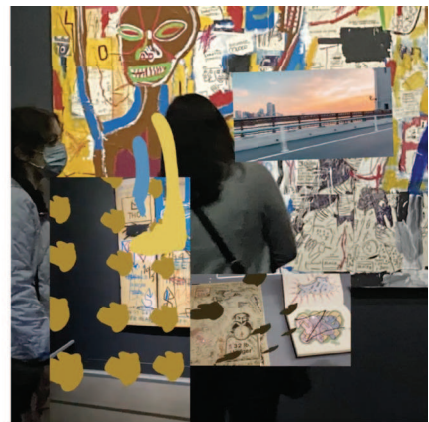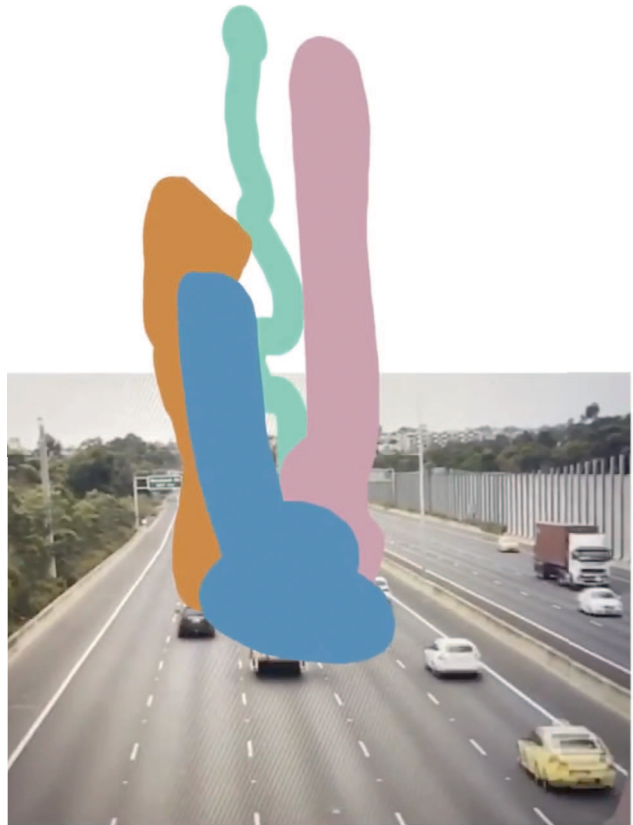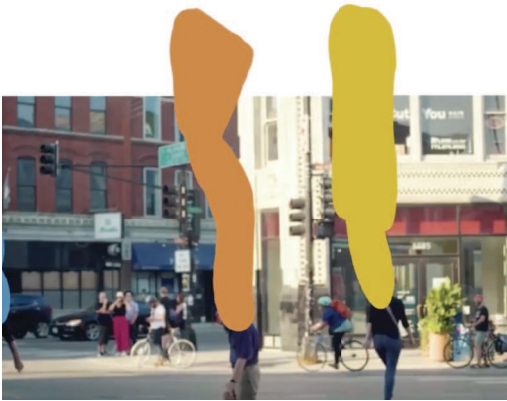
I then began to study the relationship the shape had with the entire image. Collaging this data together and placing it in environments we all collectivity walk through every day created the sense of community I was striving for. My peers soon began to ogle over each and every shape comparing and contrasting. They began to discuss their walks outside and to their kitchen with each other. By opening having a common talking point, people started to open up a little more. Having a sense of community over zoom is hard. It's awkward. Uncomfortable. There is no 'you wouldn't believe what I saw on my way here' conversation, but now there was.

**Takeaways**

One of the major takeaways from this project for both myself and my audience is data can be playful. Data also tells a narrative. Data doesn't have to be so mathematical and meticulous — it can be turned into an experience. Data can be used to start a conversation.

I have an interest in data visualization. I like the challenge of taking something so analytical and turning it into something that is easily digestible and relatable for the user.

During the beginning of this project, I started out wanting to used p5 animations to re create the shapes. Due to my lack of understanding paired with time constraints, I quickly changed my route.

My user testing portion was small, but important. I was really interested in what everyone saw everyday. I wanted to throw this data set into an everyday situation based off of my users responses. At the time I was more interested in how we were drawing with our bodies. I was reaching so far in trying to compare this to modern day collaging I was missing the entire point of this being a very basic data visualization project. This let me to my thesis interest. For my first thesis project I am gathering dating app data and tracking that to see what type of narrative it tells about the users and how their activity relates to one another. Once that portion is completed I am looking at ways to present this in a visually stimulating manor.

# HINGE DATA.

On dating apps, swiping left means you're not interested in the person and swiping right means you are interested. The average time for swiping right was just below one second compared to the average time for swiping left at just half a second (Chadwick). People are willing to make a decision about whether or not they would like to meet another human being in less than a second, solely based on the other person's looks; which is absurd to me. Apps such as Tinder and Bumble use this swipe feature, whereas Hinge uses a check or an 'x' to signify yes or no. Hinge also allows the user to see who liked them. We like people who like us — so it makes sense we want to connect with others who have shown an interest in us.

Hinge has a unique feature titled 'Most Compatible'. The algorithm pairs you with other profiles that it thinks you are most likely to converse with. The most compatible algorithm is simply a suggestion of profiles based on data inputs (photos, demographics, bios/answers) and user response to your profile. It claims users are 8x more likely to go on a date with said suggested

profile than with other Hinge members (Hernadez). Although these suggestions are not always accurate, they are based on self-selected info, photos and prompt questions. This feature appears every 24 hours and will disappear if you do not act fast. This entire feature led me to my exploration with dating data.

How could an algorithm determine who I am most compatible with? Should people chalk up their love life to an algorithm? Should users chalk up their love life to a swipe left or a swipe right? What if it was designed in a way where people could only respond to words via the other user? No images. No chance to have that one second visual yes or no decision. With all of these questions looming in my head, I decided to explore Hinge as a platform.

**To Begin**

To start, I made a profile. I was presented with a series of questions about myself, my demographics, my likes and interests. Hinge users must upload six photos to their profile. Users can like the photo or a response to one of your profile prompts. Users display their

"US RESEARCHERS FOUND ATTRACTIVENESS AND RACE PREFERENCES WERE THE TOP PREDICTORS OF WHETHER PEOPLE WOULD SWIPE LEFT OR RIGHT – AND NEARLY TWICE AS IMPORTANT AS ANY OTHER FACTORS

UK DAILY MAIL

Data Artifacts



Hinge.



Hinge.

78
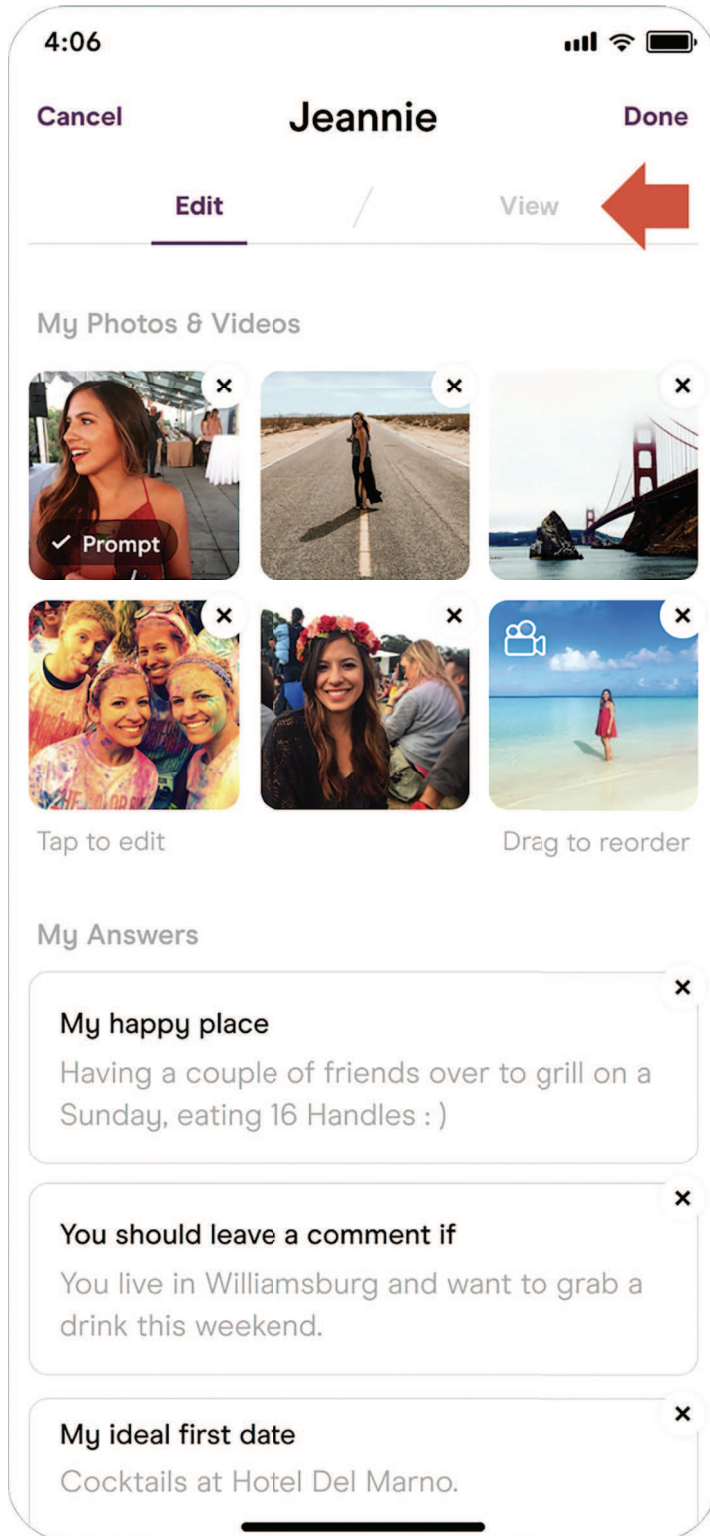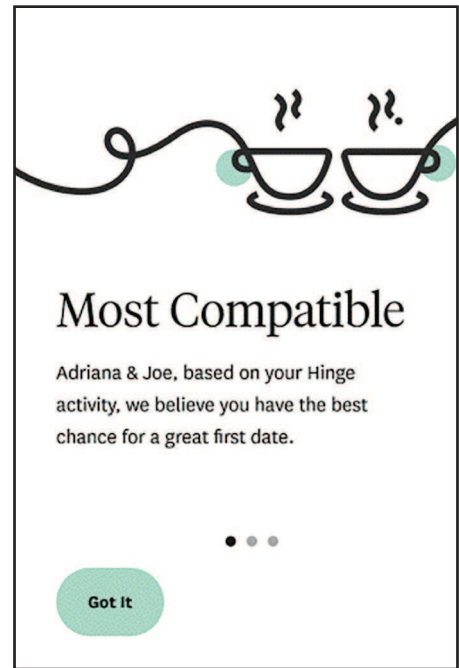
answers to Hinge's prompts on their profile. Hinge allows six photos, but only 3 prompts to be displayed. Which automatically signals to users that this is a visual platform. Prompts like 'if loving this is wrong I don't want to be right...' and 'The way to win me over is...' are used to start conversations and show similar interests. I found that I was receiving more likes on my photos rather than my question prompts — which to me, signified these users were only interested in the visual aspect of this application. It became exhausting and disheartening to see most people are only interested in someone's physical appearance. The most compatible feature also could not have been more wrong. Many of the users Hinge thought I was most compatible with, I did not. I looked into what this most compatible feature used and its reasoning behind these matches. Hinge basis the most compatible feature on the way each user is using the app, liking patterns and app frequency. If two users are using the app in a similar way, Hinge thought they were compatible. Perhaps, this is a dystopian way to go about finding a potential partner. I find modern dating to be absurd in the manner of letting a computer determine who one is most compatible with. This led me to wondering what my own data looked like in a visual form — what other users' data looked like pulled apart and abstracted.

Hinge has a unique feature where you can request your data. I asked six of my friends to request their data and send it to me to analyze. The data file was emailed to the users within 2-3 business days. The data set included four files. Index.html, which was an entire overview of their profile. This page held their identity information including email, phone number and IP address; their user-supplied location, with information like longitude and latitude, country, state, county

and neighborhood; their profile demographics, such as first and last name, age, height, gender, gender identity, religious beliefs, workplace, school, hometown, drinking, smoking and drug preferences, political beliefs, family plans and whether or not their Instagram account was hooked up to their profile. This file also included their preferences on a partner — how far away they were, their age range, height preference etc. Matches.json stored each user's matches and chat history. Media.json stored their images. Prompts.json stored their responses to the prompts Hinge presents users with. I began to sift through the data and gauge the best time for each user to be on Hinge or how often the user was liking another user as opposed to how many times they were liked. This wasn't telling me anything about the user.

