

# Ranking Uncertain Data in Distributed Environments.

## Problem description

Collecting data from energy sensitive networks has been a challenging problem. Previous research have showed that the data transmission power constitutes most of the power consumed by network nodes. This paper is trying to design an effective protocol to rank uncertain data in energy sensitive distributed environment with the goal to reduce of volume of data that is transmitted over the network nodes.

## Contributions

After detailed analysis of queries, this paper identified two key factors, global knowledge and decomposable computation, for efficient in-network query processing. By utilizing these two factors, three algorithms, global knowledge based (GKB), Partial Knowledge Based (PKB) and hybrid for rank query processing are proposed over the tree network topology environment. Global knowledge can be aggregated by in-network computing, and partial knowledge is used to prune obsolete objects, and hybrid method combines these two which thus can have a better performance.

## Defects of this paper

In this paper, extensive explanation about the proposed methods/protocols are given. But the experiment methods and configurations are not very properly explained. Also, this paper does not consider the distribution of data which might also be a possible factor for protocol performance. And also the topology should also be specific as far as the results are concerned.

There are several typos in this paper. For example,  $r_7 = 7$  of the *PW* example, as there is no value 7 in the previous table. Another typo is the formula  $\sum_{j=1}^{t_i} p_{i,j} = 1$ , it is not clear what  $t_i$  means here, should it be  $|r_i|$ , which is the number of records.

Also, several notations are missed in table one(Notations and Descriptions):  $t_i$  which appears several times in paper's algorithm description part "let  $V_i \leftarrow t_i$ ."

## Final Rating

Based on the major contributions and other technique factors, I give this paper of score of 4 over 5.