

Theme : Big Data & Network

Subject : Data Processing Algorithm for Large-Scale Data Visualization

Introduction

The goal of this research project is to explore new algorithms of data processing for large-scale data visualization that can increase capacity, velocity and flexibility with the current trend of data science.

We expect the novel algorithms can solve the issues in case of rendering a large quantity of data as follows: First, it should be able to solve the problem that the processing speed of device slows down and the data points over the limit do not show properly on the screen. Second, it should be able to process and display the real-time data without the time-lag or with the shortest delay time at least. Third, it should be able to show data points and visualization layout without any serious differences across devices.

Scope

Challenges that significantly advance the state-of-the-art data processing and visualization in data science include:

- Methods to overcome the current data processing and visualization performance.
- Verification of new algorithms on the basis of data science
- Methods to provide a novel algorithm to render large-scale data without declining speed, to process real-time data without time-lag and to display the same result without the limitation of devices or platforms.

Research questions

We are interested in the following research questions. These questions are not exhaustive but different research questions are open to discuss with research partners.

- What would be strong candidate algorithms for a effective visualization of large-scale data?
- What would be the most effective data processing algorithm to visualize large—scale data in terms of capacity, velocity and flexibility?
- Is it possible to realize theoretical capacity by exploiting the current data processing technologies?
- What would be the most promising method for large-scale data visualization?

Expected Deliverables

The following is open to discussion:

- Suggestion of new algorithms and methods
- Detailed progress reports every 3 months summarizing accomplishments.
- Prototype samples
- Patents with Samsung SDS (if agreed)