## My Interest

I was most interested in the chat data. This is how the user was communicating with potential partners. How we chat online says a lot about us. What if users could only match based on their words rather than their images? What would their chat data look like as a data visualization? Words are audible, so it only makes sense to create a sound from this data. People form emotional bonds based on language and communication. Each time a human speaks, a sound comes out. Each and every language sounds different. If two people can understand each other from this communication to form a bond, an emotional quality lies within that process. By turning this data into sounds, I wanted to see if people would still relate to the emotional quality within communication and dating; or whether or not this would invoke a loss of meaning within the data and communication.

‹      **Download My Data**

## United States ⌄

## Massachusetts ⌄

**Download My Data**

## Export In Progress

# You're all set!

You should receive steps to download your data in your email in the next few days. When you access your information, you will not find messages you received on Hinge, which are not provided out of concern for the privacy of our users. You will also not find information or content you deleted from your account, which is disposed of in accordance with our Privacy Policy.

Furthermore, if you delete your account before you have retrieved your data, you will no longer have access to that account, and we will not be able to provide that account's data for you.

Done

Didn't make this request?
Contact us at hello@hinge.co

## Design Process

I scrubbed each chat file to make it legible enough to read. I found that each user spoke differently. As I read on, I noticed each user started to have specific words pop up regularly. User 1 had the words, haha, friends, drinking, Abilene, work, and absolutely. User 2's words were lovely, hotshot, weekend and run. User 3's words were chill, dog, weekend, and lol. User 4's words were draw, espresso, really, beach and vibe. User 5's words were hey, wicked, cute, Snapchat, handsome, Tinder, and the :) face. Since I knew all of the users, I found that each of their personalities came through these chat files. I could tell who was who based on the words they used or how they phrased sentences creating their own communications style. I started to wonder if there was a way to display their chat data to elicit the same emotional quality and characteristics they held when speaking and typing. This case study was conducted before Hinge enabled a voice prompt option. The voice prompt option allows users to respond to a question prompt with a short audio note using their own voice. While I do find this an effective portion of the app to elicit emotional and personal responses, I do find it hard to gauge another persons' communication style based on a ten second audio clip that responds to a surface level question. To communicate, to create language on this app there is no

# Hinge

## Identity

| | |
|---|---|
| **Email:** | ~~[redacted]55@gmail.com~~ |
| **Instagram Authorized:** | False |
| **Phone Number:** | +17817990869 |
| **Phone Country Code:** | US |
| **Phone Country Calling Code:** | 1 |
| **Phone Carrier:** | Verizon Wireless |
| **Phone Line Type:** | Mobile |

## Account

| | |
|---|---|
| **Authentication Source:** | SMS |
| **Signup Time:** | 2020-07-16 17:57:34.993000 |
| **Last Pause Time:** | 2020-08-10 17:09:39.137000 |
| **Last Unpause Time:** | 2020-08-10 17:53:31.127000 |
| **Last Seen:** | 2021-09-20 02:37:51 |
| **Device Platform:** | ios |
| **Device Os:** | 14.7.1 |
| **Device Model:** | unknown |
| **App Version:** | 8.13.0 |
| **Push Notifications Enabled:** | False |
| **Last Uninstall Time:** | 2021-07-02 11:24:27 |

## User-Supplied Location

| | |
|---|---|
| **Latitude:** | 32.46945 |
| **Longitude:** | -99.707275 |
| **Country:** | United States |
| **Country Short:** | US |
| **Admin Area 1:** | Texas |
| **Admin Area 1 Short:** | TX |
| **Admin Area 2:** | Taylor |
| **Cbsa:** | Abilene, TX |
| **Locality:** | Abilene |
| **Sublocality:** | Woburn Highlands |

Example of user data package.

```
Hey
Lowkey can\u2019t talk much till Tuesday night, family is coming to vis-
it atm hahah
cleaning my room like crazy
Sorry :(
What are your favorite games?
Ngl you\u2019re extremely handsome, are those the Aqueducts in Italy?
You\u2019re totally the cute one ;)
I woke up late today haha hi
Wanna Snapchat?
Matched you here and tinder but still hard to reach you
Hey you look amazing man
Hey you\u2019re wicked handsome, having a nice week?
Free this weekend hunter?
Hey where is this? :)
pretty rare these days haha
This sounds like me lol"
Handsome af
When\u2019s our date?
Hey how are you?
Hey you\u2019re wicked cute
Heyy I had notifications off by accident!
Wanna Snapchat?
Haha I know cuz apparently we already had eachother on there and u post-
ed a story
Hey I recognize diamond head haha I was out there for 2 years, what\
u2019s up?
Hey you\u2019re wicked cute
Oh look who it is
How\u2019s it going?
You\u2019re wicked cute
Hey you\u2019re wicked cute :)
Blast from the past I think we talked yearss ago lol
Same here starting work now haha, and wow good memory
```

User chats.

This is true, must both still be interested too
You certainly are cute
How\u2019s work going cutie
Snapchat me?
Wanna go for a summer night drive this week? I agree
Hey I\u2019m just working atm! You?
Think we talked on tinder
Cute haha
Hey :)
good glad you enjoyed it, what are you up too now?
 just had lunch myself, my weekend was good I saw a friend at her new
place and I played a bunch of video games
Ps4 switch and PC!
Got Snapchat?
Hey you\u2019re wicked cute :)
Hey how\u2019s it going :)
Sounds like a relaxing plan haha, I\u2019m actually heading to the gym
right now to  bike
Haha Snapchat me
Wow you\u2019re so cute
"We\u2019d get along so well haha you\u2019re wicked cute man
would you want to Snapchat and get to know eachother?
You\u2019re wicked cute :)
Want to Snapchat?
"Hey there",
Can I take you on a date? :)
Is this a scene from the hangover?
Still wonder why you\u2019re into me one second then the next you\
u2019re blocking me for no reason at all, dates or hookups, you never
make any sense but cute
Hey we should go on a date
Hey! Sorry busy weekend, how\u2019s it going"
ou\u2019re wicked cute, hey"

```
Hey
Lowkey can\u2019t talk much till Tuesday night, family is coming to vis-
it atm hahah
cleaning my room like crazy
Sorry :(
What are your favorite games?
Ngl you\u2019re extremely handsome, are those the Aqueducts in Italy?
You\u2019re totally the cute one ;)
I woke up late today haha hi
Wanna Snapchat?
Matched you here and tinder but still hard to reach you
Hey you look amazing man
Hey you\u2019re wicked handsome, having a nice week?
Free this weekend hunter?
Hey where is this? :)
pretty rare these days haha
This sounds like me lol"
Handsome af
When\u2019s our date?
Hey how are you?
Hey you\u2019re wicked cute
Heyy I had notifications off by accident!
Wanna Snapchat?
Haha I know cuz apparently we already had eachother on there and u post-
ed a story
Hey I recognize diamond head haha I was out there for 2 years, what\
u2019s up?
Hey you\u2019re wicked cute
Oh look who it is
How\u2019s it going?
You\u2019re wicked cute
Hey you\u2019re wicked cute :)
Blast from the past I think we talked yearss ago lol
Same here starting work now haha, and wow good memory
```

User chats with most user words highlighted.

This is true, must both still be interested too
You certainly are cute
How\u2019s work going cutie
Snapchat me?
Wanna go for a summer night drive this week? I agree
Hey I\u2019m just working atm! You?
Think we talked on tinder
Cute haha
Hey :)
good glad you enjoyed it, what are you up too now?
just had lunch myself, my weekend was good I saw a friend at her new
place and I played a bunch of video games
Ps4 switch and PC!
Got Snapchat?
Hey you\u2019re wicked cute :)
Hey how\u2019s it going :)
Sounds like a relaxing plan haha, I\u2019m actually heading to the gym
right now to  bike
Haha Snapchat me
Wow you\u2019re so cute
"We\u2019d get along so well haha you\u2019re wicked cute man
would you want to Snapchat and get to know eachother?
You\u2019re wicked cute :)
Want to Snapchat?
"Hey there",
Can I take you on a date? :)
Is this a scene from the hangover?
Still wonder why you\u2019re into me one second then the next you\
u2019re blocking me for no reason at all, dates or hookups, you never
make any sense but cute
Hey we should go on a date
Hey! Sorry busy weekend, how\u2019s it going"
ou\u2019re wicked cute, hey"

sound, you must type on a keyboard, but if these words were said out loud a sound would emerge. These words were logged as data. During the time this case study was conducted there was no sound based information. Data is analytical and cold. Even so, a voice prompt response isn't showing users' emotional and communication style; if anything — it is showcasing a split second watered down version of a user. Although adding a voice component creates an additional layer of vulnerability — how vulnerable can one be in 30 seconds?

Dating platforms present and use this data in a form that dehumanizes the human behind the content by encouraging disconnection and shallowness, rather than promoting a connection. These applications think they are encouraging connection and depth, yet have sections such as 'Standouts'. Standouts is a section on Hinge where it displays "outstanding prompts from people most your type." Standouts are a feed where Hinge shines a light on profiles that are getting the most attention. If these applications are trying to promote connection and depth - then why allow a section highlighting the most popular people on the app? Hinge specifically states, "the people you see in Standouts are receiving a lot of attention because of their great profiles." Users can only like one person in this section per day, or purchase a membership; which will allow them to send an unlimited number of likes within Standouts and their regular Discover feed. According to The Dangers of Love in the Age of Dating Apps, parallels can be drawn to psychology studies done on rats in the 1950's. When a rat was placed in a box with a button that unpredictably rewarded it with food,

the rat was quickly trained to compulsively press the button, as it never knew when food would be dispensed. Gambling and slot machines work in the same manner, as players never know when they'll get lucky — which keeps them playing for longer periods of time and spending more money. Dating apps are addictive in the same manner, as users never know which swipe will lead to a successful match (Thalheim). This also signifies humans are more likely to buy into something if they think there will be a positive outcome — including purchasing a membership in hopes of finding connection and depth. This exercise led to the exploration to find meaning within the space between humans and data.

The days of creating a connection IRL seem to be no match to having an endless source of swipes at your fingertips.

About four in 10 heterosexual couples (39%) and six in 10 same-sex couples (65%) who got together in 2017 met online. Meanwhile, heterosexual couples' conventional methods of connecting with a partner — via family, neighborhood and church, for example — have fallen in popularity over nearly eight decades, the study found (Jagannathan).

Data visualizations are an experience to me. I don't think any experience is complete without sound. I was trying to create an immersive experience based on the input of this data. I wanted to test out taking an analytical input and outputting it as something abstract and interesting because it helps me understand it better. Or if there is no understanding, one can chalk it up to abstraction and arbitration. Since these were chat based files I thought – why not create sounds from them? I imagined these chats would

have a sound IRL, but since they were online they did not. I thought, "wouldn't it be crazy if this chat data made a data computer driven sound?" To turn these words into sounds I used Max programming. Max is a visual programming language for music and multimedia that can be used for MIDI, audio and video applications. Users can create musical representations using math and algorithmic techniques, which also made sense due to the fact that Hinge is using algorithmic techniques as well. The Max patches replicated the sound of a piano. Although it could be any instrument, a piano uses keys like a keyboard. Anytime a user was communicating on this app, they were typing on a keyboard. To create the sound for each user I took their most used words. For example, User 5's words being hey, wicked, cute, Snapchat, handsome, Tinder and :) were all typed in after another. Each key randomly played a piano note. I didn't like how the composition sounded when being played once through. I wanted it to be more abstract and absurd, like the way I viewed online dating applications. To experiment further, I copy and pasted the composition as many times as the user's word total came to. I then became interested to see if the users' sound mimicked their feelings towards online dating and Hinge. My mood, attitude, and emotions towards something greatly affects my communication style. Assuming each user's attitude towards online dating was reflected within their communication style as well, I thought it would be interesting if their sound would create the same emotional quality

If these chats were happening in person one would be able to tell the tone of the other person's voice - which would signify their emotions at the moment. I wanted to experiment if this would translate over into the abstracted version.

