Visualization Research in China

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1. Visualization Research in China

In China, the earliest visualization research can be dated back to late 80's in 20th century. The major research themes at that time were mainly about scientific visualization, with special emphasis on volume visualization and medical visualization.

Around one decay ago, the visualization research in China start to booming, mainly driven by a few young visualization researchers' return back to China. Peking University, Hong Kong University of Science and Technologies, Zhejiang Unviersity, Tianjin University, Tsinghua University, National University of Defense Technology and many other major universities in China already established research groups dedicated on visualization and visual analytics research. It is estimated that there are over 100 active visualization research groups in China, from universities or research institutes.

After near 30 years, scientific visualization is still important theme in China. Many researchers worked on large scale flow visualization, ensemble visualization. As China now has the fastest top supercomputers in the world, demand on visualization from scientific computing side is very strong.

On the other hand, as more and more data are available, information visualization and visual analytics are key topics studies in many groups. Social media visualization, urban traffic visualization are the most focused topics emphasized by many researchers.

2. Visualization Conferences in China

China visualization community started its own national visualization conference since 2014. In July 2014, the first China Visualization and Visual Analytics Conference (www.chinavis.org) was held in Beijing. The conference lasted two days. Kwan-Liu Ma from UC Davis, Hans-Christian Hege from Zuse Institute Berlin, Han-Wei Shen and Huamin Qu were invited to give keynote speeches on big-data visualization techniques, molecule visualization, Large-Scale Distribution-Based Data Analysis and Visualization, and MOOC visualization respectively. In additional to the invited keynotes speakers, over 30 researchers from various research institutes and universities gave talks in that conference, covering topics from large scale scientific visualization, information visualization to various applications.

ChinaVis 2016 in Changsha

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Following the success of the first year, ChinaVis moved to Tianjin and Changsha in 2015 and 2016, with increasing attendances. In 2016, the total participants to ChinaVis reached over 580. In additional to the participants from academics, over 20 companies joined the conference and demonstrated their products in the exhibition session of the conference. Since 2015, ChinaVis setup the data visual analytics challenges. In the 2016, over 50 teams participated in the challenges. Next year, the conference will be held in Qingdao, from July 20 to 22, 2017.

In additional to the domestic conferences, there are also international visualization conferences frequently held in China and helping on boosting the visualization research development. Back to 2009, the second Pacific Visualization conference was hosted at Peking Unviersity in April. Although the conference size was relatively small and with only near approximately 30 international participants, it is the first formal international visualization conference in China. The event broadcasted the message of the immerging technologies and frontier visualization research to the audience in China. It generated fruitful results in following years. After that, PacificVis was held in a few other cities in China, including Hong Kong, Taipei, and Hangzhou.

In additional to regular conferences, Peking University hosts visualization summer school every year since 2009. Every year there are around 100 students from institutes over the country participated in the summer school. Summer school instructors are world class visualization scientists invited globally. Many early summer school students now already become independent researchers.

3. China Visualization and Visual Analytics Industry

In China, visualization research in industry was first started by a few big international companies. IBM, Nokia are earliest participants. Around 2012, Microsoft Research Asia started its own group on visualization.

In Recent years, many domestic companies began to construct their own visualization research labs. Baidu, Alibaba, Qihoo, those big companies started to recruit visualization staff member several years ago. More recently, inspired by the success of Tableau, there are many newly visualization start-up companies. Most of them are dedicated to develop visualization system and toolkits for business intelligence, smart cities, etc. Among them, Hiynn, Yonghong all have multiple million USD revenues.

4. Funding for Visualization

In China, one important research fund resource is National Natural Science Foundation of China. Evert year, around 10 to 20 projects dedicated to visualization are funded through NSFC. The trend is still growing as there are more and more new researchers join the community. One NSFC project typically covers 4 years for approximately 100,000 USD. There are also many research projects funded by Minster of Science and Technologies. Visualization plays important roles and takes large shares in many projects.

In additional to the government funding, many companies, especially Interest companies are very interested in investing visualization research. A few joint labs between universes and industrial partners are already established in the past a few years.

5. Conclusion

Overall, although visualization research has strong growth in China, the demand is still could not be meted in next a few years, we expect there are continues growing and development in visualization area in the next decays.

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Xiaoru Yuan is a faculty member at Peking University, in the Laboratory of Machine Perception (MOE). His primary research interests lie in the field of visualization and visual analytics, with emphasis on large data visualization, high dimensional data visualization, graph visualization and novel visualization user interface. He received a PhD in computer science at University of Minnesota at Twin Cities.