

WHY OCCUPY:

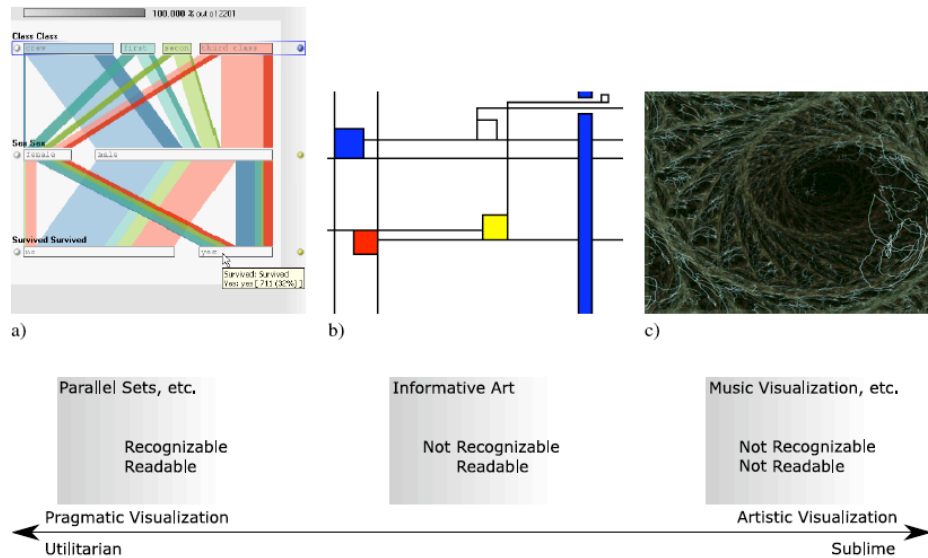
Mining the emotional web

Data visualizations are a rare hybrid of aesthetics and function. In their multi-disciplinary approach to the communication of information, they challenge designers to navigate in the spaces between the fields of theory and practice.

In Visualization Criticism - The Missing Link Between Information Visualization and Art, Robert Kosara provides the aesthetic criteria necessary to classify information visualizations and stresses the importance of critiquing with an eye towards art theory.

Information visualizations can be divided into two main cultures: utilitarian, an aesthetic belonging computer programmers with little to no artistic background and the sublime, a visualization that engages like a work of art, but is indecipherable.

In the image below, Kosara shows the scale ranging from Pragmatic Visualizations (Utilitarian) to Artistic Visualizations (Sublime).



Information visualizations exist in fields of study ranging from social work, computer science, to illustration and design. Kosara breaks down a visualization to have the following criteria:

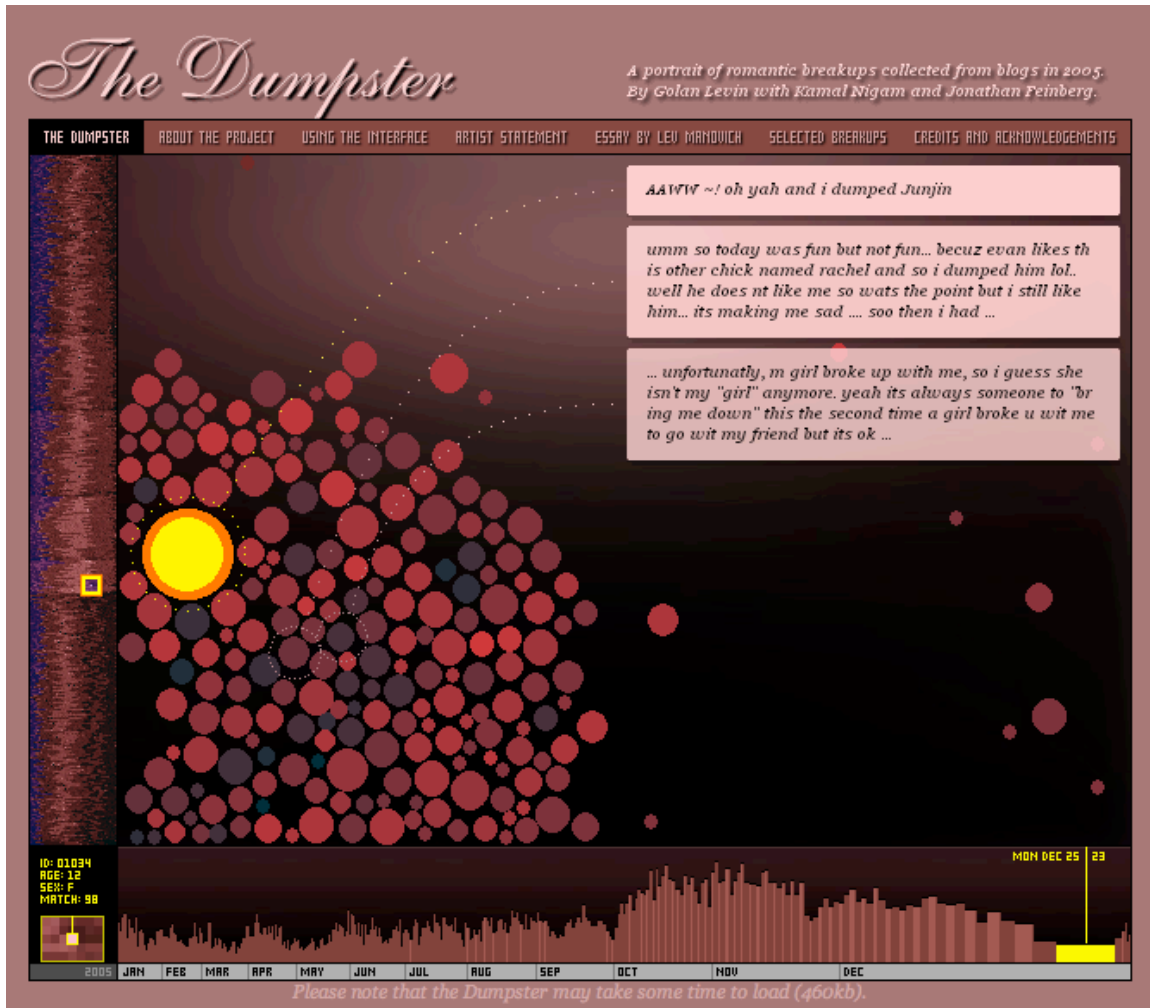
It is based on (non-visual) data. The data to be visualized must come from outside the program, and the program must be able (at least in principle) to work on different data sets. Also, visualization is not image processing or photography; if the source data is an image and is used as an image in the result, it is not being visualized.

It produces an image. Clearly, each visualization has the goal of producing one or more images from the data, and the visual must be the primary means of communicating the data. Other media can be part of a visualization, but the visualization must be able to stand on its own.

The result is readable and recognizable. There are many ways to transform data into images, most of which do not allow the viewer to understand the underlying data. A visualization must produce images that are readable by a viewer, even if that requires training and practice. Visualization images must also be recognizable as such, and not appear to be something else. The use of additional elements (or even “eye candy”) is certainly possible, but must not take precedence over the communication goals of the visualization.

An example of an artistic visualization is Golan Levin, Kamal Nigam, and

Jonathan Feinberg's [*The Dumpster: A portrait of breakups collected from blogs in 2005*](#). Kosara uses *The Dumpster* as an example of how data collection is used in an artistic visualization where visual efficiency is secondary to meaning.