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Max patch created for piano sound.
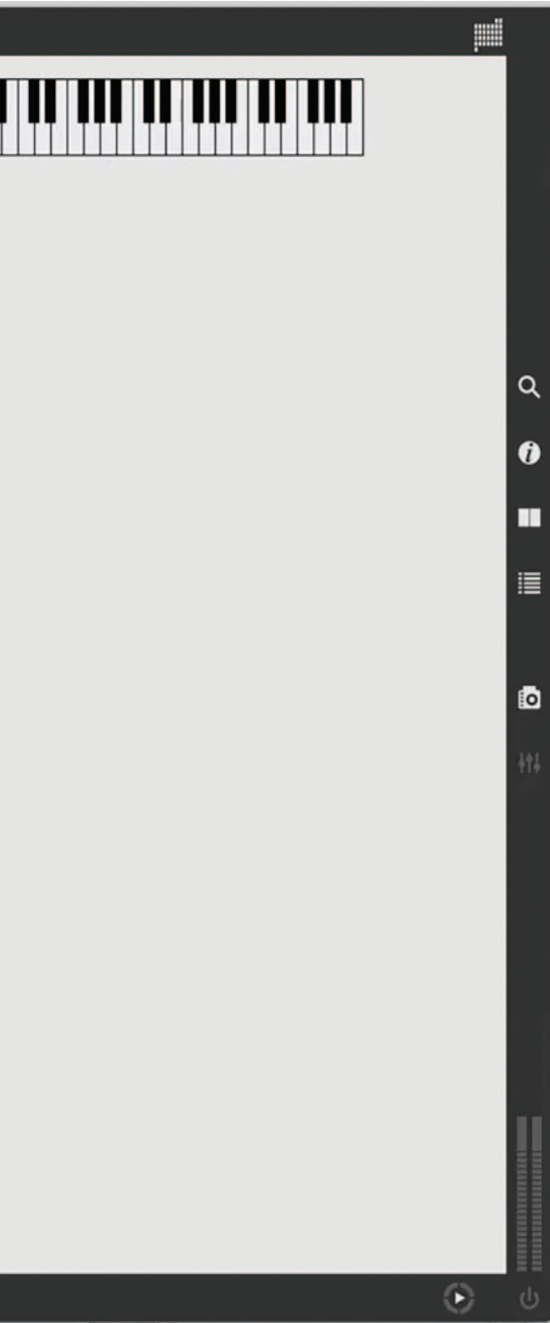
### Max

Each user was asked how an online dating experience makes them feel. They were asked to describe it in a few words. User 5 described it as abrasive, overwhelming and uncomfortable. User 3 described it as exciting, happy and fun. These two users both had the complete opposite feeling towards online dating. How they felt about online dating played into how they were communicating on the apps. I found user 3 to have a more light hearted fun approach when chatting potential partners. User 3's sound notation was light and happy - which matched their communication style within their chat data. User 5's communication style was short and to the point. User 5 seemed closed off and unwilling to get to know any potential partner, resulting in their negative feelings towards online dating. User 5's sound notation was jarring and abrupt, much like their experience.

I wanted to visualize these sounds as well. There is a visualization aspect of online dating, which elicits an emotional response from users. I wanted to further push the boundaries of abstracting the data because I wasn't satisfied with just having a sound. I wanted to see if there was a connection between the way people responded to the sound when paired with a visual, because IRL a person's voice accompanies their physical appearance — sound and visualization paired together in human form. Hinge having only 3 prompt displays and 6 image displays was proof that having a visualization of a potential partner was a driving force in creating a connection. I came across an online synesthesia tool that showed words and numbers as colors. This is a form of synesthesia known as grapheme-color synesthesia. Synesthesia is a

Hey Wicked Cute Snapchat Handsome  Tinder :)

sensory trait where people see or associate letters and numbers with specific colors. Other forms of synesthesia involve seeing or feeling musical notes as colors or textures, having visualized representations of time or possibly tasting words.

Since other sensory aspects like auditory and vision were being used, I decided using a sensory site would align with the experiment. I did not want to determine the colors on my own for the visualization so I turned to this too. For example, the word Snapchat was mostly yellow, so the word Snapchat would have yellow color. From there, I went into Adobe After Effects to create a visual sound wave that would match the beat of the word. The sound wave was colored based on the synesthesia key. Each word had their own color, sound and visualization. I then added each user's visualization and sound into one composition. To create more abstraction and follow the repetitive nature of each user's

words, I placed their individual word, sound and wave over a photo of the key on a keyboard. User 5 used the word 'hey' 21 times so hey would be stacked over the 'h', the 'e' and the 'y' 21 times. Each word would follow this pattern. User 5's final composition was described as jarring and overwhelming, which matched their experience within an online dating world. User 3's was very pleasant and nice to listen to. User 3's sound sounded more positive than User 5's.

