

Proposal for

Data_scapes: democratizing data literacy through heterodox information propagation methods

Work presented to Santo Romano

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by

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Introduction

Digital data holds an ever-increasing importance in our lives. Myriad publications are already diving into glimpses of a global and growing issue, namely that of data collection, data modeling, and datasets' unarguable biases. Though comprehensive, these resources are not meant for mainstream consumption. Complex articles are usually shared within expert communities already familiar with the topics' jargon. While ultimately accessible, the overwhelming quantity of complex information renders most users indifferent about learning more on the impacts of one's own data. The public therefore generally remains unaware of the extent to which information culture impacts their lives on an individual, community, and societal scale. Though data_scapes is a multifaceted research endeavor, this portion of the project will focus on developing data literacy through heterodox paradigms of knowledge. Through decentralized, interactive and narrative-based means of information propagation, this portion of data_scapes aims to foster critical thinking for users who may not otherwise access the information.

Research Questions

1. How do we make esoteric information about data culture, namely its collection, its usage, and its biases, more accessible to the public?
2. How can we make nonlinearity and interactivity redefine our methods of information propagation?
3. How can we personally engage users on the impact of their data on an individual, community, and societal scale?

Literature Review

Extensive inspiration for data_scapes takes its genesis from Visual Complexity, a "map of maps" (Lima 16). The project is a repository of several thousand data visualization projects, specifically networks, which namely acts towards data visualization literacy and data

decentralization. In the book of the same name, the project's main creator, Manuel Lima, discusses how novel data visualization methods embed science, art, and design to create an interconnected, free and decentralized way of approaching information. He explains that if one understands science as the discovery of new knowledge, design as helping users see the pattern in utilitarian ways, and art as the aesthetically pleasing "product of nonutilitarian activity" (Lima 12), then data visualization can be understood as the overlap of all three. Indeed, the visualization of new information and knowledge should not only be useful, but it should also have an affect on its viewer; the aesthetics of visual representation of novel information are important because it will impact its useful interpretation from the person who consumes it. Lima also explores the living nature of the web, more specifically the "interconnected information organism of free expression" (Lima 56) that is the ever-changing nature of the Internet. He explains that, helped by the "social architecture" (Lima 61) of the Internet, we are moving from a documentcentric web to a "pulsating ecosystem of data" and a "truly ubiquitous datasphere" (Lima 57). Indeed, the hyperlink foundations of the web creates an environment where hierarchy can be reshaped into a horizontal rather than vertical mode of propagation. This decentralized information structure, Lima explains, is as much an aesthetic choice as an ideology. Indeed, while the historical graph techniques "fit the scientific paradigm of reduction (breaking nature down into the simplest possible elements...), our current interest lies in understanding the phenomena of complexity" (Lima 12). By avoiding the hierarchization of information, one enables a more nuanced and complex reality to unfold within data visualization methods.

These ideas of data maximalism and data affect from aesthetics are paralleled in *Data Feminism*, a book by D'Ignazio and Klein, about the use of data within intersectional and diverse means of propagation. In their article '*On rational, Scientific, Objective viewpoint from mythical,*

Imaginary, Impossibly Standpoints’, they namely target how information visualization has historically erased outlier data and taken a minimalist approach to designing big data, as well as explaining how data objectivity is unattainable and should not be sought. Quoting Harraway, the authors point out that data visualization is "the god trick of seeing everything from nowhere" which “masks the people, the methods, the questions and the messiness that lies behind clean lines and geometric shapes” (D’Ignazio and Klein 76). By this is meant that what appears in visualized information and statistics, which are understood to be objective, only consists of a partial perspective, and do not consider the messiness that textured lived experience add to data. The authors further this argument on data's neutrality pretense by pointing out the "unemotional visualization are not neutral, but are actually extremely persuasive" (D’Ignazio and Klein 82) in making people think they are objective. Moreover, they argument that "the belief that universal objectivity should be our goal is harmful because it's always only partially put into practice (D’Ignazio and Klein 83) and that the key to fixing this issue is to acknowledge that all works come from individuals with their own set of biases and personal horizons. They also mention that "deliberately embracing emotions ... enables a valuable form of data maximalism, one that allows for multisensory entry points, greater accessibility, and a range of learning types" (D’Ignazio and Klein 88). In other words, the use of emotive data visualization helps more people understand and gain greater personal affect about the information being consumed, as opposed to 'dry' big data in the form of quantitative and over-simplified minimalist and unintuitive graphs.

Methods

This iteration of data_scapes will focus on data literacy through heterodox paradigms of information propagation, in which this specific's section will aim at presenting a user experience

that brings esoteric information to a level that is digestible by the public by means of interactivity and non-linear presentation. In order to rethink how information can be shared in ways that foster individual critical thinking, non-linear bite-size data entries will be arranged in interconnected nodes. In each of the nodes will be presented one aspect of the research, from conceptualization to literature review of different theories and projects that have inspired data_scapes' development. Although the user will first connect on the web Site's main data_scapes platform, where different mapped data projections will be presented, they will be able to zoom out of that specific 'node' and access a greater rhizome of information to engage with, upon scrolling down. This zooming interaction is important as the goal is to amplify how every project or data point belong in a greater cloud of contextual information. Upon hovering over the nodes, their shapes would get slightly bigger, highlighting a pull-quote which would enlarge into the full 100-200 words paragraph when clicked. Paths to all nodes connected to the zoomed-in information excerpt would be made available, giving the opportunity for the user to customize their own reading journey within the available texts.

While the zoom in/out effects and the general interactivity of the platform would be done mostly through HTML, CSS and script codes, I was also inspired by the Do Not Track docuseries, which targets non-experts by presenting data culture information through dynamic content customized by the user's own personal data and input throughout the viewing (Do Not Track). By adding physics and draggable elements, the interactive docuseries gamifies its content ever so slightly as to engage the viewer's attention and need to entertainment. However, the effort is subtle enough that the experience does not revolve around play; the user is still embedded in the learning experience, while staying captivated by it through means of interaction and dynamic elements. These affected effects parallel the goals of data_scapes; to be able to

entertain the idea of learning for one's own sake through more individual and customized methods of approaching new and complex information. These physics and more complex interactivity experiences will be added with the matter.js library in data_scapes. Through different scripts, CSS animations, specific and novel interactivity and animations, data_scapes will be able to make viewers engage with the information in a way that will make them want to come back for more, as opposed to overwhelm them with long, static, and complex information.

Works Cited

D'Ignazio, Catherine, and Lauren F. Klein. Data Feminism. The MIT Press, 2020.

Gaylor, Brett. Do Not Track Documentary Series. Arte, NFB, et al., 2015.

Lima, Manuel. Visual Complexity: Mapping Patterns of Information. First paperback edition, Princeton Architectural Press, 2013.