September 16\textsuperscript{th}, 2013  
Ford Fessenden, et.al.  
The New York Times  
620 Eighth Avenue  
New York, NY 10018

Dear Ford Fessenden, Tom Giratikanon, Josh Keller, Archie Tse, Tim Wallace, Derek Watkins, Jeremy White and Karen Yourish:

I am a Ph.D. student enrolled in Prof. Ben Shneiderman’s Information Visualization class. I am writing in regards to your recent project Reshaping New York (http://goo.gl/tCDeHh). From my perspective, it is indeed an enjoyable and immersive tour to explore the tremendous change in New York. Not only did you provide a vivid illustration that how buildings, bike lanes, painting over Broadway changed during the past 12 years of Bloomberg, but also you offer a comprehensive comparison between the photos of old city and the new one. The 3D transition on the map is incredibly impressive. If I were a New Yorker, after watching your visualization, I would be very proud of my city and be grateful for the mayor Mr. Bloomberg.

Being fond of this work, I would like to offer some suggestions based on the Eight Golden Rules from Prof. Shneiderman’s book Designing the User Interface. I sincerely hope both visualization and interaction of this project could be improved by taking the following factors into account:

1. **Strive for consistency.** Although the consistency of the 3D buildings and 3D transitions is good, I’m afraid that the interaction consistency should be improved.

![Reshaping New York](image-url) Fig.1 Scrolling down at the very beginning starts the tour immediately instead of scrolling the map.
(a) Consistency of scrolling: As is shown in Fig.1, scrolling down begins the tour at the very beginning, which is irreversible. The first time I saw the amazing introduction page with a 3D map, I couldn’t wait to scroll down, trying to view the other parts of the whole 3D map before clicking on the “Begin the tour” button. It is all right that the tour begins, but the user can’t go back to read the introduction text afterwards: the “Up” button does not work for the introduction page. Maybe it’s a bug since it does work for other slides.

![Fig.1](image)

**Fig.1** The introduction page with a 3D map.

(b) Consistency of cursor above the text: As is illustrated in Fig.2, the cursor should change to “I” whenever user’s mouse is hovering on the article, because the “Hand” cursor on the text area give false impression that readers can interact with the web page. Additionally, the user would like the cursor be “I” so that they can select text for searching.

![Fig.2](image)

**Fig.2** Cursor above the text is a “Hand”, which should change to “I”.

(b) Consistency of cursor above the text: As is illustrated in Fig.2, the cursor should change to “I” whenever user’s mouse is hovering on the article, because the “Hand” cursor on the text area give false impression that readers can interact with the web page. Additionally, the user would like the cursor be “I” so that they can select text for searching.

![Fig.3](image)

**Fig.3** The placement of Back and Next buttons are inconsistent: (a) Exist for iPad (b) Only up and down on Desktop.
(c) Cross-browser consistency: Frankly speaking, as is displayed in Fig.3, the user experience on iPad is much better than that on desktop. There’s a “Next” button on iPad, which disappears on Chrome in Mac OSX. Cross-browser consistency is important since more and more user view websites via cloud-based browsers on mobile devices. I have tested Internet Explorer 10, Chrome and Safari on Windows 7, Mac OSX and iOS6. Expect the “Back” and “Next” button, your code runs consistently on all of the above environments.

2. **Enable frequent users to use shortcuts.** I am satisfied with this point because the users can easily explore using Up and Down shortcut keys on desktop. But to make better the best, have you ever considered displaying a mini-map like Fig.4 on a corner of the screen? In this way, the user can choose a certain district of New York to observe the change made there. Additionally, different districts could be assigned with different numbers, so the frequent users could navigate by pressing numbers on keyboards.

![Fig.4](image)

**Fig.4** A mini map might be a great help to navigate between different areas.

3. **Offer informative feedback.** Unfortunately, we have no feedback on the 3D map: For one thing, there’s no feedback for dragging action. Dragging is recognized as clicking. But by dragging on Fig.2 for example, the user aims to explore more of the New York City to see new housing visualization on the map. On the contrary, the system show pictures of downtown. For another, there’s no feedback for clicking on a certain building. It would be better if the user can get some detailed information (comparison between its old and new photos for example) about a certain building when clicking.

4. **Design dialog to yield closure.** After each section (e.g. A Boom in Housing), we have 2 photos in each section for users to view. But initially, the user does not know whether there are more photos. After clicking on the second photo, the animation suddenly appeared without any hint dialog. Another possible solution is to make a progress bar to indicate users where we are.

5. **Offer simple error handling.** Based on my test on several devices, if the user accidentally pressed the “Backspace” or “Refresh” button, the tour would be restarted from the very beginning. So would you mind setting a piece of cookie file and a dialog, in case the user wishes to continue the tour from the last visited slide?
6. **Permit easy reversal of actions.** One point I have mentioned is that the scrolling function is irreversible. What’s more, the user cannot review the splendid 3D transition between the scenes when scrolling back. Though the contents are more important than the animation, there could be an option for those who would like to enjoy the 3D transition again when reviewing.

7. **Support internal locus of control.** The users are limited along the given tour path. As a programmer, I know it needs lots of code if we permit the user to wander in New York map randomly. But by providing functions like jumping to a certain area, the system would offer sense that the users themselves are in charge of the 3D New York tour!

8. **Reduce short-term memory load.** I firmly believe making following changes could reduce users’ short-term memory load: (a) Reduce the text and visualize the numbers, and (b) Present the older photo and newer photo simultaneously.

(a) Reduce the amount of the text and visualize the text. I suggest making some charts like Fig.5 instead. By the way, Mr. Bloomberg’s photo could be displayed to impress the audience.
Fig. 6 Too many text to read and remember for the users

(b) Comparison between photos: From my perspective, it would be much better if the two photos could be presented at the same time. Additionally, we could place 50% transparent overlays to label the key changes on the photos. In this way, the audience would remember what has been changed during the past 12 years very well.

Fig. 6 We can hardly compare the two photos simultaneously.

That’s all of my suggestions so far. Thanks again to all of you for the great efforts contributing to this excellent visualization project. It would be very kind of you if you could tell me the secret of your 3D transition animation and the 3D visualization of New York City. Which tools did you employ and how did you refine your ideas? Finally, I sincerely hope that my suggestions could be helpful not only in this project but also in your future visualization works!

Sincerely,

Ruofei Du
Ph.D. Student in Computer Science
Human-Computer Interaction Lab
University of Maryland, College Park