Personally, online dating makes me uncomfortable. I wanted to see if other users felt the same way as I did. This is what led me to experimenting with their chat files. To truly understand how someone feels about something we communicate, listen and read — so that is what I did for each of my users. I read their personal chat files. Some were honest, funny, vulnerable and closed off. The experience of reading their chat files made me uncomfortable. I felt as if I was breaching
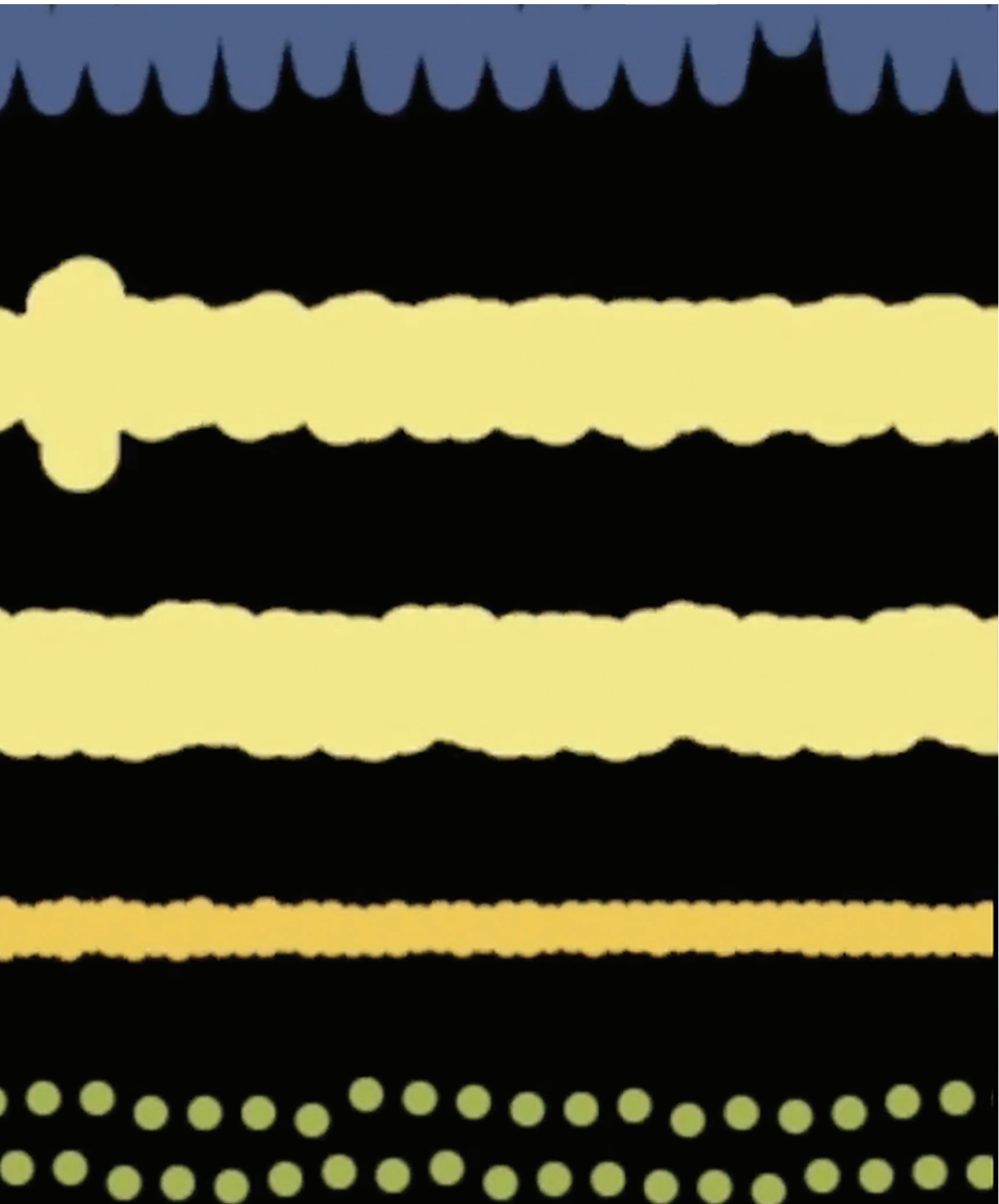
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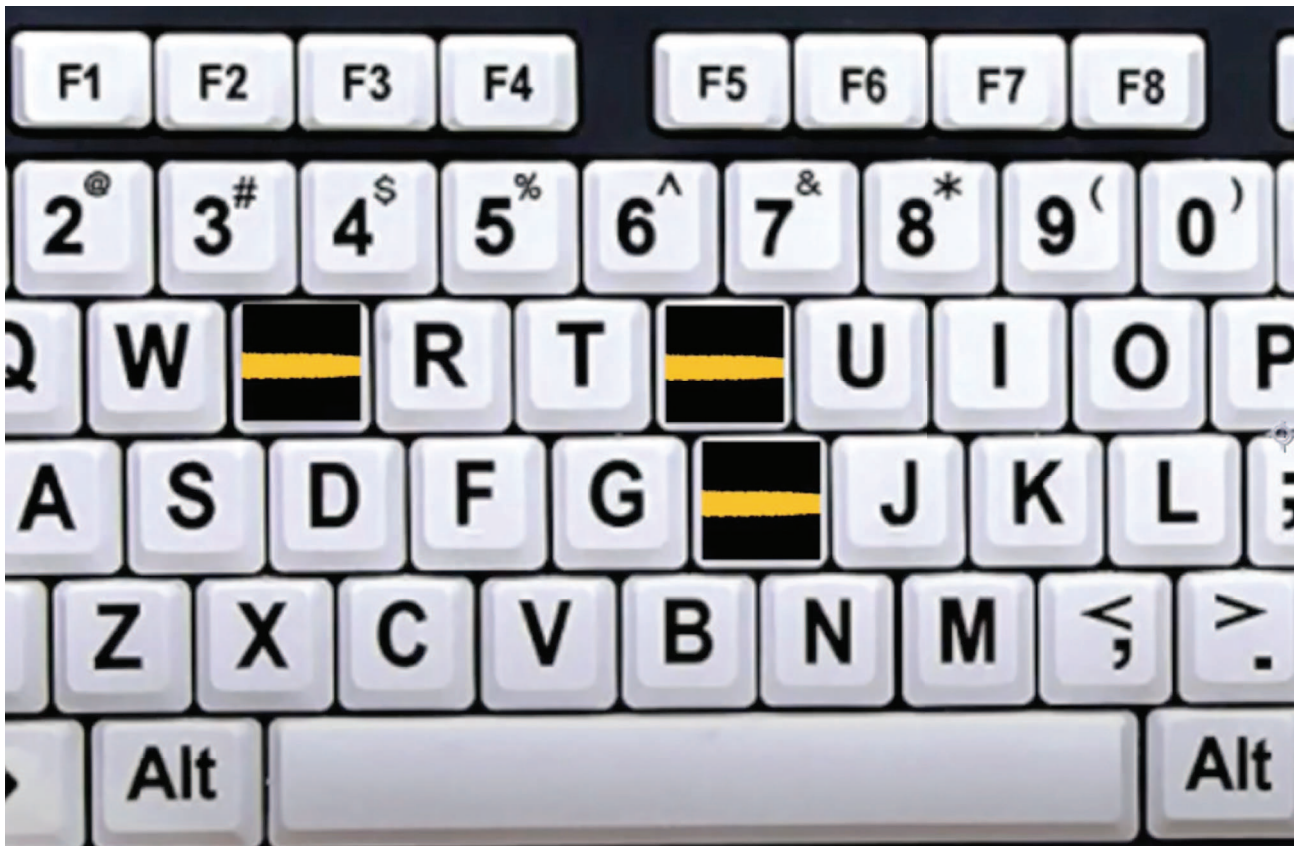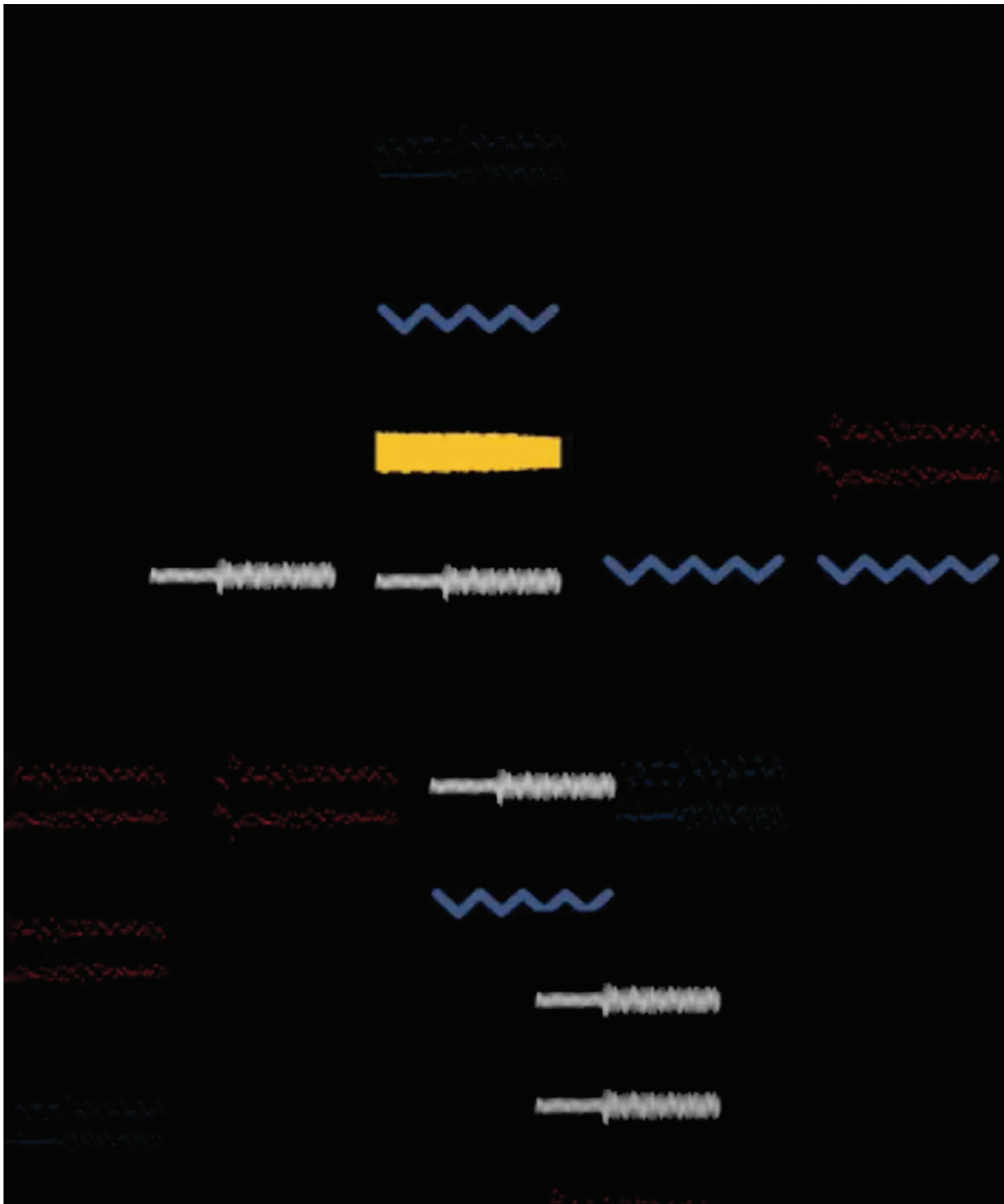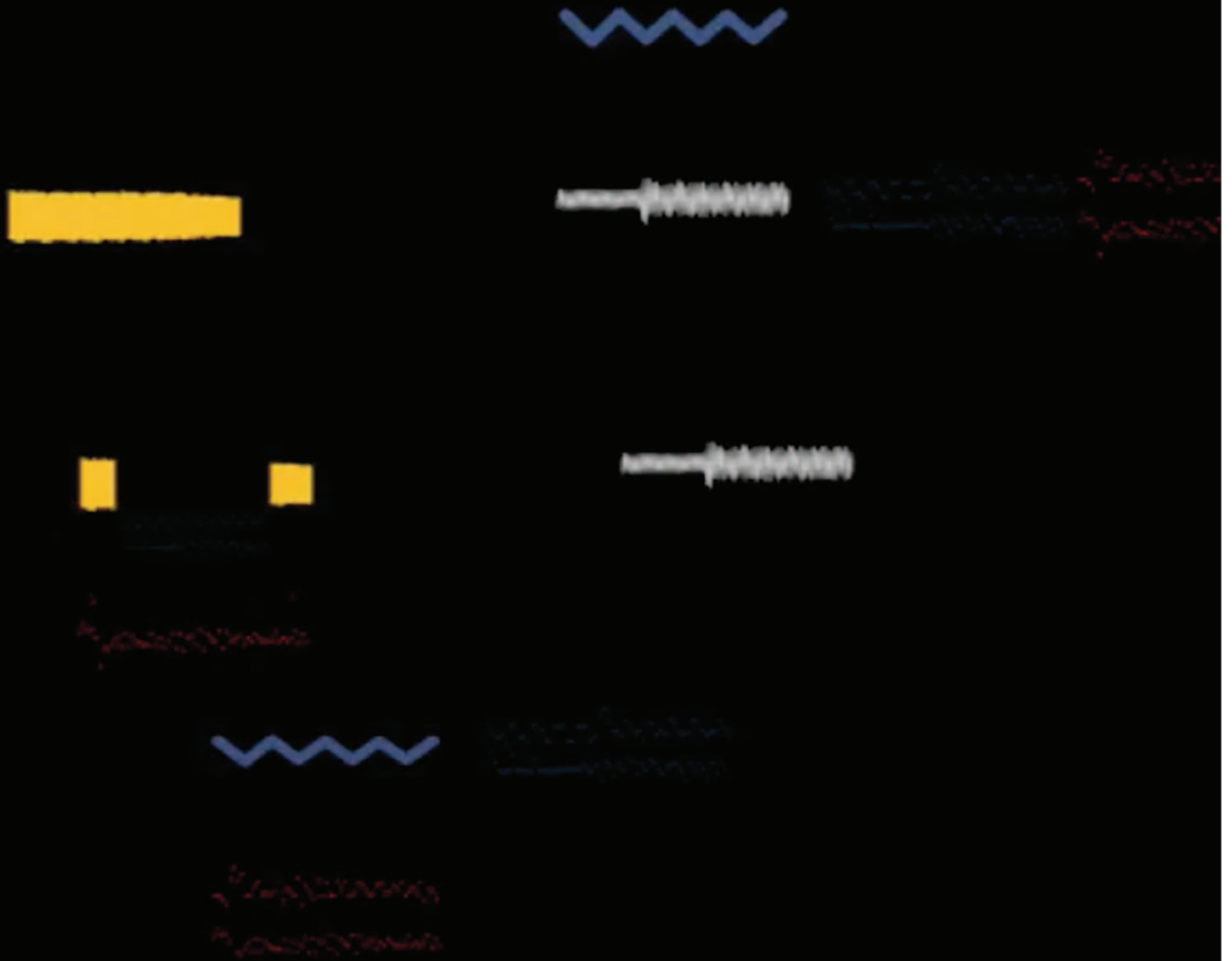
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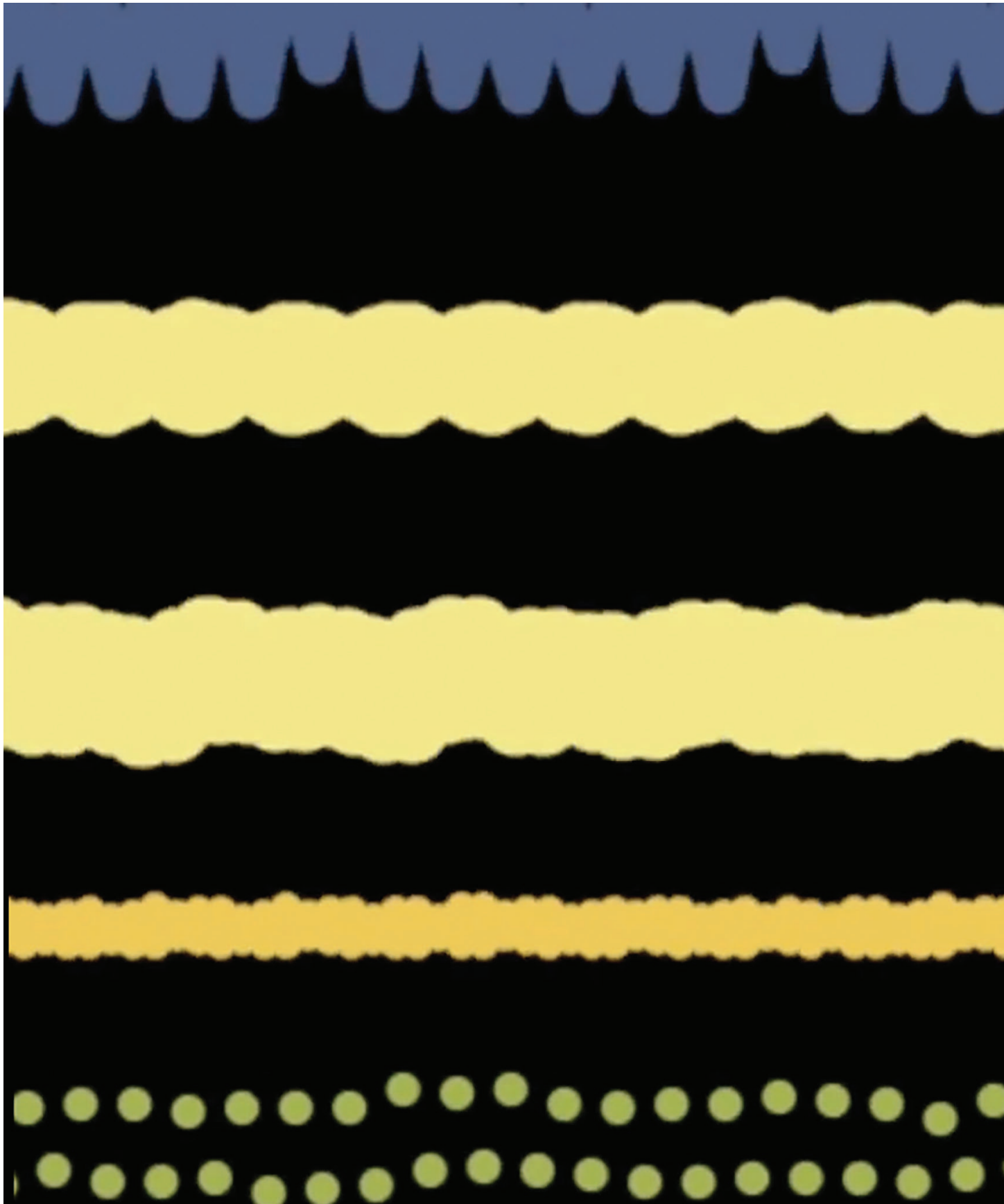
User sound/visulizations waves.

their data. I wondered if they were actually comfortable with me reading their mating calls. This experience was also uncomfortable. I wanted any user that experienced these sound and visualization compositions to feel uncomfortable because I did. can make people uncomfortable because they don't know what they are looking at or what it is about. Looking and listening to these compositions left users confused and uncomfortable because they had no idea what they were. They didn't contain any recognizable objects much like our data. There isn't anything to grasp or hold on to much like our data. So why not abstract this data? My goal was to make everyone uncomfortable by mimicking the absurd nature of online dating. The process to get there was completely arbitrary. Whether or not the users understood the end result and process was not important to me. Each and every person has a different understanding of abstraction and arbitration.

`There is only so much information one can impart from a traditional data set. There is only so much information one can impart for an abstraction. This exercise aimed to explore the dehumanization within online dating platforms and data through the exercise of abstraction. By viewing the finalized data composition, users thought about their data in a different way as well. The role the user plays within the context of

Sound wave.

communication in part to their social and romantic relationships comes to light by the sound produced from their word patterns. Users and viewers were also uncomfortable seeing data in a different abstracted form.

