Demonstrating the Value of Visualization:
Highlights from the PacificVis 2017 Visual Data Storytelling Contest

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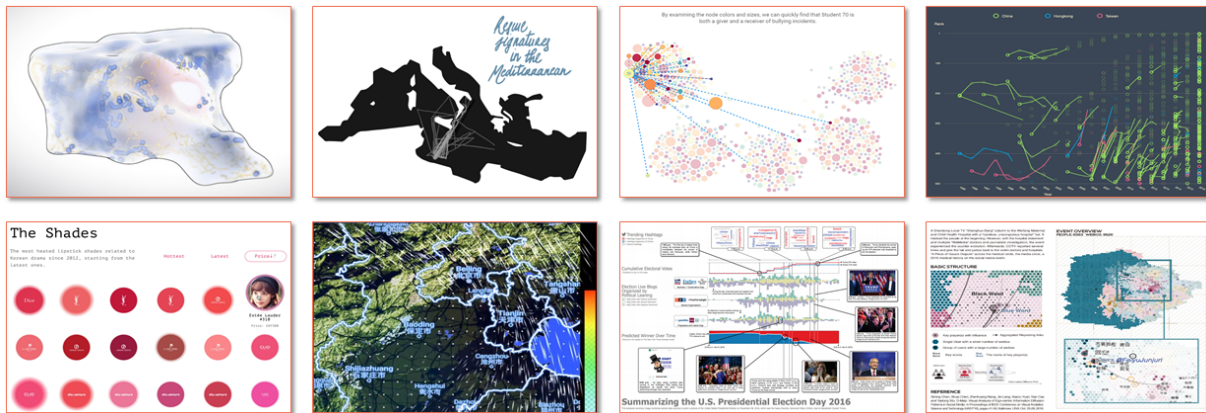
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Figure 1: Frames from the eight accepted submissions to the PacificVis 2017 Visual Data Storytelling Contest. Clockwise from top left: *Birth of a Virtual Cell*, *Rescue Signatures in the Mediterranean* (an honorable mention recipient), *Bullies and Victims* (the winning contest entry), *Rise and Fall of Greater China's Economy*, *Ferment and Counter Revolution*, *Summarizing the U.S. Presidential Election Day 2016*, *How Wind Affects Air Pollution in Beijing*, and *The New "Lipstick Effect."*

ABSTRACT

Data-driven storytelling is an increasingly popular topic in the visualization research community and a maturing art form in the visualization practitioner community. We describe an open-ended contest dedicated to visual data storytelling, one that took place at PacificVis 2017. We received 15 submissions that varied in terms of topic, visual representation, narrative structure, and presentation medium. A panel of judges recruited from the visualization practitioner community reviewed these submissions, and eight submissions were presented at PacificVis. We reflect on the contest and submissions with the aim of furthering the conversation in the academic community about storytelling with visualization.

Keywords: Storytelling, narrative visualization, visual communication, presentation, data video.

1 INTRODUCTION

The use of visualization to tell data-driven stories is an emerging topic of interest in our research community [1, 2]. This interest in visual storytelling with data is notable for a community that has traditionally focused on the role of visualization in exploratory data analysis and how people find insights, rather than on the role of visualization in communicating known insights to an audience. An increase in visualization research focusing on storytelling also mirrors the rise in the number of visualization practitioners in recent

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years, the prolific visual storytelling efforts by news organizations and design agencies, as well as the establishment of non-academic conferences and award events devoted to this emerging practice.

In an effort to demonstrate the value of visualization through visual data-driven stories, we established an open-ended visual data storytelling contest, which was held at the PacificVis conference in April 2017 (http://pacificvis.snu.ac.kr/cfp/contest). The contest submissions as well as the reactions from a panel of judges recruited from the visualization practitioner community have provided us with a diverse set of interpretations of storytelling with visualization. In this poster submission, we describe the contest, profile the eight accepted submissions, and call for participation in future contests. The overarching research contribution of this contest is threefold: (1) to collect and archive visual data-driven stories that can demonstrate the value of visualization; (2) to further a critical discussion as to what it means to tell stories about data with visualization; and (3) to identify approaches and trade-offs for visualization design in storytelling contexts.

2 CONTEST DESIGN & PROCESS

The purpose of the contest was to encourage students, researchers, artists, and journalists to demonstrate the value of visualization through effective visual data storytelling. Thus, the task was to tell a story by communicating a set of insights derived from the data.

We announced the contest via social media and research community mailing lists. Unlike other visualization contests such as the VAST Challenge or the BioVis contest, we did not provide a dataset or a topic a priori: those submitting to the contest were free to select any publicly available datasets and address any topics that motivated them. We also did not specify any particular story medium, such as a video, a presentation, a comic, or a poster. However, we placed three restrictions on contest entries: 1) stories were to be original in that they should not have been previously published elsewhere; 2) they were to stand on their own without an accompanying article; and 3) in whatever form they took, the stories were

