Dear Mr. Matt Ericson, Jeremy White, Andrew Martin, Andrew W. Lehren, and Archie Tse,

(the designers of Degrees of Debt)

First, thank you for all the fantastic visualization work done in New York Times. I have been a really big fan of New York Times visualization since I heard Ms. Amanda Cox’s amazing capstone talk at Visweek 2011. I’m writing this letter after taking a look at Degrees of Debt: Student Debt at Colleges and Universities Across the Nation, which is an interactive visualization on the average amount of debt that students have at graduation.

You gave a clean interactive visualization on the scatter plot along with the geographical map. The scatter plot is obviously a good design to represent multi-dimensional data by differentiating the size and the color of dots. As a result, it clearly visualized the correlation between “Annual cost of tuition and fees” and “Average graduate debt.” I especially liked the animation that happens between years and when switching between the type of visualization. Animation helped me keep track of the circles I’m focusing on and identify the patterns easily.

I noticed that if a single university is selected, it is highlighted with a black boundary and it is easy to see the changes through the years. It would have been better if a user can select several universities in interest as their “focus set” to see their movements through the years. There could be different ways to allow users to select more than one university such as “Ctrl + click” or a range selection with mouse dragging.

The filters on the left were useful to detect patterns. However, it would have been better if you used dynamic query sliders, as shown in Figure 1. By using graphical sliders instead of word-based selectors, users’ cognitive load can be reduced during the interactions. Furthermore, it will increase the interactivity and thus allow users to find more interesting patterns. Here, filters should operate as an AND operator.

I liked the details-on-demand while hovering the mouse around. It would have been better if it also visualizes sparklines, as shown in Figure 2. When a circle is clicked, a pop-up window appears and shows the details along with two histograms. In my opinion, instead of using two histograms, it would have been better if it is a single line chart that contains all the information, as shown in
The scatter plot also includes zoom-in and zoom-out interactions. It is essential since the data is massive and the circles overlap. It would be great if while zooming-in, the view can automatically visualize school names if there are few overlaps and enough space, as shown in Figure 3.

Other minor issues are

- Zoom-in interaction with double click
- More interaction with axis (allow users to select the axis)
- More interaction with circle size/color
- “Show your debt level” seems to be neither useful nor intuitive
- Handling missing data

Thank you and I would love to hear back from you!

Sincerely,

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Figure 3: Proposed scatter plot design with 1) Aggregated line chart and 2) Graph labeling when there are few node overlaps and enough space to visualize.