## Conclusion

If I were to continue this project, I would ideally have all of these rolled into one composition. This would be an immersive experience where one goes into a dark room that has these projected onto every surface of the room while the sounds play. I think taking away any sensory information would contribute to the uncomfortability and abstraction users could experience. This project showed me that there is meaning within randomness and that there is experimental work to be made based on the abstraction and translation of data into a new form.

# IMAGE DATE.

Dating apps are superficial. Each user likes or swipes on a photo purely based on someone else's appearance. If two users like the way one another looks; a chat begins. Users control the input of the information on their profile. Users can curate how they are perceived online creating a performative, superficial atmosphere within these applications. Users don't have control over the output of the final form on dating apps, such as meeting in person or if a relationship will form; but they do have control over their own personal input.

**Data Dehumanization**

Is this input/output system productive? Or is it dehumanizing? On most dating applications like Hinge and Bumble, users can edit certain preferences they want in a partner. Users can set their preferences to age ranges, star signs, smoking and drinking preferences, children preferences etc. Users can also set their preferences to more shallow qualities like height, hair and eye color. While potentially an effective way to use these apps, this is also dehumanizing to both the users and any potential partners. We hide behind dehumanizing data points everyday. Credit scores,

driving records, big number data like the smart TVs eavesdropping on users to improve voice commands or Facebook sharing and logging what users are doing with their friends — all dehumanize us. We look the other way because it's effective. Our inability to connect large datasets with real people is rampant (Harrison). There is an empathy gap between humans and data. There is "distance between an organization and its audience such that, at worst, it's clear the organization is willfully ignoring how its audience might feel" (Hon). Data can understand what users may want, but data cannot measure or predict how users may feel. Feelings do not create a pool of data points. If feelings do not create data; then how can one use data in a manner in which the output will be an authentic relationship. The data side of dating is there for efficiency, not for emotions

I wanted to see what would happen if the input data to a dating application was changed; specifically through a users' image. I was not done with the data set used in Case Study 2. The media portion, where the user's images.

**DATA CAN UNDERSTAND WHAT USERS MAY WANT, BUT DATA CANNOT MEASURE OR PREDICT HOW USERS MAY FEEL.**

**FEELINGS DO NOT CREATE A POOL OF DATA POINTS.**

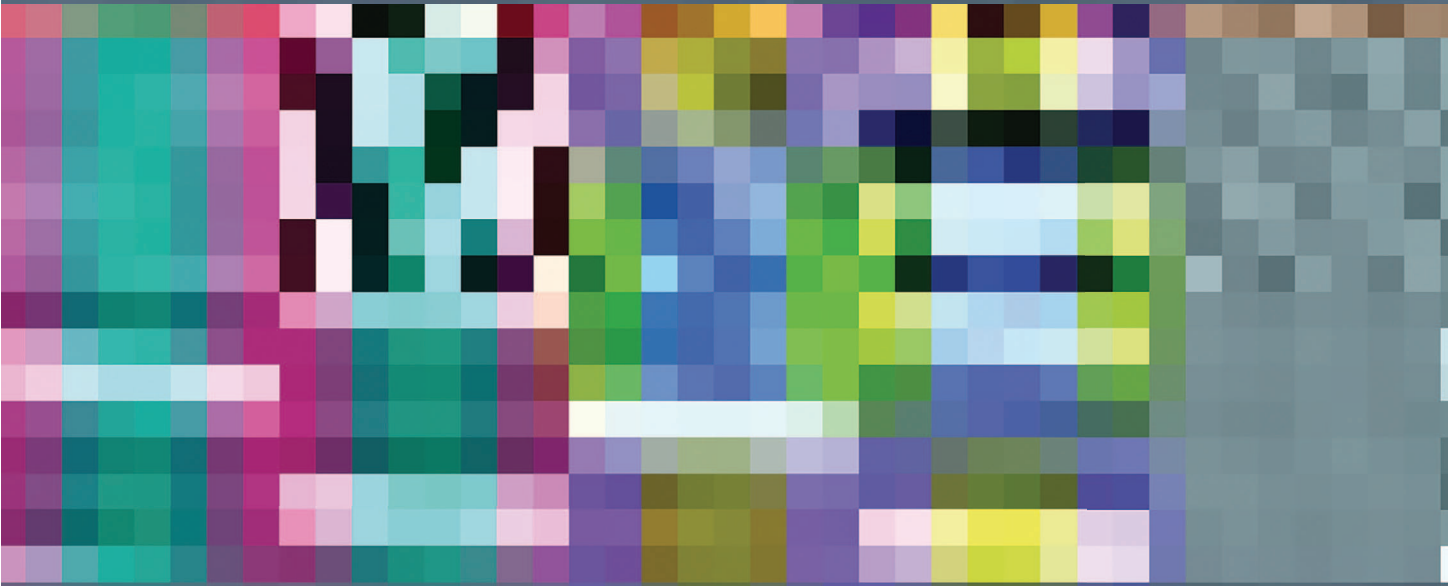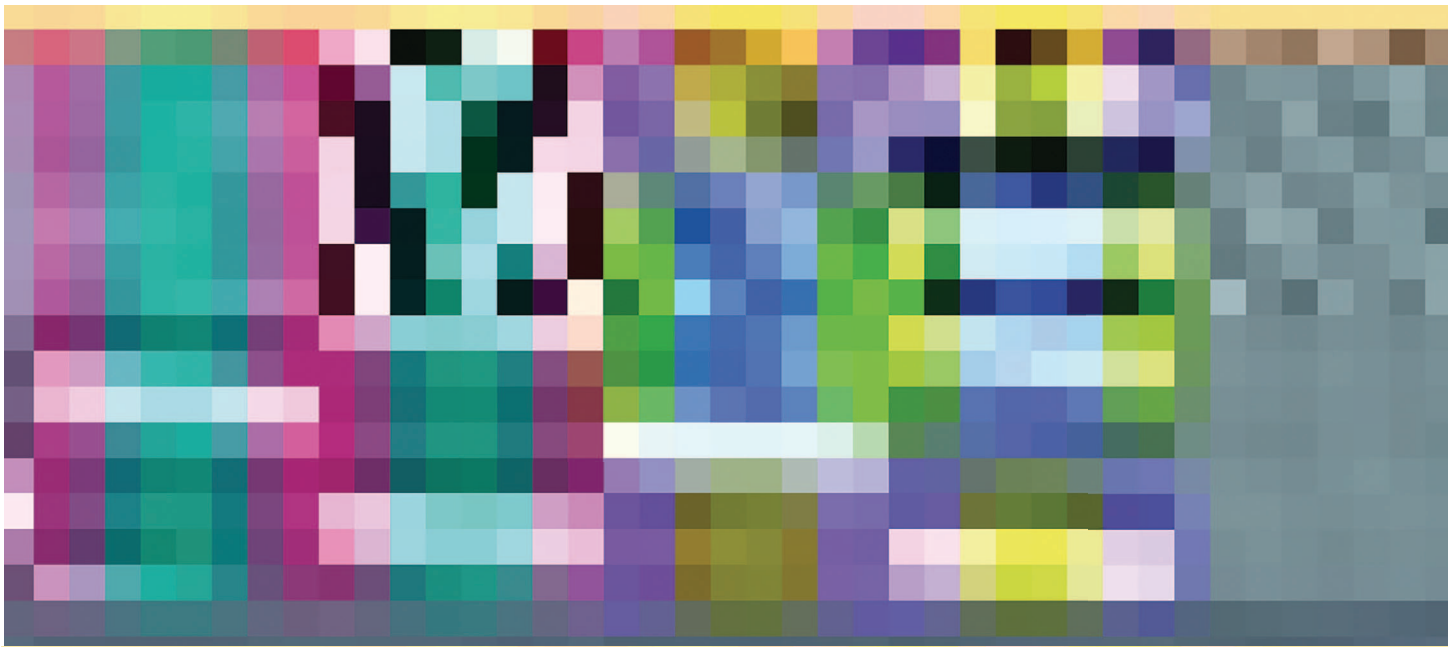were stored — was still untouched. If their image was changed; would that affect the output?

Users begin to create relationships through communication. On these platforms, communication happens via text exchanges. Since I had access to each of the six users' chat files, I decided to go into the data of each user's photo and change it with their text data. I wanted to see if their image would change based on the text exchanges they were having.

## Text Edit

To do this, I clicked on the image and opened it in a text editing application. Each image's data was displayed in rows of words, symbols and code. I added new text carefully to not break the image. If the image was broken, I would have to reopen and restart. In doing this, over time the image slowly distorts, concealing the user's visual identity completely. Each standing image alone without the text data was a mere representation of the human on both sides of these data exchanges. Although interesting, I found this would be complicated and time consuming for users to have conversations through their images to distort their appearance. I wanted to see if a conversation or a genuine connection could be created without each user seeing what the other looked like. Dating applications are visual — so why not remove this from the equation and see what happens. I thought about manually going into each image with two users having a conversation. When testing this, I found that having a third party (me) made the conversation inorganic. I also found this time consuming. I had to figure out a way to make this exercise user friendly. I wanted users to communicate without having their visual identity known to one another.

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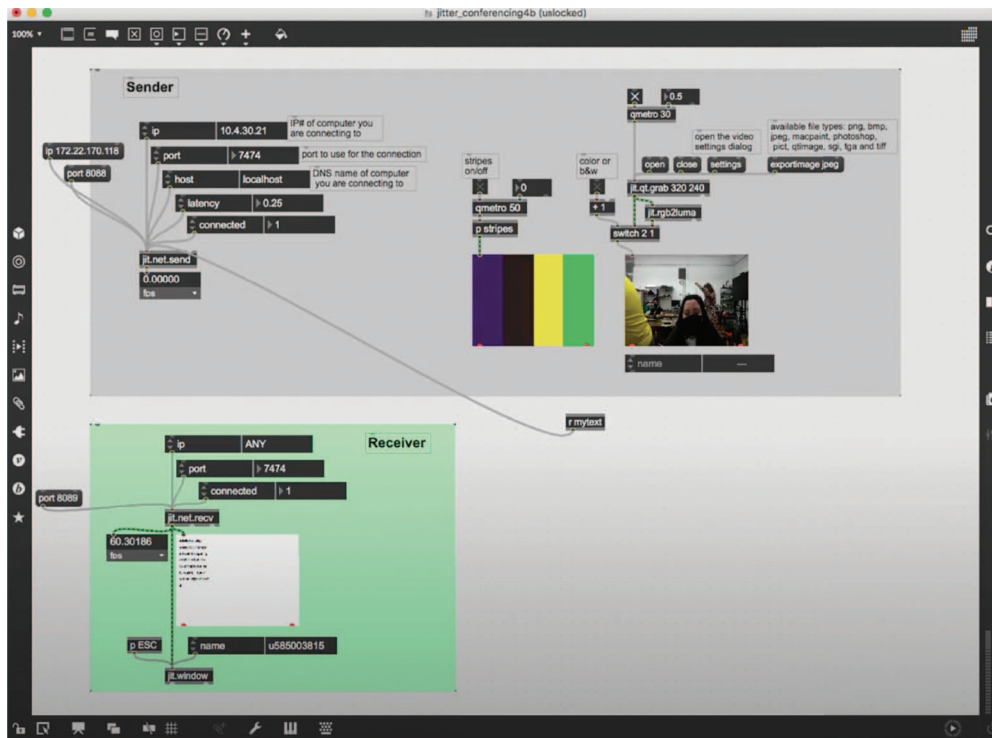"åøe€ Å^0äÁ«7Qfl√ ˛ ◊vz″*[] öQ'È~<j —¯Ç

Text edit of an image.

Text edit image example.

Text edit image example.

Max patch for jitter_conferencing.

## Max Pt. 2

I again decided to use Max programming for this exercise. Max makes it easier to send data back and forth between two machines — much like one does when texting or using a dating application. Max also has the capability to have text and video right on screen. A prototype of a text based platform that hides the users visual identity was created. There were three main Max patches, jitter_conferancing which jumbled all of the pixels used to create a users image; text_chat1, where the users would chat back and forth in an instant messenger style and videograder_2 — where the user would be able to view themselves via the computers webcam. Users can also control how much or how little their video destorts. Each user enters one anothers IP address in order to effectively communicate with one another.

