Abstract

Dynamically changing graphs are used in many applications of graph algorithms. The scope of these graphs are in graphics, communication networks and in VLSI designs where graphs are subjected to change, such as addition and deletion of edges and vertices. There is a rich body of the algorithms and data structures used for dynamic graphs. The paper overview the techniques and data structures used in various dynamic algorithms. The effort is tried to find out the comparison in these techniques namely the hierarchical decomposition of graphs and highlighting the ingenuity used in designing these algorithms.

References

- Monika R. Henzinger and Valerie King. Randomized fully dynamic graph algorithms with
polylogarithmic time per operation. J. ACM 46(4) (1999), 502–516.
  connectivity. SIA J. Comput. 21, 1047–1069.
  503–538.
- Stephen Alstrup, Jacob Holm, Kristian de Lichtenberg, and Mikkel Thorup. Maintaining
  information in fully dynamic trees with top trees, ACM Transactions on Algorithms (TALG)
  I, pp. 27-64, 2007
- Reena Mishra, Shashwat Shukla, Dr. Deepak Arora and Mohit Kumar. Article: An
  Effective Comparison of Graph Clustering Algorithms via Random Graphs. International Journal
  Science.
- G. W. Flake, R. E. Tarjan, and K. Tsioutsouiliolds. Graph clustering and minimum cut
- Jacob Holm, Kristian de Lichtenberg, Mikkel Thorup: Poly-logarithmic deterministic
  fullydynamic algorithms for connectivity, minimum spanning tree, 2-edge, and biconnectivity. J.
- Mihai Patrascu, Erik D. Demaine: Lower bounds for dynamic connectivity. STOC 2004:
  546-553.
- G. N. Frederickson. A data structure for dynamically maintaining rooted trees. Journal Of
- U. A. Acar, G. E. Blelloch, and J. L. Vittes. An experimental analysis of change

Index Terms

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Keywords
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