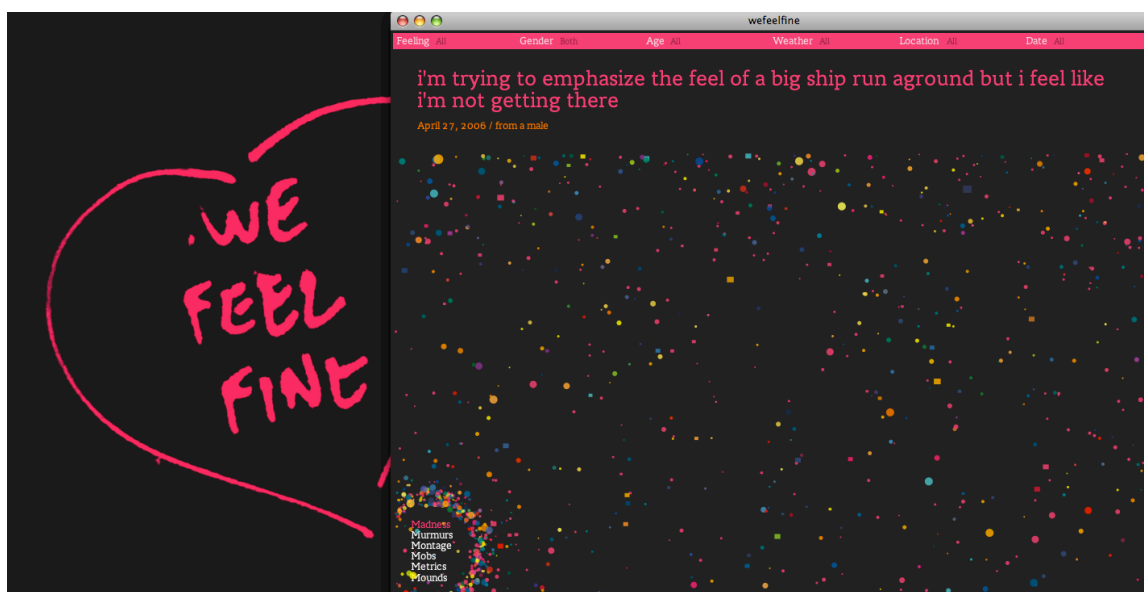


In the essay [*Social Data Browsing*](#) for *Intermedia Art*, Lev Manovich compares *The Dumpster* to art forms such as portraiture, documentary and database art, but says that it is in its own category that he calls a "social data browser."

Using a variety of methods, Levin and his collaborators have filtered the huge data space of online blogs isolating the postings from 2005 where teenagers narrated their breakups. The result was 20,000 postings describing 'confirmed' breakups. These postings were subjected to further analysis in order to derive various metadata about them: reasons for the break-up, who broke up with whom, the

age and sex of the author, as well as their emotional state. Most of this metadata was not explicitly contained in the postings but is inferred with a high degree of probability by the project's authors.

Industrial strength data mining was used to create *The Dumpster*, which allows the viewer to "navigate both horizontally, vertically, and diagonally between the particular and the general...the subjective experience and the social facts - are brought together via the particular information architecture and navigation design."



[We Feel Fine](#) by Jonathan Harris and Sep Kamvar is a visualization that is "an exploration of human emotion in 6 movements." In the accompanying essay [We Feel Fine and Searching the Emotional Web](#), Harris and Kamvar say that the visualization is "an emotional search engine whose mission is to collect the world's emotions and help people better understand themselves and others." Data is collected by mining the internet for instances of "I feel" or "I am feeling" and the gender, age, and location of the author.



Figure 11: The Emotional Graph

The Emotional Graph. Figure 11 shows emotions that are frequently co-expressed in the same sentence [12]. It shows that there are strong relationships between anger and depression, disgust and shame, and happiness and gratitude. Moreover, it shows that broadly, positive feelings tend to not co-occur often with negative feelings, with a few exceptions. While there exist studies that show connections between anger and depression [18] and gratitude and happiness [24], this graph suggests links that are less well-studied, such as pride and shame.