Through the use of each text exchange the video or ideally their profile image would be unrecognizable based on the input of the text data. This forced the user to only go off the basis of their chats, rather than the visualization of the other user to reverse engineer the experience of a traditional dating application. This also forced users to participate in a data exercise that demonstrates the way we input and output data everyday. When user tested, I concluded that having three separate Max patches was confusing for the user. Ideally, this would all be in one window where the user can chat and see a pixelated representation of the user they are conversing with — the more one chatted the more distorted the image would get. If users reached a level of bond, then they could decide if they want to reveal their image/self, which puts the control back into the hands of the user.
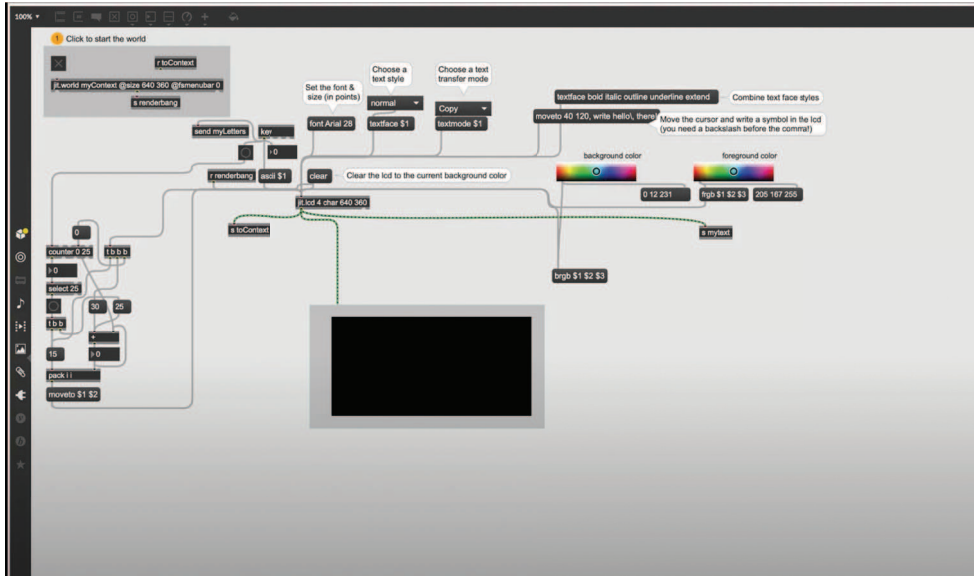
Max patch for text.
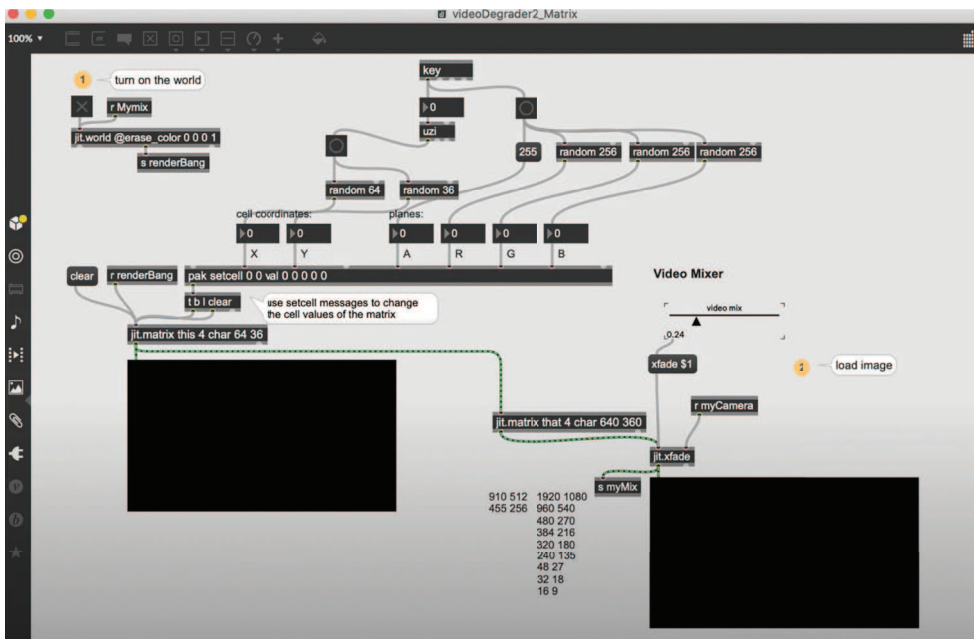


Max patch for video.

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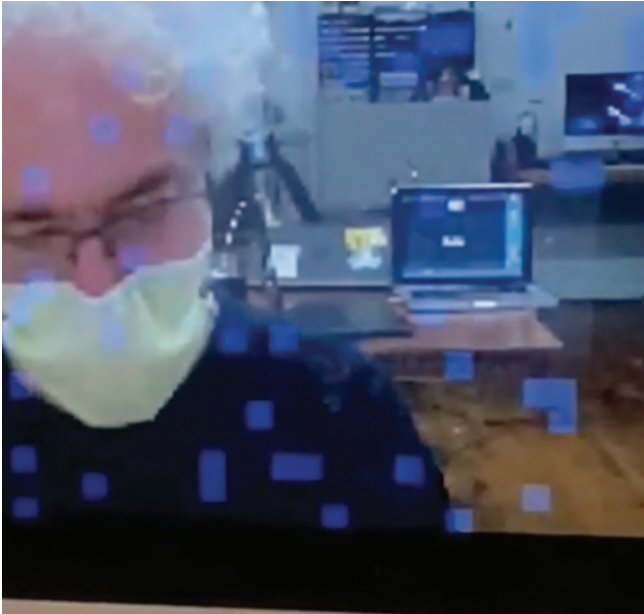
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## Conclusion

If this project were to continue, this experiment would have an audience. Two users would converse with one another, not knowing the other's identity. The audience would view their video or photo projection change in real time. I would also like to find a way in which the audience can determine each user's emotion based on how their image or video is changing through their conversation. Perhaps certain colors representing certain words or phrases or punctuation/capitalization having certain key symbols to signify a stronger use of text. Each user found this input/output system tiresome, but enjoyed the control they had over the final output - which is revealing their image. Questions like, "what is the difference between this and a normal chat based platform" came up – technically, there isn't any difference. But, this input/output system brings our attention to how we exchange information

Progession of Max patches communicating.

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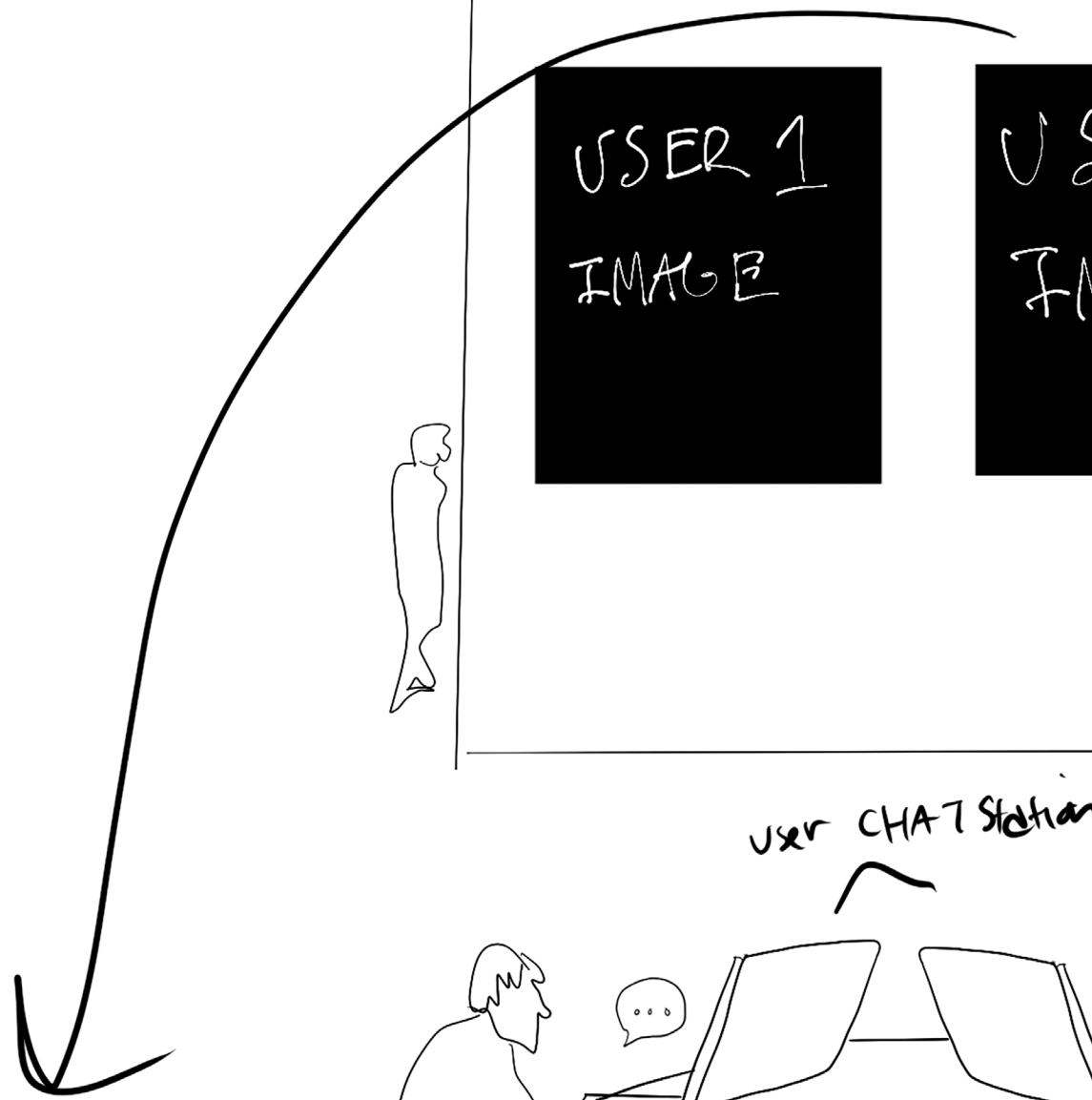
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Big screen wall

ER 2

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about each other and how we do it using data and data visualization. This also brought attention to the lack of control we have when sharing our data online on platforms like dating applications. When comparing this with a normal data exchange on a dating application, users found this to be less dehumanizing. Having a chance to have an organic conversation without knowing what the other user looks like takes pressure and selection out of the equation. My goal with this specific experiment was to have users look at the way they are sending their data back and forth differently. That goal was achieved. Users can begin to understand the ins and out of basic text/image data exchanges as well. Personally, this experiment helped me understand the breakdown of everyday data exchanges like messages and images. This also helped me understand how data can be visualized in many different ways other than a typical graph of statistics. This experiment made this set of data feel more human and less dehumanizing; while also illustrating different ways to display data to the user by altering their image/video witht their conversation text.

Sketch of installation.

# DATA AURA.

Throughout my thesis research, I have been using the same data set from the dating platform Hinge. This data set includes profiles prompt questions and responses, identity information including email, phone number and IP address; their user-supplied location, with information like longitude and latitude, country, state, county and neighborhood; their profile demographics, such as first and last name, age, height, gender, gender identity, religious beliefs, workplaces, school, hometown, drinking, smoking and drug preferences, political beliefs, family plans and whether or not their Instagram account was hooked up to their profile. This data set also included their preferences on a partner — how far away they were, their age range, height preferences etc. Each data set also included each user's profile images and their responses to the prompts they are presented with. Within each profile, there are six image slots and only three question prompts.