Title	Authors	Link (Medium)
Contest Winner: *Bullies and Victims: How Bullying Incidents Vary in Grades and How They are Reported*	O.-H. Kwon, J.-K. Chou, and K.-L. Ma	`http://kwonoh.net/bullying` (interactive)
Honorable Mention: *Rescue Signatures in the Mediterranean*	J. Boy, K. Hoffmann, F. Zerbe, A. Vacarelu, and M. Luengo-Oroz	`https://vimeo.com/220376828` (video)
Summarizing the U.S. Presidential Election Day 2016	C. Bryan, K. Dasu, S. Divakarla, and K.-L. Ma	`https://flic.kr/p/VARn3g` (poster)
The New "Lipstick Effect" - Hit Korean Drama Boosts Sales of Lipstick Products	F. Fang and W. Zhang	`https://feifang.github.io/New-Lipstick-Effect/` (interactive)
Ferment and Counter Revolution: A Visual Storytelling for "Gauze Event" in Social Media	Z. Jiang, S. Chen, S. Chen, Y. Sun, and X. Yuan	`https://vimeo.com/220376863` (poster*)
The Birth of a Virtual Cell	P. Mindek, J. Sorger, T. Klein, D. Kouřil, D. Toloudis, G. R. Johnson, L. Ding, G. Johnson, and I. Viola	`https://vimeo.com/220376839` (video)
How Wind Affects Air Pollution in Beijing?	Z. Xu and H. Xu	`https://vimeo.com/220376872` (video)
The Rise and Fall of the Greater China's Economy	L. Yang and Z. Yu	`https://vimeo.com/220376817` (video)

Table 1: The eight accepted contest submissions presented at PacificVis 2017. *Note that while we label *Ferment and Counter Revolution* as a poster, it was submitted as a 25s video highlighting the most salient insights via short animations.

to include at least one programmatically-generated visual representation of data generated by the authors, though we did not require that these visual representations be novel.

A panel of judges reviewed the submissions along with the contest chairs; each submission received three reviews (by two judges and one contest chair). Considering the rise of storytelling with visualization in the practitioner community, we recruited six judges with diverse backgrounds, complementing the academic perspectives of the contest chairs:

- Jonathan Schwabish, a visualization and presentation consultant, educator, and host of the PolicyViz podcast.
- Lisa Charlotte Rost, a 2016 Knight-Mozilla OpenNews fellow and freelance visualization designer.
- Kennedy Elliott, a graphic journalist with *National Geographic*.
- Benjamin Wiederkehr, a partner and managing director at Interactive Things, a digital product design studio.
- Nathalie Miebach, a renowned data sculptor.
- Bill Andrews, a professor of medical illustration.

We asked the judges to justify their scores according to nine criteria, which included relevance, novelty, whether a narrative was clearly communicated, acknowledgement of data sources and tools, and the extent to which the story made use of data visualization.

3 ACCEPTED CONTEST SUBMISSIONS

We received 15 submissions, and accepted 10 submissions based on the reviews and a deliberation between the contest chairs; two submissions later withdrew due to the inability of their authors to attend the conference. The rejected submissions were dismissed for three main reasons: one submission merely demonstrated the features of a data analysis tool with no attempt at establishing a narrative; two submissions were previously published (on an online news site and at an academic workshop, respectively); and two submissions received low scores from all three judges.

Though this was the first instance of the contest, one with a short call for participation period and without monetary rewards for winner, the quality and breadth of the contest submissions surpassed our expectations. The eight accepted submissions (Table 1) varied in several ways, reflecting the diversity of how "storytelling with visualization" was interpreted by their authors. In Fig. 1, which displays frames from the accepted submissions, we show that their design choices varied in terms of visual representation, annotation, and in their use of photos and icons. Their medium of presentation ranged from posters (2), to videos (4) to interactive essays (2).

The videos and interactive essays both varied in terms of narrative structure (encompassing how the data and relevant insights are revealed), the interleaving of text and visual representation, the use of voice-over narration, and the use of animation. Furthermore, there was no overlap in their choices of topic, which is evident from their titles. Finally, the underlying data types represented in these stories also varied considerably, from 3D spatial data to quantitative time-series data to social network data.

Boy et al.'s *Rescue Signatures in the Mediterranean* received an honorable mention. This submission presented geospatial and temporal patterns of marine vessels in their effort to rescue migrants crossing the Mediterranean. Judges found this submission to be aesthetically stunning in its use of hand-drawn visual imagery and hand-traced trajectories which were initially generated using D3.js.

Kwon et al.'s *Bullies and Victims* was the winner of our inaugural contest. This interactive visual essay profiled a network of secondary school students and their relationships with regards to bullying behavior. This submission made an excellent use of animation, annotation, and staging to introduce a sequence of insights. The story also provided an option for the viewer to interact with the data themselves and consult the underlying source material.

4 FUTURE STORYTELLING CONTESTS

Following the success of the inaugural contest, we intend to hold a second iteration of the contest at next year's PacificVis conference. Through the presentation of this poster featuring the eight accepted contest submissions at IEEE VIS, we hope to attract and inspire prospective storytellers who might submit to future iterations of the contest, and to attract the interest of potential practitioner judges. Should the contest be similarly successful in 2018, we will propose to replicate the contest at the IEEE VIS conference in the near future. Successful conitnuation of this storytelling contest will help us the academic community further our understanding and discussion in what constitutes narrative visualization and storytelling with data in general, and to better demonstrate the value of visualization.

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