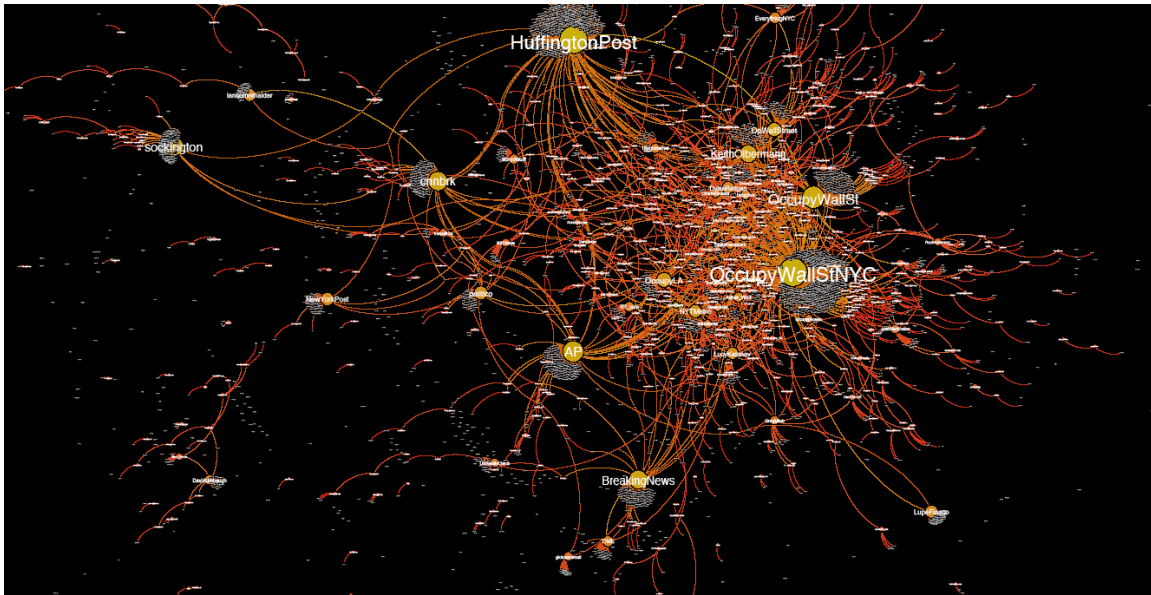
Lev Manovich compares this kind of interactive visualization where the user can switch between macro and micro interfaces to film techniques that allow the editor to cut between a close-up and a shot of the crowd, allowing the viewer to see the "particular" and the "general" without one subsuming the other. He asks if the same is possible with computer graphics and what the result would be with tools used to scrape large data sets created by

social media networks such as Facebook, Twitter, and Flickr?

Can computer media be used to create artistic representations that link the individual and the social without subsuming one in the other, i.e. the particular in the general? If we consider the range of computer techniques available for organising and viewing data, things look quite encouraging. We can switch between multiple views of the same data, traverse the data at different scales, and move between multiple media linked together. And we can do this in near or close to real time. We can also instruct software to search through and mine very large amounts of data – such as the data produced by the millions of real people who engage in online chat, write blogs, send emails, upload their photos on Flickr and so on. What types of representation can be created if we combine these computer techniques and new ways of gathering data as well as of structuring and displaying it?

[The Why Axis](#) is a blog created by designer Bryan Connor, a designer and developer from Baltimore that is "a collection of in-depth writing about curated data visualization projects." In his blog post [A Movement in Numbers: Occupy Wall Street](#), Connor curates data visualizations ranging from the pragmatic to the sublime from Business Insider, Social Flow, and Recorded Futures.

Originally, I wanted to create a visualization of the [Hundredth Monkey](#) concept or more commonly known as the [Tipping Point](#) of the Occupy Wall Street movement. Instead of starting from scratch, a quick Google search revealed tools like Recorded Futures that allow the public to aggregate and analyze web data. Here is a [timeline](#) showing the evolution of the Occupy Wall Street movement with the functionality of filtering it through several visualizations from timelines to tree maps.

