



Faculty of Computer Science  
2004-2005 Seminar Series

# Shortest-Path Algorithms for Massive Graphs

By

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*3:30pm - ITC317*

*\*\*Refreshments will be served at 3:20pm*

Shortest-path problems arise in a number of large-scale applications such as geographic information systems and web modelling. While shortest-path problems are well-studied in standard models of computation, they pose serious challenges if the graphs considered are too big to fit into main memory. When dealing with such massive data, it is important to optimize disk accesses rather than computation steps. In particular, locality of access is crucial, which is hard to achieve in graph algorithms in general and in shortest-path computations in particular. This talk gives an overview of the state of the art of algorithms for shortest-path type problems in massive graphs, discussing I/O-efficient and cache-oblivious algorithms for planar graphs and general undirected graphs. At the end of the talk, current challenges are discussed.

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**STUDENTS ARE ENCOURAGED TO ATTEND**  
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