Parallelization of Graph Search

2014.07.29

SeongJung Kang

Programming System Laboratory, School of Information & Mechatronics
Electronical Engineering & Computer Science Concentration
Gwangju Institute of Science & Technology (GIST)
ggandolsj@gist.ac.kr
Main issue of the research

- Based on graph searching
- Faster search?
  - Parallelization
  - Chose Breadth-First Search (BFS), not Depth-First Search (DFS)
  - Use multithreading for faster BFS

Breadth-First Search
Specific objectives

- Basic BFS
- Implementation of multithread BFS
- Analysis of input graph data
  - Ratio between number of nodes and edges
  - Depth of searching
  - Is the graph separated?
- Miscellaneous optimization
Expected effect

- Faster searching (sure!)
- More efficient garbage collection
  - Search object graph to find out which object is unreachable
- Find out the efficient preset for individual input
Thank you!