Immersive Analytics
Information Visualization proposal-CPSC547

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Introduction

To give a brief desction of what Immersive Analytics could do, we can point out that the new use of immersive technology could remove the boundaries between people, their data, and the tools that they use for data analysis.

Based on K. Marriot defenition of this field, Immersive Analytics is the use of engagin, embodied analysis tools to support data understanding and decision-making. Immersive analytics builds upon the fields of data visualization, visual analytics, virtual reality, computer graphics, and human-computer interaction. Immersive analytics not only provides an interactive platform to have a better understanding of the data for individuals, but also could play a significant role in making collaborative experiences and group decision-making.

Related Work

Some of the most successful and interesting examples of immersive analytics could be found in the following refrences at the end of this proposal, but to mention two of these articles, one is the collaborative immersive annalytics in drawing multi-modal graphs by HAL team and Maxime Cordeil, and the other is evaluating the trajectories in a city in Evaluating an Immersive space-time cube by Jorge A. Wagner Filho.

Discussion and Future Work

My genreal goals that will be illuminated in further details in the survey, is to be able to answer the questions of:

1. How immersive analytics could provide a more collaborative understanding of data?
2. What are the biggest advantages, disadvantages, or general points in immersive visualization?
3. How could Immersive visualization benefit stakeholders in the specific example of designing for a building?

In addition to all the things that have been done in this context, I want to follow the guidlines of my thesis and focus on how immersive analytics could enhance the understanding of Building Information Modeling data and the data visualization of building sensors data. I would also like to discuss how immersive analytics could increase collaboration in understanding the energy and equipmental concerns of a building for stakeholders.

Milestones

12 Nov. 2019 Comprehensive reading and start of draft
19 Nov. 2019 Finish the first draft of project presentation and report
10 Dec. 2019 Final project presentation
13 Dec 2019. Final papers report due

Refrences

[1]Immersive Analytics(J) Authors: Kim Marriott,Falk Schreiber,Tim Dwyer,Karsten Klein,Nathalie Henry Riche,Takayuki Itoh,Wolfgang Stuerzlinger,Bruce H. Thomas
[2] Designing for Mobile and Immersive Visual Analytics in the Field (J) Authors: Matt Whitlock, Keke Wu, Danielle Albers Szafir Video Preview
[3] The Impact of Immersion on Cluster Identification Tasks (J) Authors: Matthias Kraus, Niklas Kai Weiler, Daniela Oelke, Johannes Kehrer, Daniel Keim, Johannes Fuchs Video Preview
[4] There Is No Spoon: Evaluating Performance, Space Use, and Presence with Expert Domain Users in Immersive Analytics (J) Authors: Andrea Batch, Andrew Cunningham, Maxime Cordeil, Niklas Elmqvist, Tim Dwyer, Bruce H Thomas, Kim Marriott Video Preview
[5] Deadeye Visualization Revisited: Investigation of Preattentiveness and Applicability in Virtual Environments (J) Authors: Andrey Krekhov, Sebastian Cmentowski, Andre Waschk, Jens Krueger
[6]CG&A A Walk Among the Data: Exploration and Anthropomorphism in Immersive Unit Visualizations Authors: Alexander Ivanov, Kurtis Danyluk, Christian Jacob, Wesley Willett Video Preview