## Data to Human

The way that dating applications use data to match users up romantically seems dystopian to me. With my final project, I wanted to take this dystopian experience and turn it into abstract art. I wanted to find a way to snap users out of the tautology that this data set is. If the user's understanding of perceptions within data and their understanding of expanding and disrupting the perception that is this data set — ˌ we can possibly begin to change our conscious position in the stream of 'data to data'. This would make us more in tune with 'data to human' or 'human to data'. Certain intention to understand and control our actions is natural, so taking control of the data seemed like the next natural step. Interventions to expand, disrupt and abstract the potential of this data set begin to remind us of our own human position in the stream of data. We can begin to see the bigger picture by nudging our gaze into the noise of data with intention — which is what these data auru's will begin to do. Meeting a potential partner can be a beautiful experience, even if it is off a data driven application. I wanted to find beauty in the data without telling a specific story and leave each visualization open for interpretation and interaction. This experiment aims to create artifacts and

Aura of data.

objects as opposed to statistics and data points. Dating applications are heavily visual. I wanted to explore each user's dating profile without any visual information by abstracting their data in yet another form. Dating platforms present and use media data in a form that dehumanizes the human behind the content by encouraging disconnection and shallowness, rather than prompting a genuine connection. Hinge has a section titled 'Standouts' which is "a feed where we shine a light on profiles that are getting the most attention coupled with our knowledge of who you've liked or commented on in the past." Which sounds okay, but when further investigating what else this section entails, I found that, "The people you see in standouts are receiving a lot of attention because of their great profiles, so don't hesitate to reach out!" If one looks at this standouts section, it's not so much their 'great profile' rather than the user's great looks. To like a person within this section, users are granted one free rose in which they can send. Users get one rose every 24 hours. The standouts section also refreshes every 24 hours. If users want to like more than one person in this section, they must pay. Hinge actively curates these better looking users and puts them in this 'hands off' category which seems almost unattainable. Users on other media outlets such as Tiktok, have videos stating that, 'Hinge is a scam, all of the good looking people are in standouts," or "why is Hinge gatekeeping the "standouts" feature. You really think I'm going to send a rose? No, that's embarrassing." or "Why is Hinge allowed to gatekeep some of the hottest people I've ever seen in

my life? The guys in my standouts are HOT and so my type but of course I can only give them my single free rose. Hinge, you're making it VERY hard to actually find love." Dating applications use data and scientific equations to rate users on a hotness scale. Arpad Elo was a Hungarian American Physics professor known for the creation of the Elo rating system for two-player games such as chess. This calculated each player's skill level and paired one another with similar skill. For the sake of simplicity one can assume each user has a score anywhere between 0-100. Users start off by making an account, which in turn has not been used; meaning their score is high and they have not yet been thrown into an attractiveness category. Your profile is then given a new user boost, which boosts your profile to show up more, enabling you to receive more likes across the attractiveness score system. This is how dating applications are using, visualizing and learning your data by seeing how you stack up to the other profiles on the application. So what happens when a user has a low attractiveness score? When someone swipes right on your profile, your score goes up. When someone swipes left on your profile, your score goes down. Not all swipes are weighted equally. If someone with a much less attractiveness score swipes right on your profile, your score will go up, but not that much. If someone with a much higher attractiveness score than you swipes right on your profile, your score skyrockets — and vice versa. The equation created within the Elo Rating systems is as follows:

<p>
</p>

# For each win, add your opponent's rating plus 400

---

# For each loss, add your opponent's rating minus 400

---

# & divide this sum by the number of played games

---

$$E_A = \frac{1}{1 + 10^{(R_B - R_A)/400}}$$

This rating system equation used within dating application to determine your attractiveness score is as follow:

*New Rating = rating + 32 (score - expected score).*

To remove the use of Hinge and this data system completely in this experiment, I created my own set of questions to create my own data set.

**Data Control**

I wanted more control over the end result. I wanted something more than shallow interactions based on mathematical equations. I wanted to put the human back into the equation and take out Hinge's cold, unforgiving data analysis. My goal was to explore the humans behind the numbers and statistics by translating their data into a more humanistic visually engaging output. My survey consisted of a series of questions. At the top of the survey, users saw a description detailing what this would be used for; "a unique digital data portrait will be created based on the user's response to these questions. The responses will only be used as a data set for the visualization and will not be displayed for the public to read."

The survey included, gender preferences, age preferences, ethnicity preferences, religious preferences, education level, star sign, political stance preferred, marijuana, drug, tobacco and alcohol usage preferences, what each user wants from their date; something casual, a relationship, not sure, or friendship; exercise preferences, child preferences, and vaccination status. The survey then went into more personalized questions such as where a user would like to meet someone; bars, concerts, online, through friends, the gym, common places of interest and no preference. Followed by where the user would like their partner to live; the city, suburbs, by the beach and no preference. Their potential partner is interested in; art, design, crafts, making videos, photography, writing, meditation, sports, running, yoga, hiking, rock climbing, horse riding or none of the above. The partner the user is seeking likes; museums, bars, coffee shops, clubs, concerts, festivals, stand up, theater, or none of the above. They like baking, board games, cooking, gardening, takeout, video games or none of the above. I also included pet preferences, and values such as; ambition, being active, being family-oriented, being open-minded, being romantic, confidence, creativity, empathy, self-awareness, a sense of adventure, a sense of humor or social awareness. From there, I output my survey onto social media. I chose to use my own Instagram platform by utilizing the stories feature. Since culture can be seen as composed of independently transmitted information units or data, I thought it would be best suited to use trending memes to output this information with the link. Memes are units of culture that are passed down from generation to generation, much like a data set. Data sets help us see a larger picture of what it is we are passing down. When we see what we are passing down, we can relate to the information presented. Memes are more relatable, thus driving higher engagement than a regular survey link. I also output the survey to the Mass Art Discord channel.

**Visualization**

Once results were gathered, it was time for the visualization portion of the experiment. I began to give each response a symbol and color. There was no rhyme to reason with the coloring. My intent was for each person's responses to be represented in a circle with their symbols and colors to signify their own dating data persona. Ideally these would be buttons and each person could walk around to see if someone else had a compatible data pattern on their button. I quickly realized this was too confusing and not simple enough for the user to look at. I wanted there to be more meaning behind the final output. A lot of the questions asked had meaning. These questions held a level of compatibility within their responses. Some of these questions involved emotional aspects. I decided to look into how colors are associated with certain aspects of life like emotions, age, etc. From there my color key was born. For example, orange is a color associated with youth. For the age category different shades of orange were used.
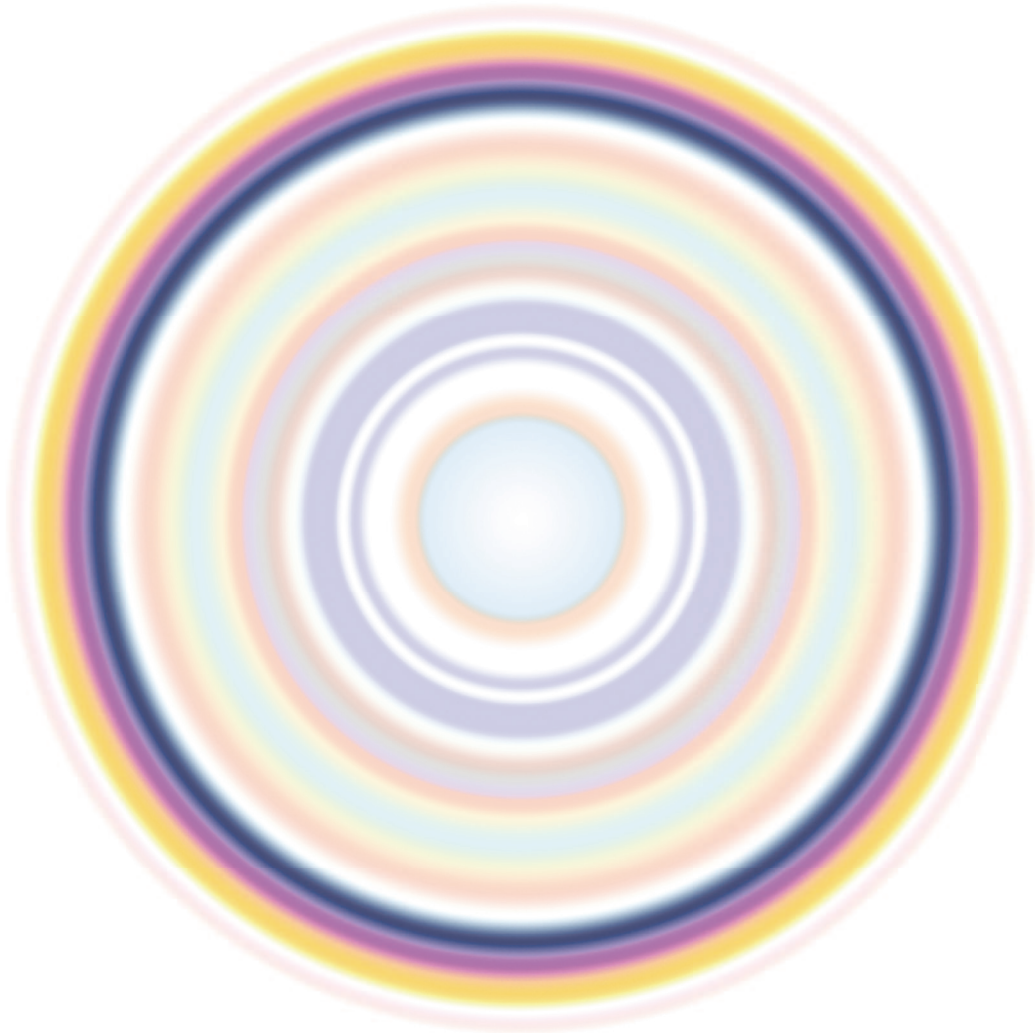
Each category had their own version of this colorization. I then input each person's response in a spreadsheet to view the data all together. From there I color coded each individual survey response to have a series of colors that made up their dating data persona. As a designer, when I want multiple colors in one object I turn to the gradient tool in Photoshop. I decided to solve my final visualization problem this way. I took each users response and created individual gradients based on their color coded responses. The end result was visually striking. Each had their own array of colors that represented their own personal data and preferences. I decided to refer to these as dating auru's. I then began to think about the possibilities this experiment could hold. What if every person walked around with their own auru floating around their head? We technically are walking around with our data everyday, but what if we could find a potential partner in this more organic way? I had many users who had similar auru's. I purposely wanted to disregarded gender within this expirment because there could be a possibility someones ideal partner could be of the same sex.
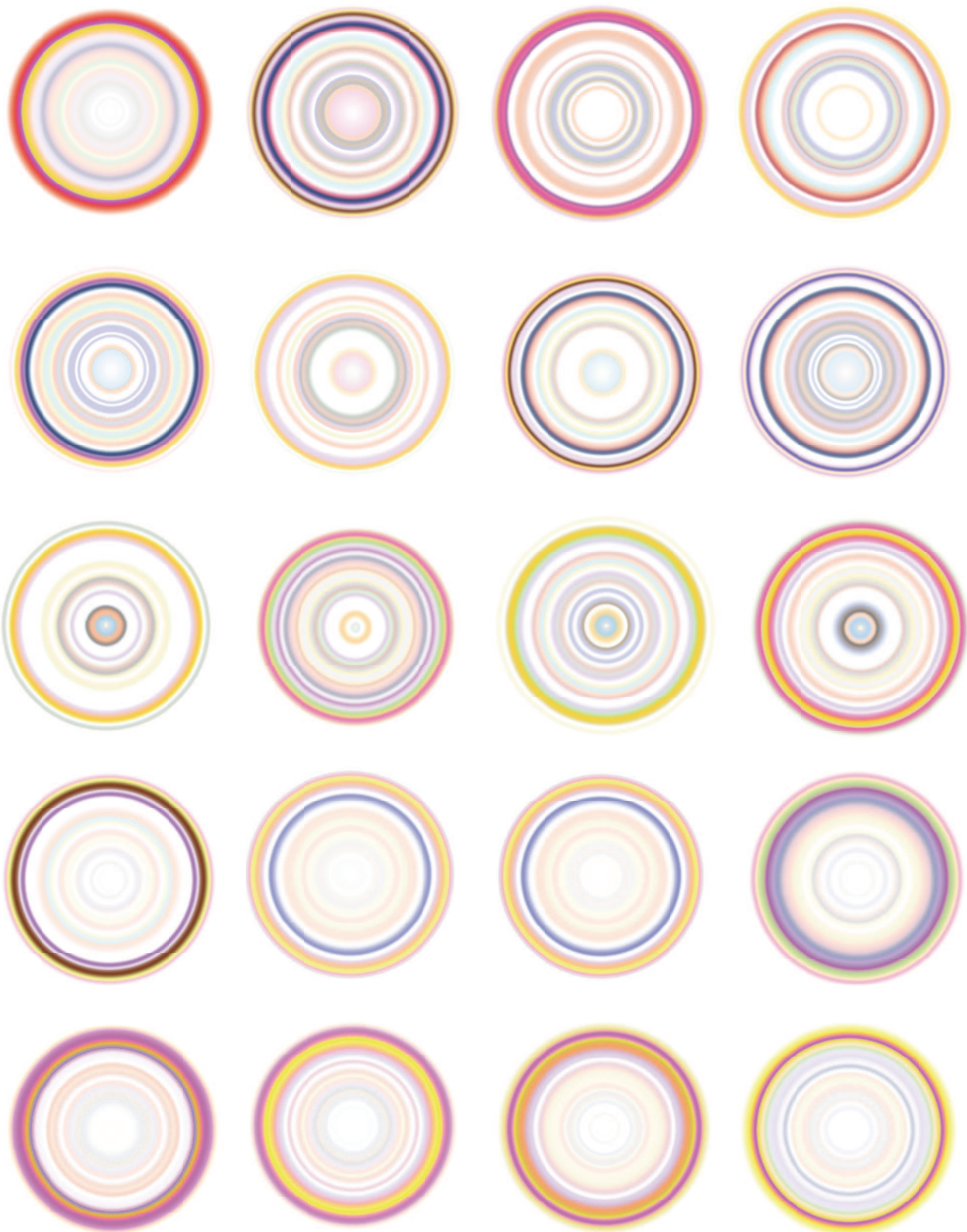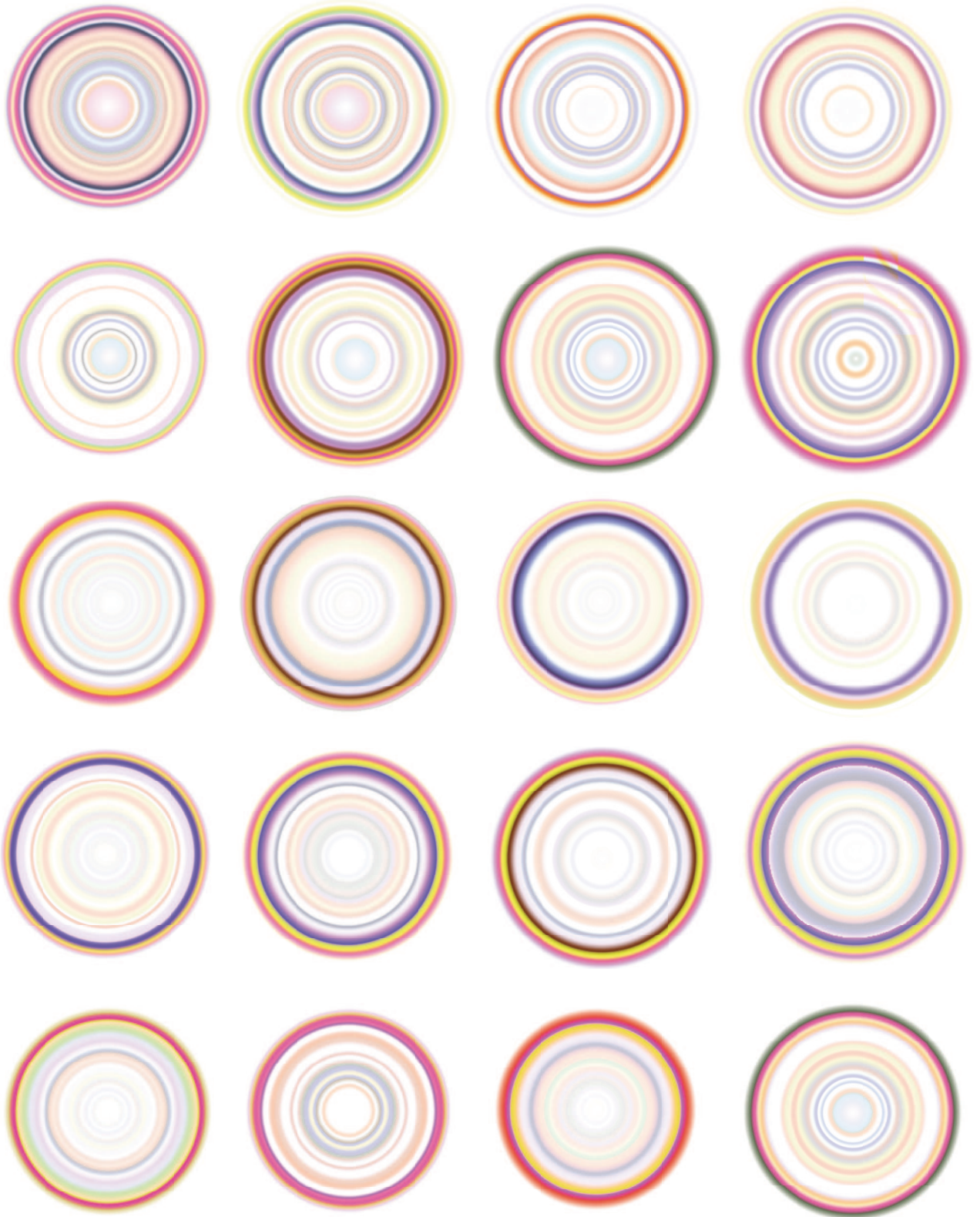
## Conclusion