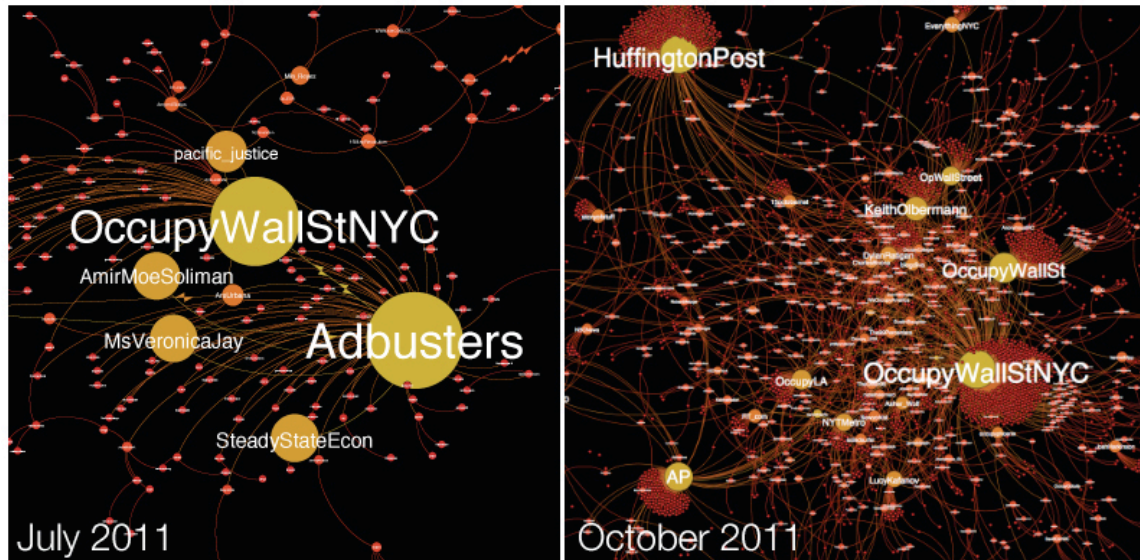


This visualization created by Social Flow shows the narrative of the #Occupy hashtag and the different media sources responsible for its proliferation. [Link to pdf](#)

Here is a description of the visualization from Social Flow:

The size and color of the nodes represent their importance in spreading the word (specifically, their eigenvector centrality measure). The lighter and larger a node is, the more influential it is in terms of spreading the information.

Here is a visualization of the #Occupy Wall Street tweets between July 2011 and October 2011.



 SOCIALFLOW

Other visualizations include 40 charts created by Business Insider to show what the ["Wall Street protesters are so angry about."](#) Clearly tipping the utilitarian scale.

Let's start with the obvious: Unemployment. Three years after the financial crisis, the unemployment rate is still at the highest level since the Great Depression (except for a brief blip in the early 1980s)



Image: St. Louis Fed

What's missing from the Occupy Wall Street visualizations is that they do not allow navigation between the particular and the general. Lev Manovich mentions the photographs of Andreas Gursky that reduce people in a crowd to pixels, patterns, and shapes.



Occupy Wall Street is a revolution of the Internet era and perfect for the industrial strength data mining used in projects like *The Dumpster* and *We Feel Fine*.

Imagine the emotional responses to a day like November 17th - the two month anniversary for Occupy Wall Street and a national day of action. Some of Social Flow's analysis revealed the difficulty of trending a topic in Twitter. Twitter was accused of censorship since something more obscure like #takewallst was trending more than #occupywallst, but perhaps exploring the emotional landscape of a day like November 17th that inspired countless events of civic action nationwide would reveal on an emotional graph surprising correlations within the Occupy movement.

The best way to understand the Occupy Wall Street movement may be

through the analysis of data visualizations. As a revolution rooted in social media, the data sets for Occupy Wall Street could be mined to reveal the intangible and abstract sources of waking up, critical consciousness, and the call to action. The anonymity of a project of *We Feel Fine* does not diminish its ability to give the sense of interconnectedness.

Here is a photo of the Brooklyn Bridge on November 17th at the end of the Occupy Wall Street day of direct action. With an event of this multitude, the multi-disciplinary and interactive design of a data visualization has the capacity to display the diversity of its participants through a display of images, tweets, status updates - any kind of digital information much more so than a photograph or even a video could reveal.



What were the images, thoughts, and feelings of each member of the protest that day whether in the morning crowds at Wall Street or late in the evening on the Brooklyn Bridge? With data visualization, the possibility of tracking the driving force behind mobilization is possible through the creation of specific information architecture that allows the user to navigate through a media landscape inundated with information. The ability to cut between the particular and the general, the individual and the

anonymous, and wander through the spaces in between is peculiar to the art form of data visualization.

In the conclusion to Kosara's article, he writes:

The ultimate goal of visualization criticism is to provide building blocks for a theory of visualization. Criticism is where theory and practice meet, and each is used to develop, evaluate, and validate the other. Impulses for new ideas on both sides come from criticism, through the friction that is caused when bringing the two together.

The tools for social media are so new that it makes sense that data visualizations and the language to critique it are in a state of constant friction, relying on each other to interpret data in the attempt to discover something new.

~ Christine Zenyi Lu