Week (13) - "Techniques for Flexible Responsive Visualization Design"

Khulood Alkhudaidi

Building responsive visualizations is very important now as mobile devices are used more than computers for viewing news articles. In this paper, the researchers analyzed many responsive visualizations from different news articles to learn the common design practices of designing responsive visualizations. Not only that, but also they interviewed some of the designers of these visualizations. As a result, they specified four design guidelines and built a design tool that facilitated the design of across-device visualizations. These guidelines are:

- ***Enable simultaneous cross-device edits*** to make the process of exploring multiple devices easy.
- ***Facilitate device-specific customization*** to facilitate customizing a specific part of visualization for a particular device.
- ***Show cross-device previews*** to view the customization across different devices.
- ***Support propagation of edits*** to reduce both time and effort in designing responsive vis.

The proposed tool allows designers to have multiple views. Each view for a particular device size. Also, they can propagate changes to multiple views or customize them for a specific view. The following figure explains the details of the tool.

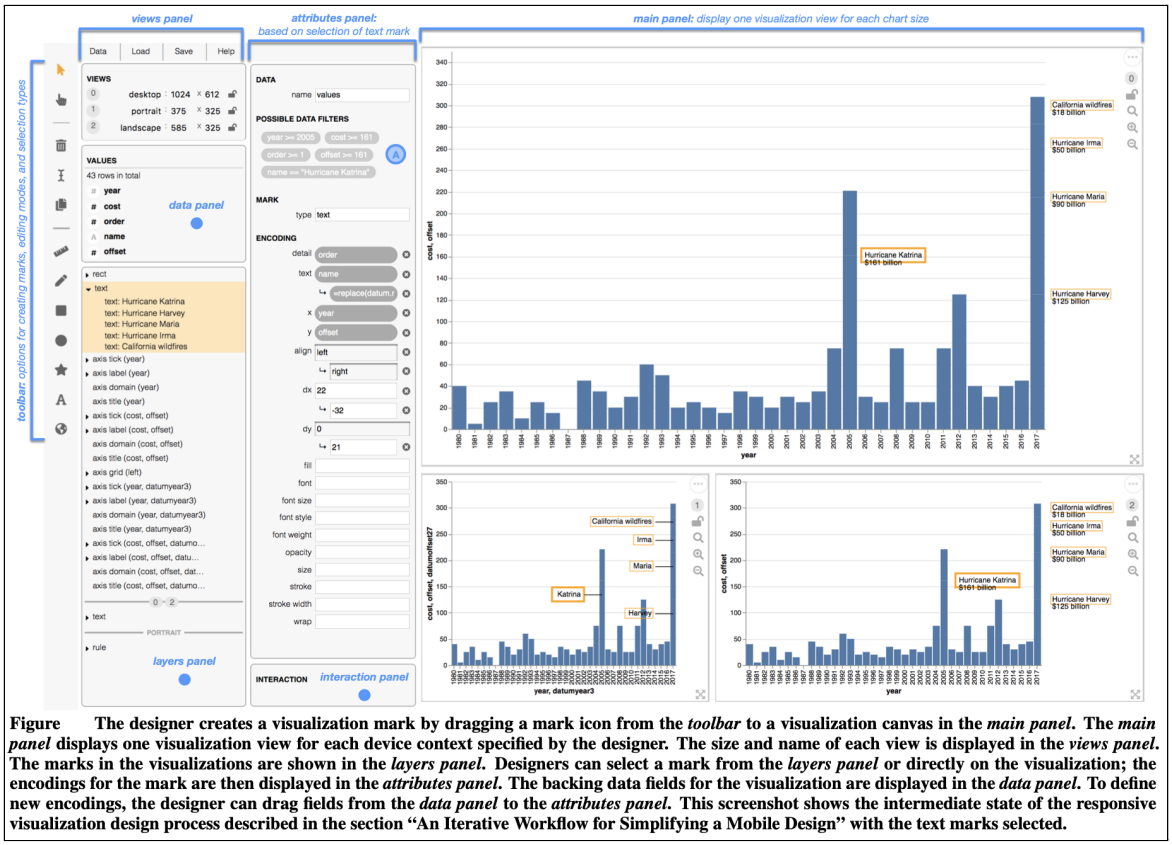

Figure The designer creates a visualization mark by dragging a mark icon from the *toolbar* to a visualization canvas in the *main panel*. The *main panel* displays one visualization view for each device context specified by the designer. The size and name of each view is displayed in the *views panel*. The marks in the visualizations are shown in the *layers panel*. Designers can select a mark from the *layers panel* or directly on the visualization; the encodings for the mark are then displayed in the *attributes panel*. The backing data fields for the visualization are displayed in the *data panel*. To define new encodings, the designer can drag fields from the *data panel* to the *attributes panel*. This screenshot shows the intermediate state of the responsive visualization design process described in the section "An Iterative Workflow for Simplifying a Mobile Design" with the text marks selected.

Using the proposed design tool, the researchers recreate some of the visualizations they got from the news articles. Their goal was to show the efficacy of their proposed system.

All the features provided by this tool are fascinating. The designer no longer needs to repeatedly change the screen's width to ensure that things look good for all sizes or make customization for each screen separately.

Sources:

1. Jane Hoffswell, Wilmot Li, and Zhicheng Liu. 2020. Techniques for Flexible Responsive Visualization Design. DOI:https://doi.org/10.1145/3313831.3376777