The purpose of this experiment was to remove the shallow visualization aspect of dating applications and replace it with a more authentic abstract visualization artifcat. I had the opportunity to test the final product of the experiment in the Cyber Arts Gallery. Users responded positively to the auras created based off the data collected. Each user found it interesting that these were auras created off of dating profile information. Users also engaged with a QR code that linked to the survey I had built each aura off of —if I were to decide to keep going with this experiment this inforation would be useful. Users did wish they could pick multiple responses to each question, but I wanted to force the user to pick just one. Other users wished they could immediately see their data aura, which is something I would also like to see in the future. This contributed to displaying different ways we can visualize our data and made the users think about how their data is being used differently.

Aura of data.

# CONCLUSION

## What I've Learned About Data and Data Visualization

Data is everything. Data visualization can be anything. Although users don't control their data and what happens to it, they can control how they chose to look at its end output. How can data be less scary and easier for a user to understand when produced as a visualization? By taking back control. Data can be turned into an artifact or used to propel yourself forward. I can use my walking data to set goals, to take more steps or track my sleep schedule to catch more sleep. In doing that, are we not creating a real life data visualization? Throughout this thesis I asked the question; when do we begin to design in a way that connects people to numbers and behavior? I think we already are, but I think many of us do not realize we are.

As a designer, I am looking at social metrics all day to see which posts and ads are doing better. In turn, I am designing in a way that connects users to numbers and their behaviors by looking at what they like the best. My goal is to communicate with a larger audience by using design based on data set responses. We use data and data sets all the time, but do not realize it. My credit card score is data. My text exchanges to loved ones across the country are data. My transaction history is data. Even my Spotify playlists are data. If you looked through all of this, you would learn a lot about me. You'd see I buy far too many overpriced lattes. You'd see a carefully curated playlist of 60's and 70's dad rock, places

I like to eat, plane tickets for places to be seen. But, if this were all lined out in a spreadsheet or graph, you would have a hard time engaging with this information. Data makes all things possible, but complicated. It would be possible to get to know me via my data, but complicated to read. More is sometimes not needed. A simple visualization of this information could get the point across and make these data points easier to understand and relate to.

## What I Learned From My Projects

Throughout my research, I learned that data is tough to look at. Data is hard to work with. Data is scientific and concrete. I work in a way that is not scientific and concrete. I like to be abstract and conceptual. I hate giving reasons for why I did what I did because in my mind it isn't important. The only important thing is how the user looks at it. Data does not work this way. To conceptualize data was exhausting, but invigorating.. Data is an old concept. The way we are turning it into more engaging, meaningful concepts is new. There are clothing items now with data visulziations on them and even artificats like the ones created during this thesis. I'm not saying I'm on the cutting edge of anything, but ten years ago this wouldn't have been something worth talking about. When you are in art school, you are not taught that data is art. Painting, drawing, sculpture — those are the fine arts. Why isn't data? We can paint, draw and sculpt with data. Merging the two ideologies of science and abstraction is often unheard of.

## What Designers Need to Know about Data and Data Visualization

I learned that I do not know how to do everything. As a designer, it's our job and responsibility to know every technical in and out of a program. It's our job to have a laundry list of skill sets on our resumes. I had no idea how to use Max when I first started this program. I didn't even know what it was. When I first decided to be a graphic designer it was the same swift decision making as I had when entering this program. I remember sitting in Art Concepts asking the person next to me how to open a file in Photoshop. I also remember the look of shock on his face. We soon become friends after that and we look back and laugh about our first interaction. If you told me four years ago, I would be writing a thesis that used data and programming as its main components I would ask you if you were alright. Using Max also has helped me in my professional career. Just the other day I had to program a multiple tap AR filter. The backend had similar patches to Max.

*Designers need to live and die by data.* Data is our future. I think there is and will be a huge shift in design thinking. Agencies like Pentagram already see this. Giorgia Lupi is a pioneer of this. Designers need to use data as another tool in their toolbox of tricks. If designers can look at data and visualize it in a different way, their entire approach to design could change. When we open our minds to infinite possibilities we begin to see new possibilities and better processes and results.

## How to Teach Data Visualization

Once designers have this understanding, they could potentially go on to create or teach data visualization courses. These courses could entail exercises to visualize mundane details or our personal and daily lives. We can teach people to transform and abstract something that is uncountable and cold into something that can be seen, felt and connected to our lives. Designers can use the fine art principles already being taught in colleges and apply them to data visualizations.

## Where I Go From Here

I always thought I would enter a Masters program much later in life. I wanted to have a career as a designer and then become a professor. When the pandemic hit, I lost my job as a designer. I am someone who equates a portion of their identity with their career. Although I am still early on in my career, this seemed like a loss of identity in the context of my future plans. I think a lot of artists and designers have a hard time establishing who they are outside of their work. What their purpose is. What they should be doing. It had been a few months of wondering what I'm supposed to be doing. I am someone who needs to have control over most things. The pandemic showed me that isn't possible. I realized I have control over some things, but not all. Just like our data.

Nobody goes to grad school on a whim, but I have found most of my best decisions are usually ones

I make on a whim, when I am relinquishing my control to the universe. The input of this work resulted in a different way of thinking and looking at design. Every single project or case study I have conducted, I have battled with not knowing what exactly I am supposed to be doing. What are the rules? Are there rules? Is this ok to do? Does this make sense? This has allowed me to work in an experimental and abstract way. My constant need for control and understanding led me to my thesis.

## Final Thoughts

The ones who know how to program algorithms and use our data have an upper hand over the ones who don't. Companies use data every single date to control their next move. This is a scary reality — we live in a dystopian data driven world. We use this information as communication. Each data point has a story behind it. During the beginning of this journey, I wanted to know what the story behind the data is. The story behind every data point is a human. I wanted to control the visualizations of these data points to bring the human back into the equation. I have always had a hard time verbalizing what I am thinking. So it was no surprise to me that trying to decode data points into graphics and statistics didnt compute in my mind. I am a visual learner so this is why I did what I did. A data visualization holds the beauty of the human behind it. We as humans need to ask the right questions to get the data set and visualization we want. Computers can't ask the same questions humans can.

The Dynamic Media Institute is the same combination of science, technology and abstraction as this thesis has had. I learned that maybe I do work in a scientific research way, but output it in a conceptual abstract way that stays true to my artist and designer persona. I am excited to see where this degree and work leads my future self and my future work. I would love to continue working with data and outputting it in new forms with new more nuanced meanings, but at a larger, more interactive scale.

Dynamic Media is constantly updated. Dynamic Media is interactive. Dynamic Media, much like data, is ever changing. Dynamic Media, much like data, facilitates interaction between users and forever will be in the same space as humans and data. Dynamic Media created a space for me to explore the space between the data and the human. There is beauty within the data without having to be analytical and super specific. This can and will continue to be translated into new artifacts.

I don't think any artist is ever satisfied with their work. We always want more time. More tweaks. More. I am always going to want more of my work, but that is what catapults me into new directions. I wanted more out of myself when I decided to embark on Mass Art. I didn't want to be just a designer. I wasn't satisfied with what I was doing. Never being satisfied is exhausting, but at the same time extremely rewarding. If I was satisfied with my life two years ago, I wouldn't be writing this thesis. If I am not satisfied with this body of work just yet, I wonder where this work will be two years from now.

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Cover design by Meghan Quinn
Book design by Meghan Quinn

This book is submitted in partial fulfillment of the requirements for the degree of Master of Fine Arts in Design at Massachusetts College of Art and Design.

This book is set in Calluna 12/16 pt.
This book is set in Roboto 31/43pt.

Printed in the United States of America

Boston, Massachusetts