

CPSC 547

**Information visualization of various sensor
network**

Project proposal

Name: Kaiyuan Li

Email address: 492539220@qq.com

Introduction

With the development of various sensor network, various unstructured data has emerged in many platforms. Thus, different kinds of information visualization idioms have been applied to represent and visualize high-density data from different source. As a student in electric communication domain, I have some basic knowledge for sensor network. The intension of understanding state of art of information visualization in sensor network have been risen. The several papers from the domain of sensor network have been reviewed, the interesting for this topic has picked my attention.

In this survey project, I would like to explore the real-world application of information visualization in various domains such as healthcare, industry, monitoring and tracking. The different proposed frameworks and tools will also be mentioned such as WSE (sensor web enablement), java frameworks and NViz, netTopo as information visualization tools. Some suitable and common-used idioms will be introduced. The main three challenges in information visualization will also be mentioned in the survey project. There are isolation challenges, evaluation capabilities and integrity respectively, which will be illustrated in detailed. The requirement for DSL (domain specific language) has been put in high priority in development process. The enough literature reviews will be done. The summary of general patterns for information visualization in various sensor network and new framework and proposed tools for achieving efficiency and correctness would be the main content of this survey project.

The total amount of relative papers and books which have been collected are 26. (the amount of literatures will change depending on the reading and depth of search) They can be sorted into two main section: first, the information visualization in real-world applications, then proposed frameworks and tools in information visualization.

All in all, this survey paper aims at making contributions on information visualization in various sensor network. The literature review of relative papers will be done. Summarizing and analyzing idioms which use in real-world applications and commends on current framework and tools in visualization field are main content of this survey paper. Some relative knowledge and real-world applications will also be surveyed.

Milestone

- Literature reviews for real-world application (16 papers) and summary of most valuable contribution and various patterns for visualizing information
 - a. Challenges in information visualization, applications in robot sensor, tracking and health Monitoring papers before 11/11
 - b. Living service and traffic estimation, topics in WSN, topics in big data before 14/11
- Literature review for proposed framework and tools in information visualization fields (7 papers) and comments on each framework and tool which has been proposed
 - a. NIV, a vis-tools for WSN, Java framework, SWE framework before 17/11/
 - b. Dynamic annotation, new approaching and NETtopo, vis-tool before 20/11
- Collect and summary the reading review, start on the final paper.

Previous work

Based on the papers I collected and scanned, the topic of “sensor network and information visualization” has not been paid much attention. Even in some papers which talk about sensor network, it leaves the blank in how to achieve visualization. Preview works which are relative with “sensor network and information visualization” are more focused on the security and new technologies, the information visualization has rarely mentioned. However, some surveys in information visualization bring the data from the sensor network on the stage, such as “graph visualization and navigation in information: a survey”. Some idioms in the section are suitable for representing the data in sensor network.