MAKING DATA FELT:
UNTITLED BOMBARDMENT VISUALIZATION

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Abstract

Untitled Bombardment Visualization is an experiment in translating statistical information on aerial bombardments into an affective, visceral, emphatic experience that captures some of the faceless data's disruptive violence. The artwork mines data regarding the time/place/duration/intensity of aerial bombardments, which is visualized using a custom-made laser engraver that burns the data points into the surface of a topographical map of the region. The visualization piece thus "performs" a tangible and emotionally charged reenactment of the destruction engendered by the data, aiming to lend a body, shape, and smell to the otherwise anonymous and faceless statistical data of aerial bombardments.

Keywords

Data Visualization, DIY, laser cutting, affect theory, statistics.

Project Description

MAKING DATA FELT is an installation-based research-creation project of experimental data visualization, designed to explore the affective dimensions of statistical information. The project appropriates low-cost DIY 'maker tools' such as laser engravers, 3D printers, CNC milling devices, and thermal printers for the creation of relatable, open-access data visualization solutions that allow me to 'make data felt' by highlighting the social, political, and ethical stakes that we often overlook in statistical information.

The visualization experiments are designed to yield critical and aesthetic artifacts based on statistical data that is otherwise presumed to be disembodied, alienating, and impersonal. How, I ask, can we translate impenetrable statistical information back into meaningful affective experiences and artifacts? MAKING DATA FELT foregrounds the critical, cultural, and social stakes encoded in such data, and seeks to reverse the obfuscatory, dehumanizing effects of numerically encoded statistics.

The first iteration, "Untitled Bombardment Visualization," mines publicly available data regarding the time/place/duration/intensity of the 2014 aerial bombardments of the Gaza Strip, and converts this information into a durational 2D vector file that is used by a custom-made laser engraver to burn/etch the data points into custom-printed paper maps of the region, partially destroying the maps in the process. The installation thus 'performs' a tangible and emotionally charged reenactment of the destruction encoded in the statistical information, and lends a body, shape, du-ration, and smell to the otherwise faceless data. My visualization tool yields 3 types of experiential artifacts, each emphasizing affective dimensions of the visualized data:

1) A live 'performance' in which the laser engraver burns/etches information of the bombardment events onto custom-printed paper maps. The performance is accurately scaled to represent duration and intensity of the bombardment events.

2) Scorched maps inscribed with 'statistical data points' that are translated into visible, touchable, smelly burn marks, to be framed/exhibited.

3) HD video documentation of the engraving/burning performances, designed to magnify the details of the paper maps and to further bridge the gap between data and experience.

Process/Methodology

Statistical data on the bombardment to be visualized in Phase 1 is made freely available by the United Nations Office for the Coordination of Humanitarian Affairs (UNOCHA), and consists of geographical coordinates, dates/times, and an 'intensity scale' derived from UN-owned satellite imagery and statistical information gathered by UN ground staff. The information is provided in a disembodied numerical shape that alienates us from the human suffering of the victims and from the scale and socio-cultural impact of the events. MAKING DATA FELT retranslates this information into meaningful, relatable, affective experiences.

The first project stage is an experimental visualization device (described above) that can be applied to an open-ended variety of different visualization scenarios. The installation consists of a custom-built laser engraver attached to a laptop and a macro HD video recording device. In a 3-step process, statistical numerical information is converted (using a custom-written Processing sketch) first into CVS (comma-separated value) files and then into standard g-code vector files that can be plotted using the laser engraver. All required software tools (Pure Data, Arduino, Grbl, and Inkscape) are open source and freely available, and my original scripts will be shared upon completion, with the

hope that they will be useful for other 'affective mapping' and experimental visualization projects.

Rationale

MAKING DATA FELT is inspired by the observation that statistical information often alienates us from the cultural, social, and political contexts of the events to which the data refers. "Untitled Bombardment Visualization" aims to explore ways of retranslating disembodied geographies of anonymous numbers into an affective geography of destroyed residences, collapsed schools, and ruined public infrastructure.

Overall, this experimental visualization tool functions as a kind of 'instrument' – not unlike the torture machine in F. Kafka's novella "In the Penal Colony" – which can be used to document, reenact, and narrate traumatic events recuperated from the invisibility of the statistical record. This kind of visualization is highly visceral – smelly, blinding, messy – just like the events to which it refers.

Beyond Phase 1 of the project, my long-term goal is to collaborate with others in building additional visualization devices that use other accessible crafting tools (such as CNC mills, thermal printers, and 3D printers), which will be deployed for appropriate, medium-specific visualization projects (focusing, for example, on ecological disasters, on urban development, or on crime statistics). Part of the theoretical dimension of the project will be to explore how the tangibility and immediacy of craft-based visualization methods impacts our emphatic/affective responses to statistical data. How, in other words, can we make such tools useful for translating disembodied, 'sterile' data into affective experiences? I am particularly interested in applying a growing body of scholarship from media theory and affect theory to the exploration of tensions between the statistical (data) and the material (artifact), and to consider the power of the digital (code) to conjoin these phenomenologically distinct arenas. The project thus hopes to overturn perceived incompatibilities between the materiality of making/crafting/working and the immateriality of information.

Author Biography

Martin Zeilinger holds a PhD in Comparative Literature (Univ. of Toronto) and teaches at the Ontario College of Art & Design and at the University of Toronto. He is the co-director of the Toronto-based *Vector Game Art & New Media Festival*. His film and video work has been shown in Canada, the US, and Europe, and he appears as a live coding performer under the pseudonym *st01c*.

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