Visual Showcase: An Illustrative Data Graphic in an 18th-19th Century Style

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Visual Showcase: An Illustrative Data Graphic in an 18th–19th Century Style

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Abstract

We exhibit an data graphic poster that emulates the style of historic hand-made visualizations of the 18th–19th century. Our visualization uses real data and employs style elements such as an emulation of ink lines, hatching and cross-hatching, appropriate typesetting, and unique style of computer-assisted facial drawings.

1 Introduction and Motivation

Illustrative visualization as an NPAR application domain has a two-fold design space. Typically it uses principles from traditional illustration to improve computer-generated visualization [Rautek et al. 2008]. However, sometimes it can also be its graphical style that makes a visualization an illustrative one—the visual style and the design principles being employed [Agrawala et al. 2011] then representing the illustrativeness (and added usefulness) of a visualization. Thus aspects of CAE also play a role in illustrative visualizations, and the specific style in an illustrative visualization can affect a viewer’s perception and cognition as Agrawala et al. [2011] argue.

As an example in this second part of the illustrative visualization design space we created a poster (as an output of an implemented visualization tool) that aims to re-create the visual style of the historic hand-made visualizations of the 18th and 19th centuries, such as the ones by Minard (e.g., Fig. 1), Playfair, Priestley, and Nightingale. These early infographics have generated considerable interest among visualization researchers and are generally seen as compelling. Thus inspired by the example visualizations, we used a unique style of computer-assisted facial drawings.

Figure 1: Minard’s visualization of Napoleon’s 1812 Russian campaign, published in 1869. The image is in the public domain.

2 General Design Principles & Realization

Rather than making up fake data suitable for depiction, our visualization is based on real data: publications, collaborations, social media activity and repository use, travels, calendar events, and yearly portrait images. In contrast to, e.g., many of Minard’s visualizations (e.g., Fig. 1), ours thus focuses on time instead of space (and time) and the specific style in an illustrative visualization can affect a viewer’s perception and cognition as Agrawala et al. [2011] argue.

As an example in this second part of the illustrative visualization design space we created a poster (as an output of an implemented visualization tool) that aims to re-create the visual style of the historic hand-made visualizations of the 18th and 19th centuries, such as the ones by Minard (e.g., Fig. 1), Playfair, Priestley, and Nightingale. These early infographics have generated considerable interest among visualization researchers and are generally seen as compelling. Thus imitating their style may entice people to spend more time engaging with the data. Our work arose as a lab-wide effort to create such an aesthetically pleasing and engaging visualization of personal data on the occasion of our visualization team leader’s 50th birthday. Almost all lab members participated in obtaining the necessary data, implementing the visualization elements, and realizing the visual target style. In the following we briefly outline the general design principles that we employed and provide some details on some of the expressive style elements that we used.

3 Poster

The poster we exhibit in the visual showcase (shown on the following page) is printed in landscape format on roughly A0 size (precisely 112 cm × 82 cm including the frame) to be large enough to be readable. The original poster is set in a wooden frame that also resembles those from the target period. With this exhibit hope to start a discussion at the conference on illustrative visualization and the use of expressive techniques in the different visualization domains.

References


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